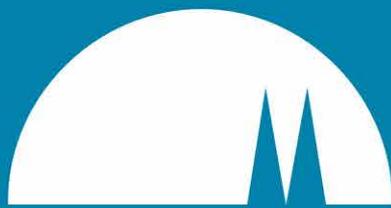


K
G
A
95

KÖLNER
GEOGRAPHISCHE
ARBEITEN

Heft 95

Frauke Kraas, Dietrich Soyez, Carsten Butsch,
Franziska Krachten, Holger Kretschmer (eds)



IGC

COLOGNE 2012

DOWN TO EARTH

Documenting the 32nd International Geographical
Congress in Cologne 26 – 30 August 2012



Deutsche Gesellschaft
für Geographie DGfG



GEOGRAPHISCHES INSTITUT DER UNIVERSITÄT ZU KÖLN
2015

KÖLNER GEOGRAPHISCHE ARBEITEN

Herausgegeben vom

GEOGRAPHISCHEN INSTITUT DER UNIVERSITÄT ZU KÖLN

durch

G. BARETH B. BRAUN H. BRÜCKNER E. BRUNOTTE O. BUBENZER

F. KRAAS T. MANSFELDT J. NIPPER U. RADTKE K. SCHNEIDER

G. SCHWEIZER D. SOYEZ D. J. WERNER

Schriftleitung: D. WIKTORIN

Heft 95

Frauke Kraas, Dietrich Soyez, Carsten Butsch,
Franziska Krachten, Holger Kretschmer (eds)

IGC Cologne 2012. Down to Earth

Documenting the 32nd International Geographical
Congress in Cologne 26-30 August 2012

GEOGRAPHISCHES INSTITUT DER UNIVERSITÄT ZU KÖLN

2015

Herausgeber: Frauke Kraas, Dietrich Soye, Carsten Butsch, Franziska Krachten, Holger Kretschmer (eds): IGC Cologne 2012. Down to Earth. Documenting the 32nd International Geographical Congress in Cologne 26-30 August 2012

Köln: Selbstverlag Geographisches Institut der Universität zu Köln, 2015.
(Kölner Geographische Arbeiten, Heft 95)

© by Selbstverlag:
Geographisches Institut der Universität zu Köln
- Kölner Geographische Arbeiten -
Albertus-Magnus-Platz, D - 50923 K ö l n
Telefax 0221 - 470 4917

Alle Rechte vorbehalten

ISSN 0454-1294

Layout: Regine Spohner, Stefanie Naumann
Photographs by: Michael Wodak, Andreas Wittke, Andreas Janotta, Fabian Sonnenburg, Dietrich Soye, Carsten Butsch, Frauke Kraas
Druck: Druckerei Martin Roesberg, Alfter-Impekoven



IGC

COLOGNE 2012

DOWN TO EARTH



PART 1

- 1.1 The Way to Cologne 2012: Ideas and Concepts** 4
Frauke Kraas, Dietrich Soyez

OPENING ADDRESSES

- 1.2** Prof. Dr. Anne Glover CBE 10
Angela Spizig 12
Prof. Dr. Axel Freimuth 14
Prof. Dr. Ron Abler 15
Prof. Dr. Hans-Rudolf Bork 18
Her Royal Highness Maha Chakri Sirindhorn 20
- iGeo Closing Remarks and Opening Address** 22
Sylvia Löhrmann, Minister for School and Further Education

INAUGURAL LECTURE

- 1.3 Down to Earth - Geography in the Anthropocene** 26
Eckart Ehlers

KEYNOTE LECTURES

- 1.4 On the way to the Anthropocene. Consequences of scientific research, societal understanding and political responsibility** 36
Klaus Töpfer
- Diverse Perspectives on Society and Environment** 41
Anne Buttner
- Demographic Change and Urbanisation within the Boundaries of a Fragile Planet** 53
Martin Lees
- Emerging Global Urban Order and Challenges to Harmonious Urban Development** 64
Surinder Aggarwal
- Global Planetary Change and Human Globalisation** 80
Eduardo de Mulder
- Global Change and Globalisation - Challenges for Geography** 85
Bruno Messerli
- Disaster Risk and Crises: Challenges for Food and Nutrition Security** 95
Stephan Baas
- Deadly Embrace - War, Distance and Intimacy** 104
Derek Gregory

PART 2

REPORTS

2.0	Report Local Organising Committee of the IGC 2012	117
2.1	From the Idea via the Bid to the Final Conception Holger Kretschmer	120
2.2	IGC 2012: Facts and Figures Carsten Butsch	136
2.3	The Social Activities Programme in Detail Franziska Krachten, Holger Kretschmer	162
2.4	Geography and School at IGC 2012: iGeo 2012, the Geography and School Symposium, and the School Outreach Programme Dorothea Wiktorin	168
2.5	Evaluation of the IGC 2012 - Participants' View Carsten Butsch	184
2.6	IGC 2012 - Organisers' View Dietrich Soyez	194
2.7	Financial Report Wolfgang Schmiedecken	202
2.8	Acknowledgement Local Organising Committee of the IGC 2012	208

PART 3

APPENDIX

3.0	IGC Today - Daily News	
	IGC Today 27.08.2012	220
	IGC Today 28.08.2012	222
	IGC Today 29.08.2012	224
	IGC Today 30.08.2012	226

The logo features a large circle divided horizontally. The top half is white and contains two magenta triangular peaks. The bottom half is magenta and contains the text 'IGC' in green, 'COLOGNE 2012' in white, and 'DOWN TO EARTH' in white below it.

IGC

COLOGNE 2012
DOWN TO EARTH

1

A horizontal magenta bar is positioned below the large number '1'.

- 1.1 The Way to Cologne 2012: Ideas and Concepts
- 1.2 Opening Addresses
- 1.3 Inaugural Lecture
- 1.4 Keynote Lectures

The logo features a large magenta circle. The top half of the circle is white, and the bottom half is magenta. Two magenta triangles point upwards from the top edge of the circle. The text 'IGC' is in green, 'COLOGNE 2012' is in white, and 'DOWN TO EARTH' is in white, all positioned within the magenta area of the circle.

IGC

COLOGNE 2012
DOWN TO EARTH

1.1

**The Way to Cologne 2012:
Ideas and Concepts**

THE WAY TO COLOGNE 2012: IDEAS AND CONCEPTS

Frauke Kraas, Dietrich Soye
Local Organising Committee IGC Cologne 2012



It is with great pleasure and satisfaction, along with deeply felt thanks, that the Local Organising Committee of the 32nd International Geographical Congress/IGC 2012 in Cologne hereby presents its closing report. We hope that this will achieve more than simply completing the formal conclusion of perhaps the most important event for German geography in recent times. As indicated by the numerous queries in the months since the congress, specific expectations of this closing report have arisen from many places and institutions both within Germany and abroad. Alongside an informative evaluation and assessment of this significant event, particularly regarding organisational considerations and requirements as well as phases, activities and quantitative basic data, advice has also been requested that could be helpful for such events in the future. This relates not only to positive experiences, but also to aspects of the event that were problematic or difficult, from the perspectives of both the participants and the organisers (all of the topics mentioned briefly in the following sections are subsequently presented in more detail in specific chapters).

Let us take a brief look back at the event: At the end of August 2012, we were privileged to welcome over 3,000 guests from all over the world to the University of Cologne. Under the motto *Down to Earth*, our discipline was able to present a representative showcase of topics, issues and solutions that illustrated geography's contribution to many urgent problems affecting humankind. The congress provided without doubt an excellent forum for a focused exchange of ideas within our global scientific community. What is more: It became a memorable festival of and for geography, not only during the actual congress meetings (including the Commission and Task Force business meetings) but also through a host of other activities outside the lecture halls and during social events, for example the official congress dinner in a

typical Cologne brewery restaurant or the receptions organised by several hosts, to name but a few such cases. A particularly festive start was offered to those who were able to participate in the opening ceremony in the Kölner Philharmonie (the Cologne Philharmonic); a very impressive experience with inspiring musical highlights performed by the school orchestras and choirs (including a number of teachers) of St. Ursula-Gymnasium (high school) in Brühl. Also among our vivid memories are many of the official welcoming speeches. Her Royal Highness, Princess Maha Chakri Sirindhorn, สมเด็จพระเทพรัตนราชสุดา เจ้าฟ้ามหาจักรีสิรินธร รัฐสีมาคุณากรปิยชาติ สยามบรมราชกุมารี, from Thailand, underlined the importance of geography for worldwide sustainable regional development and responsible knowledge generation for human and nature interaction. Some of the speeches gave excellent impulses for geography, not least that in the name of the patron of our congress, the President of the European Parliament, Martin Schulz, delivered by Professor Anne Glover, Chief Scientific Adviser to the President of the European Commission. Furthermore, the Opening Ceremony allowed particularly rewarding insights into a highly important event that took place the week before the congress proper, namely iGeo, the Geography Olympiad. No less than 32 countries, more than ever before, had sent their teams, with a total of 125 high school students competing with each other for several days, tackling a variety of geographical issues both in the field and in the classroom. During the Opening Ceremony, all iGeo participants, representing our discipline's promising next generation, were present, while the winners in the three medal categories received their awards from the Education Minister of the Federal State of North Rhine-Westphalia, Sylvia Löhrmann.

We wanted to convey three leading messages with the motto of our congress, "Down to Earth". First,

we wanted to focus on key challenges of humankind – as we did with our four key topics. Second, rather than convening in a shiny convention centre – we brought the congress back to the university, back to the roots of our academic life and responsibility, and third, we wanted to allow equal chances of access for the whole scientific community – from the young scholars to those from the developing and emerging economies.

All in all, we were pleased with the outcome of our joint efforts. Most of the congress ran smoothly and the feedback from the participants was very positive. In particular, our decision to adapt the traditional IGC format to new topical challenges, thus opening up to geographic communities that had not previously belonged to our traditional clientele, was highly appreciated. This was in line with our “philosophy” and guiding principles for our International Geographical Congress in Cologne. We wanted to achieve back-to-basic and no-frills approaches in a traditional university setting, namely a cost-efficient, academic, young talent-oriented, co-operative, boundary-spanning, trans-disciplinary and visionary congress. It was our vision from the first idea onwards, 12 years ago, to enrich the congress with three “spices”: (1) Transcending boundaries: We were very glad that geographers from 84 nations and numerous colleagues from neighbouring disciplines joined. (2) Inclusion: An integrative congress for all age groups as well as for schools: We were glad to welcome 32 national teams of the 9th International Geography Olympiad and their team leaders. And during the congress, geography in schools had a prominent place in our school symposium. (3) Innovation: We introduced as new elements the four key topics with more than 35 parallel sessions, the Young Researcher’s Forum, new poster sessions, the school symposium ... just to mention a few.

This is all the more gratifying considering that the IGC 2012 was the product of a preparation period of almost 12 years, during which many geographers contributed their ideas from the crucial moment on in late 2000, when Frauke Kraas and Ulrich Radtke over lunch in the Cologne Mensa (canteen) discussed the possibility to organise a national geographical conference in Cologne – when suddenly the idea came up: “Why not try an International Geographical Congress”? Dietrich Soyey joined us immediately, and thereby all of us enthusiastically adopted

Eckart Ehlers’ idea of applying to host an International Geographical Congress. A real “marathon”, however, began with the work on a concept for our formal bid at the IGC Glasgow 2004 to host the IGC 2012, competing, as many of you remember, with Santiago de Chile and Beijing. Especially during the last two years prior to the Glasgow congress, the organisation increasingly occupied not only the initiators, Frauke Kraas, Dietrich Soyey and Christian Schulz, but many members of the Department of Geography in Cologne as well. On the “home stretch,” beginning in early August 2012, the entire department was involved in the final preparations. We are certain, however, that there will be no objections if we particularly recognise at this point the work of four “masterminds”. With their creativity and competence, Carsten Butsch and Holger Kretschmer had a major influence on the overall structure of the IGC and many of its individual elements and operating sequences, as did Dorothee Wiktorin on the iGeo (Geographical Olympiad) and the school program, and finally Wolfgang Schmiedecken, who did an outstanding job of managing not only all the finances.

It was not only the staff and students of the Department of Geography in Cologne who organised the congress, however. As major event of national importance to both the scientific and the educational community in Germany, broad support was given not only by the geographical communities in universities, schools and the applied sectors, but also by other geography related institutions, organisations and associations. Many geographers from German-speaking countries (and several from abroad) were involved both during the preparation of the bid and in the conception of the IGC program, including students, the spokespersons of the working groups of the DGfG (the German Society of Geography, i.e., our discipline’s umbrella organisation, and also a co-organiser of the congress), the executive committees of its member organisations and other interested colleagues.

According to our basic conceptual principles, the scientific program was designed both to address state-of-the-art research and point the way to future tasks and challenges by a more balanced participation of physical and human geography, by appropriately including of theory-led, basic research as well as problem-solving and applied aspects, by bridging

gaps between university and school and by trying to bringing back commissions to the main congress. Whereas the congresses had previously consisted predominantly of one single organisational pillar, i.e., the IGU Commissions and Task Forces, new program elements were incorporated into the congress this time. During the course of two dedicated workshops in 2009 and 2010, more than 100 representatives of the (predominantly) German geographic communities developed the four key topics of the congress, representing the IGC's second pillar: "Global Change & Globalisation," "Risks & Conflicts," "Society & Environment," "Urbanisation & Demographic Change". These topics constituted a major and highly visible new element of the congress. Thus, the congress "backbone" was formed by central plenary sessions – intended to attract all participants and media interest – and eight keynote themes. In these, invited speakers elaborated on important and visionary research and topics. Furthermore, as new innovative elements, we created a young scientist's forum during this participatory process, which ultimately gave the IGC a new, younger face.

Scientists from various countries were specifically invited to join an unprecedented advisory committee so that it would be representative of the global geographical community, taking not only into account the specific "European" but, moreover, international/global character of this IGC. The International Scientific Committee was responsible for evaluating the suggestions submitted for the sessions on the four themes. This highly competitive selection process was concluded at a joint meeting in Cologne in May 2011. At that meeting, a list of potential keynote speakers for the IGC 2012 was also drawn up. The idea arose there to invite not only an internationally acclaimed geographer to speak on each of the themes, but also a prominent public figure involved in fields which are of geographic interest.

In retrospect, these modifications to the structure of the IGC were a success. The newly introduced four key topics opened up the congress to people who had not previously participated in one of the IGU Commissions and Task Forces, and the large number of suggestions for sessions and papers that could not be accepted due to space and time constraints showed how much interest these themes generated. With considerably more than 1,000 listeners each, the four keynote sessions were very

well attended and the eight speakers delivered inspiring talks. For an international congress, the proportion of young participants was quite high. This we attribute to a further new programme element, the Young Researchers' Forum, along with the relatively low congress fees. Additionally, young scientists were given the opportunity in eight earlier workshops to develop their skills, and the geography students' association held a poster competition and social events for young scientists, supported by a relaxing atmosphere for discussion with drinks and snacks. Tentative use of social media also may have helped to strengthen existing networks and establish new ones. In our opinion, the strongly increased visibility of the poster presentations was a particular success. All poster sessions were scheduled without parallel sessions and, probably not least because of the prizes offered, presenting a poster developed into a genuine alternative to presenting a paper and an event that was closed in a celebrating mood during the final happy hour reception.

In addition to the academic quality, the festive atmosphere during the IGC 2012 made a particularly positive impression on the congress participants. This pleasant mood prevailed mainly thanks to the efforts of the student volunteers – soon referred to as the "blue cloud" because of their blue t-shirts. 195 geography students took on countless small and large responsibilities. They played an important role in bringing the IGC 2012 "marathon" to a spirited finish. Further aspects that gave additional space for pleasant discussions during the five days included the short waiting periods at registration (made possible because more than half of the registrations were completed by Sunday evening), the food and drinks provided and additional services such as a day-care facility for children.

Expressed in absolute visitor numbers, the IGC 2012 achieved a historic all-time high, with 3,007 registered visitors from 84 countries. It was the largest IGU Congress so far (for details see the chapter dedicated to congress statistics). These figures far surpassed our original expectations. The plans, including the envisaged amount of space required, were originally based on an estimate of around 2,000 participants. Because so many people were interested in IGC 2012, registration had to be closed early on 15 July, and it was no longer possible to register at the congress itself. This limitation, due

to security regulations, unfortunately meant that last-minute participation in the congress was not possible. Nevertheless, the registration procedure proved on the whole effective. One important concern was to reduce the number of “no-shows,” a big problem especially at the last IGC. Because the procedure enabled unregistered participants to be replaced systematically at an early stage by people from the waiting list, two-thirds of all sessions took place without a paper being cancelled.

Bringing the congress back to a university setting was not without risks, but eventually contributed to Cologne IGC’s particular flavour. Ongoing construction work caused some inconveniences, but most participants accepted this with both humour and a grain of irony, stating that this was just like being in a ... university.

For us in Cologne, a fascinating period of time has ended and we look back with gratitude on a successful congress. At this point, we would like to underline again the efforts of the members of the Department of Geography and of our volunteers. With their commitment and enthusiasm, they made the congress an unforgettable event. Our gratitude also goes to the geographers in the member organisations of the German Geographical Society (DGfG) which provided support, including financial contributions, and whose members were involved in the preparation

and organisation in many ways. We thank all colleagues from Germany and abroad for their enthusiastic support of ideas and their commitment during the conceptual phase and the scientific board meetings before the congress. Since 2004, we have also received a great deal of encouragement and valuable support from the Executive Committee of the IGU. We would like to thank the University of Cologne and the Deutsche Forschungsgemeinschaft (German Research Foundation) for their generous financial support; we are also grateful to the sponsors mentioned on our website. We would also like to point out that the eight keynote lectures and short films can still be accessed on our YouTube-channel (<https://www.youtube.com/user/IGCCologne2012>).

During the opening ceremony we started with: “Welcome to the 32nd International Geographical Congress, welcome to Cologne, welcome to Germany!” Happy and grateful to have completed our “marathon,” we hope that it will not be another 113 years before another IGC is held at a German university, and we now look forward very much to meeting many of our guests again at IGC 2016 Beijing.

For the Local Organising Committee IGC Cologne 2012:

Frauke Kraas and Dietrich Soyez

The logo features a large magenta circle. The top half of the circle is white, and the bottom half is magenta. Two magenta triangles point upwards from the top edge of the circle. The text 'IGC' is in green, 'COLOGNE 2012' is in white, and 'DOWN TO EARTH' is in white, all positioned within the magenta area of the circle.

IGC

COLOGNE 2012
DOWN TO EARTH

1.2



Opening Addresses

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Prof. Dr. Anne Glover CBE
Chief Scientific Adviser to the President, European Commission



Your Royal Highness, President, Ladies and Gentlemen, let me start with a confession: I am not a geographer. I am a microbiologist – but you wouldn't have geography without microbiology. But I did study geography at school - there's nothing I couldn't tell you about oxbow lakes and meandering rivers (physical geography was my thing). I also know how important geographers are and that's why I hired one for my office, Dr. Jan Marco Müller.

I am very honoured to have the possibility to address a few words to you on this special occasion. In particular, it is my great pleasure to convey to you the greetings of the President of the European Parliament Martin Schulz who has kindly accepted the patronage of the International Geographical Congress in Cologne. Unfortunately, he is not able to be with us in person – as you know, European politicians have a rather hectic agenda at the moment – but he asked me to stress on his behalf the great importance the European Parliament attaches to this event.

Likewise, in my role as Chief Scientific Adviser to President Barroso, I would like to welcome you also on behalf of the European Commission. I feel delighted that eight years after the International Geographical Congress in Glasgow 2004 in my home country Scotland, Europe has once more been entrusted to stage this prestigious event. On behalf of the European Institutions I would like to thank the International Geographical Union led by Professor Abler for the decision to bring the Congress here and the Organising Committee led by Professor Soye and Professor Kraas for its outstanding work in what promises to become a celebration of geography.

Europe is proud to provide geography a home. In fact, Cologne is a perfect stage for this Congress, and this not only because Mercator lived most of his life just 50 km from here. With its 2000 years of his-

tory, Cologne has seen Roman civilisation through the middle ages and enlightenment. And finally, the marvel of European integration with Konrad Adenauer, former mayor of this city, being one of the founding fathers of the European Union.

When preparing for my speech, it struck me that the International Geographical Congress was hosted for the last time in Germany in 1899. Remember, in these times world maps still had a lot of white patches. In 1899, at the wake of the 20th Century, this planet had one and a half billion inhabitants, most ecosystems were still pristine, and transport and communication took ages.

The world has changed a lot. Nowadays global climatic and demographic change poses unprecedented challenges to humankind. Most of the planet's surface has been transformed by our species and we face an ever growing competition for ever more scarce natural resources. In Europe, we currently need 3 planets to support our life style, North America needs 5 planets.

The fact that Europe, as many other parts of the World, is currently going through a deep economic and financial crisis adds to the grim panorama. The challenges faced by our society are becoming more and more complex and interdependent.

Take biofuels, for instance. They have impacts on agriculture, food security, land use, soil, water, energy, transport, trade, emissions and climate change. Everything is interconnected, reducing the resilience of the entire system. The United States is currently suffering the worst drought in decades and this has a worldwide impact on food prices – in a market that is already under stress because we put tank and plate in competition with each other.

I do not at all envy politicians who have to take decisions in such an environment. For that reason it is so important that science provides the best possible evidence base for a sound policy-making.

Geography has a unique opportunity here, as it has the ability to break silos, to bring together different disciplines from both the natural and social sciences and add the spatial dimension to these, making them relevant for the individual citizen. Or in other terms: bringing them “down to Earth”, as spelt out by the well chosen motto of this Congress.

This unique opportunity for geography comes at a cost: it also places an enormous responsibility on geographers. If you as holistic thinkers are not able to disentangle the maze, who else can? Geography can – and must – provide a vital contribution to solving global, regional and local challenges. I am confident that geographers will stand up to this and, thanks to their capabilities, will be able to deliver first class advice for better policies.

However, for this to happen you have to make yourselves heard! It’s not enough to publish in peer-reviewed journals or to listen to nice talks at conferences, including the one we are just opening.

So I want to challenge you: Where is the voice of geography in current societal debate? Where is the voice of geography in political discussions? Where is the voice of geography in the media? **I want geography to stand up and shout!**

And don’t think that scientific advice is something for men in grey suits. I want to encourage female researchers to play their part. I know that geography is a discipline that attracts many young women. But we lose so many of them as career progresses, just because the framework conditions are not right. I firmly believe that today’s challenges are so pressing that we simply cannot afford to lose the intellectual capacity of female researchers. Also geography has some homework to do here.

Likewise, we need the imaginative force of young researchers who just don’t accept that something has to be done like this because it always has been done like this. So my call goes to the young people here in the audience: We want to hear your voice! Go and challenge the well established researchers with

your innovative ideas! Push the frontiers of science! Enrich the debate with your contributions! Come up with better solutions for our planet!

It’s for this reason that I fully support the plea of the President of the European Parliament Martin Schulz to push for a stronger link between schools and academia. We need to teach more geography in schools! Apart from being a fascinating subject thrilling many children, geography contributes to developing a global conscience. This is key to changing individual behaviour and thus part of the answer to the global challenges which I outlined earlier on.

Last but not least, we shouldn’t forget that geography provides fantastic business opportunities. Geo-information has permeated into all aspects of our economy, but also of government. So studying geography is not just a matter of idealism and fun – actually, you can make money with it. Therefore, geography has also a role to play in paving the way towards smart, sustainable and inclusive growth. This brings me back to Europe and why we are here.

So once again, also on behalf of the President of the European Parliament as patron of this Congress: Welcome to Europe! I wish you all exciting days in Cologne.

Refresh your minds with stimulating debate.

Shout about it - and then go and change the world!

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Angela Spizig
Mayoress



Königliche Hoheit, meine Damen, meine Herren, Ladies and Gentlemen, Mesdames et Messieurs,

I am very pleased and delighted to welcome you all here in Cologne, also on behalf of Mayor Roters on the occasion of the 32nd International Geographical Congress. I am also delighted to be standing here, because most of the time I am where you are sitting now, listening to concerts. In this concert hall, in this Philharmonic Hall, which I still find very beautiful after 25 years of its construction. And since you are geographers - I always think of the sun and the stars when I look up. Thanks also to this wonderful fresh young orchestra introducing the ceremony with the Rhine Symphony by Schumann.

Un mot en français pour les participants francophones. Comme Cologne est une ville avec des racines romaines et des relations très fortes avec la France, je suis heureuse de vous accueillir dans notre ville aussi au nom de notre maire Monsieur Roters à l'occasion du 32. Congrès International de la Géographie. Et j'espère qu'après vos journées ici vous aurez la valise pleine des bonnes mémoires et des bons souvenirs de votre rencontre internationale et de notre ville de Cologne. Et quand vous prenez le Thalys juste à côté ici à la gare vous verrez qu'il y a seulement trois heures et quart entre Paris et Cologne. Cela vaut vraiment le détour.

This is the second time after 113 years that the conference is taking place in Germany. The very first International Geographical Congress took place in Berlin in 1899. We here in Cologne feel proud and honored that this congress is being held in our city and that we can welcome such a large number of participants from 80, I repeat 80, different countries. I know that some of you have travelled very far to come here and I just hope that you find your journey to Cologne rewarding in every way. Cologne is one of

the most important scientific and university locations in Germany. Not only because science and research go back such a long way in Cologne. The University of Cologne was founded in the 14th century and is among the oldest and today also among the largest academic institutions in Germany. Only a few weeks ago, and allow me to mention this very proudly, only a few weeks ago, the University of Cologne was rewarded the status of a University of Excellence. This is a great success for the university, for the city, and that's why I am proud - and for the region. Magnifizenz, Professor Freimuth, the head of the University, who proudly signed the Golden Book in City Hall for this achievement last week, will probably tell you more about this. The Institute of Geography, which has organized this congress, is part of this excellent university. It enjoys a great and outstanding reputation throughout Germany and is second in the ranking of the Deutsche Forschungsgemeinschaft, the most important German Research Foundation. This shows how incredibly active and successful the Cologne geographers are. It also highlights the unique quality and profile of the Department of Geography. And I think I can say that this profile is based on the outstanding work and commitment of the Professors, the lecturers and the staff and the work ethic, the passion and the spirit which are obviously passed on to the students and to the young researchers.

I was pleased to read that with your congress you address the burning questions for which the world community must find answers, the sooner the better. And of course we can only deal with these challenges more successfully if we look for solutions together. You'll be talking about the demographic development, you'll be talking about disaster management and I am quite glad that the City of Cologne is also able to contribute something there, especially in the area of flood prevention.

You, the participants, you can choose from an incredible number of 450 individual sessions listed in the program. I know that the organization of such an event takes a huge amount of time, hard work and devotion. And I wish once more to thank all those involved in the preparation of the congress and of course Professor Kraas and Professor Soyez, thanks again!

I hope that you, our guests will enjoy your stay in Cologne and take back souvenirs. We, the people of Cologne like to see ourselves in the heart of Europe. You as geographers know better, the heart of Europe is constantly moving east, and right now geographically speaking I think Vilnius, the capital of Lithuania, should be in the centre. Maybe there is somebody from Vilnius here today.

But Cologne is definitely a city with a big European heart. It was founded by the Romans 2000 years ago, as you walk outside, you'll walk on the pavement which is 2000 years old, you will find traces and ruins. I was very pleased to see Her Royal Highness spending an enormous amount of time in those ruins and in those old layers of our city today. We have been a city of immigrants for 2000 years. Cologne is a colorful city with 180 different nations within our city walls and I hope that you find that this makes us a friendly welcoming place. It is an old city, a young city, traditional and innovative at the same time. Have a pleasant stay in our city and do come back!

Thank you!

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Prof. Dr. Axel Freimuth
Rector of the University of Cologne



Your Royal Highness, Ladies and Gentlemen,

It is a great pleasure and honour for us at the University of Cologne to host the 32nd International Geographical Congress and to welcome so many guests from all over the world. Even for a large university like ours, providing the setting for such an important conference is something special. Bringing an international congress of such eminent importance back to a university campus is a clear commitment to return to the primary forum for the exchange of scientific ideas, to a place where innovations are born and where young and fresh perspectives are discussed in a productive international and interdisciplinary atmosphere. This spirit of scientific exchange has been cherished at the University of Cologne for many centuries. Our University was founded in 1388, making it one of the oldest universities in Germany. The initiative for the foundation of the University came from the citizens of Cologne, which was unusual in an era when such initiatives were mostly taken by the church or a monarch. Cologne's citizens were powerful and Cologne was Germany's largest city for more than 300 years.

Today, the University of Cologne is a modern, international university, covering a comprehensive range of subjects. It is considered to be among the leading institutions in research and teaching in Germany and, earlier this year, was also one of the eleven universities to receive institutional recognition and funding in the German Excellence Initiative, a large federal program to support top-level research.

The strategic concept submitted by the University of Cologne for the Excellence Initiative comprises several interrelated measures – ranging from targeted support of top-level research in so-called Key Profile Areas to cross-sectional measures, e.g., to promote

the scientific careers of women and to advance the University's internationalization.

Ladies and Gentlemen, not only has the University of Cologne a long-standing academic tradition overall, but also specifically in geography. The first designated chair in geography was established at our University in 1902. Geography is also of high importance for today's research profile of our university, e.g. being an integral part of one of the Key Profile Areas, labeled Socio-economic, Cultural and Political Transformation in the Global South. Therefore, it seems very appropriate that the University of Cologne has been chosen as the host for this year's International Geographical Congress. Actually, it is appropriate in another context as well: With more than 2,400 participants from more than 85 countries the IGC is a truly international conference, corresponding well with the global orientation of our university.

I would like to thank the Local Organizing Committee very much for making all this possible, in particular Professor Kraas and Professor Soyez, and I would also like to express my gratitude towards all the other people – from within and beyond the University of Cologne – who have contributed to planning and organizing this congress. The effort and commitment shown during the preparation of this event are truly impressive, in particular the work put into adding new innovative features to the conference program. Ladies and Gentlemen, participants of the International Geographical Congress, I would like to warmly welcome you again both at the University of Cologne and to the City of Cologne. I hope that you will find our University to be a place with an inspiring atmosphere for your discussions and I wish you a productive conference and a pleasant stay in Cologne.

Thank you!

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Prof. Dr. Ron Ablor
President of the International Geographical Union



Your Royal Highness, distinguished visitors, dear colleagues, dear friends,

I certainly wish to add my warm welcome to those we have already heard. We in the IGU are delighted to be here after eight years of anticipation. We are delighted that you are here. We have long looked forward to today's events and we eagerly anticipate four more days of stimulating listening, talking, and thinking, in formal as well as informal settings. If I were to be completely fair, I would devote the next ten minutes to extolling our German hosts, particularly those from the University of Cologne, and especially Professors Frauke Kraas and Dietrich Soyez. The imaginative and meticulous planning they have all expended on our behalf deserves an encyclopedia of gratitude. These few sentences, however, will have to suffice for the time being. For now, heartfelt thanks to the leaders and the very large team that has brought us together for these days in Cologne. Thanks also to the hundreds of volunteers and thanks to the dozens of firms and organizations that have contributed to our comfort and our enrichment during the congress.

The IGU general assembly elected me president at the International Congress in Tunis in August 2008. I am grateful to have had the opportunity to serve in that capacity for the last four years. The job has been difficult at times but it has been unfailingly exciting and rewarding. Working with the energetic and talented members of the executive committee has been a privilege as well as a pleasure. And the same can be said of the chairs of the IGU's Commissions, Task Forces and National Committees. I will not dwell in detail internal changes that have been made in the recent years in the IGU structure and operations. I do think, however, that the IGU is now more flexible

and streamlined in its decision-making, and that that greater flexibility and speed are needed to accommodate the faster pace of changes in society and in science characteristic of today's world. We've also restructured the IGU executive committee's election cycle to provide greater continuity on the committee. Half of the committee's members will now be elected every two years, with the president who is elected by the general assembly at an international congress as will occur here on Tuesday when the assembly chooses my successor. Externally the IGU executive committee and its commissions, task forces, and special committees have continued the excellent work of their predecessors in linking geography and geographers to the broader world of science. The IGU has participated energetically in the International Council for Science, and we collaborate closely with some of its other member scientific unions, particularly those devoted to the earth sciences.

The IGU nominated Professor Gordon McBean of Canada to be president of ICSU (as the International Council for Sciences is known), an atmospheric scientist resident in the Department of Geography at the University of Western Ontario. McBean was elected and will take office as President of ICSU next year. IGU past president Anne Buttimer and IGU Vice-President Irasema Alcantara-Ayala have served recently on ICSU's key Committee for Scientific Planning and Review. Similarly, the IGU plays a prominent role in the International Social Science Council (ISSC), IGU Vice-President Ruth Fincher serves on the ISSC Executive Board. These umbrella scientific organizations are not exactly household names, but they have great influence on international and global research agendas, and representing geography to and within them is one of the IGU's most important and productive functions. Through IGU membership in ICSU and ISSC we are often asked to nominate

candidates to the boards and committees that serve ICSU, ISSC and many other international organizations.

Secretary General Michael Meadows and I have taken those requests most seriously. IGU does as much as it can to be certain that the myriad of scientific bodies engaged in international and global science enjoy the invaluable perspective that only geographers can provide. I am pleased to report that the IGU has renewed its collaboration with the *Festival International de Géographie* or FIG. FIG is held annually in Saint-Dié-des Vosges and will have its 23rd running this October. FIG is a marvelous celebration of geography in all its variety and richness, an event that attracts more than 30,000 people to the small town of Saint-Dié every year. FIG Founder and President Christian Pierret has joined us this year. Thank you, Christian! He will speak tomorrow on the topic 'When Leadership Needs Maps'. This will take place at 1:00 pm in MAIN 13. As the creator of the new international school of applied geography in Saint-Dié Pierret's comments on that topic are certain to be of great interest. I will chair that meeting, and I will take attendance. The material will be on the final exam (we are back to the university).

Following discussions began some years ago. The International Cartographic Association and IGU have established a joined working group commission on toponymy. We have a representative from ICA with us, Professor Paulo de Menezes who is in the audience - welcome! Place names, their history, their meanings and the disputes about them are of continuing interest and occasional sources of conflict. Collaboration between ICA and IGU was formerly close for some time, the two organizations held their congresses jointly, the last time being in Sydney, Australia if I remember correctly. I am pleased that IGU now has been able to reconnect institutionally with ICA on the topic of place names, and I hope that further collaboration can be achieved in the future on topics of mutual interest.

Discussions are on the way with the International Society for Photogrammetry and Remote Sensing, about establishing a joint IGU/ISPRS commission on land use and border regions. That initiative arose from informal conversations at the 2011 ICSU general assembly that led subsequently to a joint seminar in Beijing and to the continuing discussions

toward a commission. Mentioning commissions reminds me to say that the real work of the IGU is done by its commissions. We have 40 plus commissions or commission like bodies. They do the actual research. If you want to find out about any of them, look through the Congress program. The program is heavily loaded with sessions organized by the IGU's commissions

When you receive your registration packet (many of you already have, I see by your lanyards), it will include information regarding the IGU Initiative for an International Year of Global Understanding, or IYGU. IYGU is led by Professor Benno Werlen of the University of Jena. It is an outgrowth of the proposal by former President Adalberto Vallega, for a United Nations Year focused on Cultures and Civilizations for Human Development. IYGU is modeled structurally on the highly successful International Year of Planet Earth, launched by the International Union of Geological Sciences some years ago. The IYGU will focus on creating worldwide awareness of the inseparable connections between daily local action and the great global systems that support and sustain human life on earth. For further information on IYGU, which is the IGU's major current initiative, please attend the informational session on IYGU presented by Professor Werlen and others that will also take place tomorrow, at 4:00 pm in COM 01. Printed information about the IYGU will be available at the IGU stand in the exhibit hall.

We are here to enjoy this conference, but do remember that there will be annual meetings over the next three years prior to the 2016 congress in Beijing. We scheduled annual regional congresses as an experiment. They are scheduled for Kyoto next year, Krakow in 2014 and Moscow in 2015. Literature about these meetings can also be found at the IGU exhibit stand. As many of you know, the first International Geographical Congress was held in Antwerp in 1871. Nine subsequent congresses were held at varying intervals prior to the establishment of the International Geographical Union as a continuing organization in 1922. We are gathered at the 32nd Congress, the 33rd will be in Beijing, four years hence. The site of the 34th congress will be approved by the General Assembly this week. The IGU executive committee has recommended to the Assembly that the invitation of the Turkish Geographical Society to meet in Istanbul in 2020 be approved. The

year 2021 however will mark the 150th anniversary of the first International Geographical Congress, and 2022 will be the centennial of the establishment of the IGU. Accordingly, the IGU executive committee will also recommend that this General Assembly approve holding an extraordinary International Geographical Congress in 2022 to celebrate both anniversaries, with the site to be selected in 2014. The extraordinary congress should be an opportunity to look forward to the IGU's second century from the perspective of its first century and a half of accomplishments.

I am deeply grateful to the IGU for the opportunity to serve as its president. It has been a grand experience. I am confident that the IGU will continue to represent geography well and maybe better under the new leadership that will be in effect following the close of this congress. I offer you my best wishes for an enjoyable and productive time in Cologne.

Thank you!

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Prof. Dr. Hans-Rudolf Bork
President of the German Geographical Society
(Deutsche Gesellschaft für Geographie)



Your Royal Highness, dear Professor Abler, geographers from all over the world, ladies and gentlemen.

It is my great pleasure to welcome you to the 32nd International Geographical Congress in Cologne on behalf of the German Geographical Society. We are greatly honoured by the presence of so many geographers from more than 70 countries – and understand the signal of the overwhelmingly high numbers of participants as encouragement for our efforts in contributing to intensified scientific exchange among geographers of the world. The German Geographical Society welcomes all speakers, delegates and participants who have spared no efforts to join our IGC 2012 in Cologne. We appreciate your interest and thank you for sharing your knowledge and expertise, your perspectives and views in the wide fields of Geography.

The German Geographical Society (DGfG) is the umbrella organisation for 4 geographical associations, comprising geographers at universities, in schools, in didactics and the applied professions, and 27 geographical societies. It was founded in 1995 as a successor to earlier umbrella organisation, including organisations in the two separated Germanies until 1989. It unites about 25,000 geographers in Germany.

The DGfG represents the interests of geographers working in different fields and regions and is committed to communicating the significance of geography as a school subject, as a science and as an applied discipline. The DGfG co-ordinates the different sectors of geography represented by the specialized geographical associations and presents their common aims to the public. It supports and chairs the German Geographical Congress (Deutscher Geographentag), which takes place every two years in a university town in Germany, Austria or Switzerland.

The German National Committee of the International Geographical Union (IGU) works at international level in consultation with the Association of German University Geographers and the DGfG.

DGfG provides information material – such as the Educational Standards in Geography, guidelines for media and public representation, brochures for Master study programmes in Geography in Germany – and several journals, conferences and workshops, excursions, qualification seminars and services under the auspices of the contributing associations. Over 30 scientific working groups and networks – either with topic-oriented or regional foci – within the DGfG make important contributions to research and the further development of theory, methods, knowledge and innovation within geography. Several prizes, e.g. for outstanding international and national scholars, young researchers and the German Geography Media Prize, are awarded by the DGfG and in close cooperation with partner associations.

Before the IGC event in August 2012, we were already privileged to enjoy close interaction with numerous colleagues of the geographical community: The concept and programme of the IGC 2012 in Cologne was substantially supported by an intense exchange of ideas between more than 150 colleagues from Germany, Austria and Switzerland as well as from other neighbouring countries in Europe: In two preparatory workshops in 2009 and 2010, numerous colleagues participated in the conceptualising and concretisation of the four Key Topics which – beyond the core work of the Commissions and Task Forces – form the “second pillar” of the IGC 2012. This strong European character of IGC 2012 has been honoured by Martin Schulz, the President of the European Parliament, who accepted the patronage of our congress. Furthermore, with the intention of transcending boundaries and including expertise

from all over the world, the Local Organising Committee was supported by the members of the Scientific Committee in the selection process of sessions.

On behalf of the German Geographical Society I gratefully acknowledge the extraordinary engagement of so many colleagues of the international community.

I would also like to take the opportunity to thank the Local Organising Committee of the IGC Cologne 2012, which is chaired by Professor Frauke Kraas and Professor Dietrich Soyez, for their hard work and effort in planning and coordinating this complex event with more than 3,000 participants. We are very

grateful to the Institute of Geography of the University of Cologne, to the Rector of the University of Cologne and to the International Geographical Union for their important support.

Geographers discover, analyse and evaluate processes and structures of societies and environment. I encourage you to actively contribute to open and critical discussions about the contribution of our discipline to key challenges of humankind over the next five days of the congress. I wish you a successful and fruitful conference and many positive impressions of the congress, the University of Cologne, the City of Cologne, the Rhineland and Germany too.

OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Her Royal Highness Maha Chakri Sirindhorn



Minister of School and Further Education of Northrhine-Westphalia,
President of the International Geographical Union,
Chief Scientific Advisor to the President of the European Commission,
President of the German Geographical Society,
Mayor of the City of Cologne,
Rector of the University of Cologne,
Chairs of the Organizing Committee,
Distinguished Geographers,
Ladies and Gentlemen,

It is my great pleasure to be here today, among so many distinguished geographers from all over the world, in the ancient City of Cologne. I am especially delighted to be in Germany this year, because it is our special year to celebrate the one hundred and fiftieth anniversary of Thailand and Germany diplomatic relations.

Geography is a relationship between nature and society. Therefore humans can only coexist in harmony with nature, but cannot be its master or enemy. Without enough understanding of this relationship, human societies have abused and deteriorated nature.

For over 30 years, I have done development works in the remote areas in Thailand, in an effort to improve quality of life of the people in difficult conditions. After long years of hard work and help of many people and experts, today we have considerable accomplishments. The model is now expanded in Thailand as well as in some of our neighboring countries. The underlying philosophy is sufficiency economy and sustainable development, in which environmental conservation, good health and nutrition, good quality education and green agriculture are the keys.

I must say that I owe this success to geography. In a new area, geographical study was always my first step. Understanding geography of the area is necessary for me to plan the next steps towards sustainable development. So in my experience, geography is a very powerful tool.

Looking back, my interest in geography was much inspired by my father, His Majesty the King. My informal geographical lessons began when I was about 7 or 8 years old. While we travelled together, my father liked to explain to his children about what we saw along the way. Geography was not just a subject to memorize to get good grades in school, but it was something real and useful.

The picture of my father, seen with a camera hanging around his neck and holding a lot of maps in his hands, was familiar to everyone in Thailand. When he visited his people in all corners of Thailand, it was the time for him to edit and update the maps. He got direct information from the sites and the local inhabitants to verify his maps. Those were my impressions on geography. Geography was about everything everyday.

For this reason, geography became my favorite subject. Physical geography, economic geography and agricultural geography were among the courses that I took in my undergraduate years at Chulalongkorn University in Thailand. I also had cartography lessons from Professor Ulrich Freitag, a German professor from Berlin, a visiting professor in Thailand at that time. Later on I was trained on surveying and remote sensing. I had the privilege of meeting many top geographers around the world, and one of them is Professor Juergen Hohnholz from Tübingen. They are great people, and I have been associating with them up to now.

My point is that geographical education is as important and necessary as geography itself, and it should start with children at a young age. I am so happy this congress includes a platform for schools and teachers to develop effective and innovative geographical education and there is the Young Researchers' Forum, in addition to conventional lectures and presentations. The future is in the hands of these young people.

Finally, I would like to express my deepest gratitude to the organizing committee and many distinguished geographers for their hard work and long years of preparation of this congress. The vision and support of the host organizations is also well recognized with great appreciation.

May I now join in declaring open the 32nd International Geographical Congress, and wish the congress a great success.

Thank you very much.

iGeo CLOSING REMARKS AND OPENING ADDRESS

on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Sylvia Löhrmann, Minister for School and Further Education
Deputy Premier North Rhine-Westphalia



Your Royal Highness, your Excellency, distinguished guests, dear students, friends and experts of geography, Ladies and Gentlemen,

What a wonderful and enlightening ceremony this afternoon. I am very happy to be here and bring you a warm welcome on behalf of the government of North Rhine-Westphalia. I have to confess, I neither studied history nor geography, but I both like them, and music. Thanks to the wonderful musicians.

„Cologne is Germany's fourth-largest city and it is located on both sides of the Rhine River.“

You may have seen these few simple words on the homepage of iGeo. And now you are here! You have seen and got to know Cologne and a part of Germany: North Rhine-Westphalia.

On behalf of the Geographical Society of Germany and the Institute for Geography of the University of Cologne, it is my great honour as Vice Prime Minister and Minister for Education and Further Education of North Rhine-Westphalia to be here at the 9th International Geography Olympiad.

Thousands of students all over the world participate enthusiastically in National Geography Olympiads or competitions. You are the best of them! You compete in the International Geography Olympiad (iGeo).

I'm proud having the very best 16 to 19 year old geography students from all over the world now here in Cologne!

I'm proud to welcome 32 countries in Cologne, the highest number of countries since the first iGeo started 1996 in Den Hague with five participating countries.

A very successful story, that's truly wonderful, Ladies and Gentlemen. And it is wonderful, too, that young people from all over the world do not only meet in Germany. They got to know other young students; they got to know other cultures and views of the world. So they can experience life abroad and they take home impressions of what the world is like and plans for their future career. Cultural functions are an important element of this event.

I think it is great, iGeo is not just for competition, and it's not just about the tests. It's a cultural exchange and a chance to meet people.

I emphasize the importance of cultural exchange. Knowing and understanding is a requirement for saving our resources and our world, knowing and understanding each other is a requirement for globalization, integration, sustainable development and a peaceful world! And therefore, it's quite logical that the UNESCO promotes this conference to improve and set a mark in the decade of education for sustainable development.

As Minister of Education I am particularly pleased to see all the networking taking place:

Today, the iGeo ends, and the IGC, the quadrennial meeting of the International Geographical Union (IGU) starts. So top-ranking students from all over the world meet top-ranking scientists from all over the world and so they can learn from each other and discuss together. The topic of geography becomes highly relevant: socially, politically and in matters of education policy.

The world-famous German philosopher Immanuel Kant, who lived more than two hundred years ago, already pointed out the great importance of geogra-

phy and I think, it is still up to date. I quote in German:

„Die Geographie vertritt das Reisen und erweitert den Gesichtskreis nicht wenig. Sie macht uns zu Weltbürgern und verbindet uns mit den entferntesten Nationen. Ohne sie sind wir nur auf die Stadt, die Provinz, das Reich eingeschränkt, in dem wir leben.

Ohne sie bleibt man, was man auch gelernt haben mag, beschränkt, begrenzt, beengt. Nichts bildet und kultiviert den gesunden Verstand mehr als Geographie.“

In short: Though nothing is more suitable than just geography to brighten a sound human understanding.

Ladies and Gentlemen, dear students, to me Geography is not only an academic subject. It needs to be accomplished by personal experience. And this is what you did - by the way - by visiting Germany and many foreign students and scientists.

A lot happened during the past week. You have visited local cultural places, you have had a lot of social activities and you have been working. As always the iGeo competition contains three elements: a written response test, a multimedia test and a fieldwork test.

All of you qualified as great young academics in geography in your home country. And I take this opportunity to express my special recognition to all of you for your extraordinary academic achievement.

So far my greetings, Ladies and Gentlemen, but now we approach the highlight tonight: I am proud to honour the laureates of this year's competition.

The logo features a large magenta circle. The top half of the circle is white, and the bottom half is magenta. Two magenta triangles point upwards from the white area into the magenta area. The text 'IGC' is in green, 'COLOGNE 2012' is in white, and 'DOWN TO EARTH' is in white, all positioned in the magenta section.

IGC

COLOGNE 2012
DOWN TO EARTH

1.3

Inaugural Lecture

DOWN TO EARTH - GEOGRAPHY IN THE ANTHROPOCENE

Inaugural lecture
on the occasion of the
International Geographical Congress 2012
Cologne, Germany, 26 August 2012

Eckart Ehlers



On September 28th, 1899 Frhr. von Richthofen opened the 7th International Geographical Congress in Berlin, the only IGC ever held in Germany so far. On that occasion, v. RICHTHOFEN pointed to a problem that geography and many geographers have been occupied with before that date – and ever since until today: the question of unity or disunity of our common discipline: geography!

v. RICHTHOFEN argued as follows:

„... die Geographie [erscheint] noch immer als eine Wissenschaft, welche von ihrer gesicherten naturwissenschaftlichen Grundlage aus Berührungen nach den verschiedensten Richtungen hat [...]. Die anregendsten Probleme bieten sich ja häufig dort, wo verschiedene Wissenschaften einander berühren und befruchten; und gerade auf dem gemeinsamen Nährboden, den die Geographie ihnen bietet, erwachsen manche der schönsten Blüten der Forschung überhaupt.“

(v. RICHTHOFEN 1901: 29-30)

„... Geography still appears as a discipline which, based on its secured scientific foundations, has contacts into very different (scientific) directions [...]. The most inspiring problems often develop where different sciences meet and stimulate each other; and it is especially the common fostering soil offered by geography on which some of the most beautiful flowers of research mature.“

20th century geography is a wide field ranging from MACKINDER'S „Geography is what geographers do“ to HETTNER'S concept of regional geography (= Länderkunde) as a unifying concept of the discipline's diversity (MACKINDER 1887, 1904, HETTNER 1905, 1927). National schools of geography contributed their parts:

Space and place – milieu – environmentalism – Landschaft ...

are just a few legacies of this disciplinary history. Today, more than 100 years later, the problems of our discipline's unity may still be pending for some of us (including myself), but other and more important issues are at stake.

What, then, are these issues at stake? The great theme of our time is

Global Change

covering both *climate* and *environmental changes*. Of course: Climate is one of the main triggers of environmental changes. But is it really the only or most important one? The more we know, the more we learn – and vice versa. We are learning increasingly about humans and societies – and we learn about *their* role in almost all facets of global change. Climate and nature are one side of the coin, humanity and nature are the other. But it is still the same coin: our Planet Earth!

Down to Earth, thus, is a more than appropriate reminder to the international geographical community to (re-)consider geography's potentials, strengths and weaknesses and its tradition as a bridge-builder between nature and society and their mutual interactions and dependencies.

The so far four reports of the Intergovernmental Panel on Climate Change (IPCC) have ascertained with increasing intensity and now beyond doubt that

“Since the start of the industrial era (about 1750) the overall effect of human activities has been a warming influence. The human impact on climate during this

era greatly exceeds that due to known changes in natural processes ...”

(IPCC 2007: 135).

It is against this background that the term “Anthropocene” has to be seen. Coined by CRUTZEN & STOERMER in the year 2000 and followed by CRUTZEN’s “geology of mankind” (2002) respectively and most recently (2012) by a “geology of humanity”, the Anthropocene is considered to mark the beginning of a new geological era because of the overwhelming influences of human impacts. The “Anthropocene” is based on the assumption that

“mankind will remain a geological force for many millennia, maybe millions of years to come”

(CRUTZEN & STOERMER 2000: 18)

Is this vision a realistic one? It is so realistic that, almost simultaneously to this IGC, our geological colleagues – holding their 34th Congress of the International Union of Geological Sciences in Brisbane/Australia – will decide whether the Anthropocene has to be established as

a new recent period of the Quaternary distinctly different and succeeding to the Holocene.

What does all that mean for **Geography in the Anthropocene**?

My answer is – and I hope that I speak on behalf of many, hopefully even most of you: it is a challenge, a task and a unique chance to (re-)establish geography as a serious and engaged discipline at the crossroads of nature and society. As such it should complement IPCC’s and other’s global predictions and models by **down to earth** research on local to regional levels with special foci on the specific threats, needs and solutions for people and their environments.

Traditional global change research has been arguing for many decades along the more or less disciplinary lines of

atmosphere – geosphere – hydrosphere – biosphere.

Humans have more or less self-evidently been seen as victims of these four spheres of nature. Nowadays, however, that humanity has been detected as a geological factor which very obviously exceeds the impacts of natural processes, the **anthroposphere** has to be added as a fifth factor for the understanding and functioning of the Earth System – and probably the central one! And here, at the latest, we have to ask ourselves: Is climate and its undoubted change really the decisive agent for global change – or are there other, equally or even more important triggers?

Climate change was, is and will be a permanent phenomenon of our Earth’s history! But what about the human dimension? What about the unprecedented *global population growth* and its impacts on nature and resources? And population growth is a twofold one: it is a *quantitative* one in terms of the rapidly growing, yet increasingly marginalized one (Asia, Africa, Latin America ...) with legitimate aspirations for a better future; and it is a *qualitative* one in terms of our post-industrial societies with their unwarranted, insatiable greed for ever more personal satisfaction and individual well-being.

I argue that both population growth scenarios can/ must be seen at the very bottom of the undisputed increasing vulnerabilities of nature and societies. This is obviously also recognized by the community of Earth System scientists. In the most recent issue of the IGBP (March 2012) the **Anthropocene** is not only labelled as an “Epoch of **our** making”, but population growth from 1750 onwards as the onset and great accelerator of almost all aspects of global changes. Whether we take urbanisation – water use – agriculture – deforestation – climate change – floods (not to speak of the corresponding increases of greenhouse gases, chemical pollutants etc.), the human footprint is recognizable everywhere and responsible for almost all aspects of climate and environmental changes.

The conclusions drawn by the hard-core Earth System scientists are both surprising and alarming. They argue, after many years of denial or neglect of anthropogenic causes of global changes, nowadays increasingly:

“... Interestingly, while portions of society still refuse to acknowledge the role of humans in affecting global

climate, they appear more willing to accept that the modern world is anything but pristine and strongly under the influence, if not control, of society.”

(SYVITSKI 2012: 12)

And he concludes (ibid., p. 13):

“Humans have changed the Earth in a number of fundamental ways, many of which are far less known than global warming.”

I think that most of us agree when I say that many of the mentioned problems are high on the agenda of international geography. Yet, the question remains, why so few of these studies find access and recognition in the international political debates and Earth System Science research?

- Is it because the results of these studies are methodologically not compatible with those of other disciplines?

- Is it because only a small, a too small portion of international geographers engage themselves in global change research and the increasingly close and intricate interactions of nature and societies – and their specific natural and cultural environments?
- Or have we been just too modest, too negligent, too naïve or simply too late to discover the obvious deficiencies of “traditional” global change research and the necessities and opportunities of a **human-focussed, anthropogenic global change research**?

It is my deep conviction that our discipline and its traditional anchorage in

- human-environment research
- recherche sur l'homme – nature et environnement
- Mensch-Umwelt-Forschung

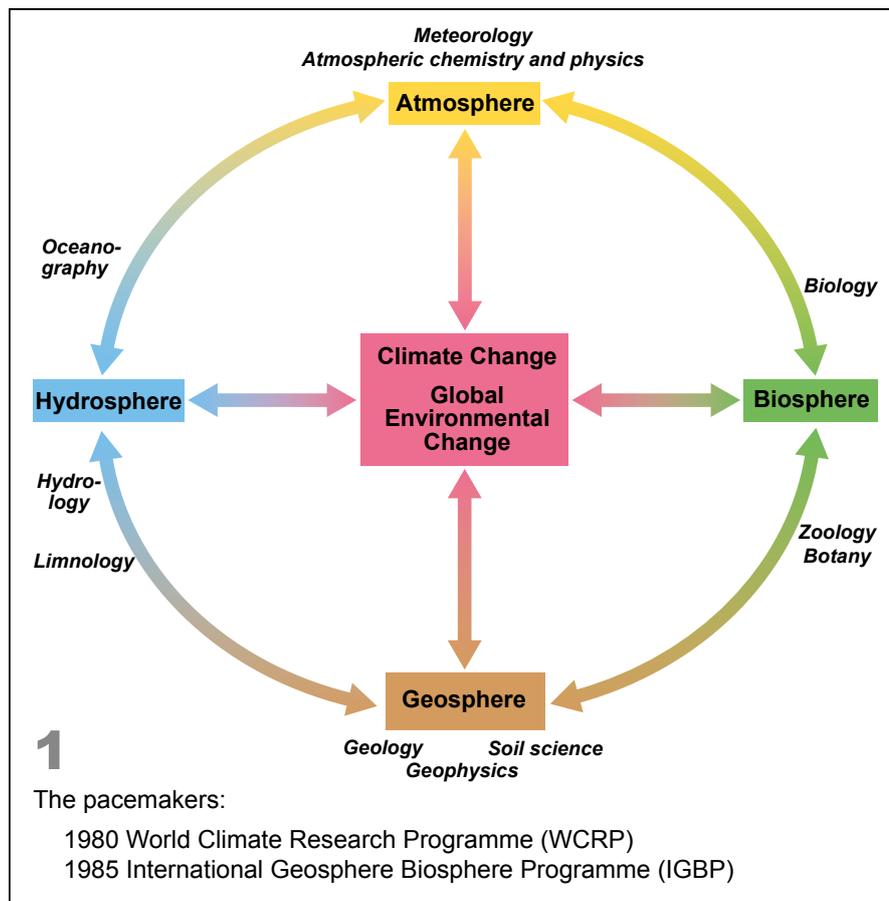


Fig. 1a: From Climate Change Research to Human Dominated Environmental Change Research in the Anthropocene

has not only a legacy, but also an obligation to fulfil: i.e. the pro-active transdisciplinary cooperation as well as solution-oriented integrative partnership with other disciplines in human-environment research. The appropriateness of such an obligation becomes apparent when we locate only a few of the most urgent global change problems into our grid of spheres. Whatever we take: from the destruction of the ozone layers via urbanisation – biodiversity – desertification – floods – droughts to human health, anthropogenic causes and consequences are at the very bottom of all these processes. And to me it is the reason why the **anthroposphere** is postulated to be **the nodal point and integrating link** between nature and societies, between humans and their environment.

- a desperately needed bridge-builder between natural and social sciences and related fields of research and technologies;
- a promoter of both *intra-* and *interdisciplinary* research on local to regional levels of scale, i.e. on scales where global change happens;
- an agent to consider and advocate cultural diversities and traditions, ethnicity, class, gender or caste in their specific exposures and reactions vis-à-vis global phenomena.

I am asking all of you, here and today, to think about these assumptions and, even if you disagree, to reflect on our discipline's history and potentials to serve as

How much and to what extent geography is successfully engaged in global change research already today, becomes apparent when we look at the effects and consequences. Themes and topics like vulnerability of nature and society – risks and hazards – adaptation and mitigation strategies have been taken up by geographers worldwide, and they have been instrumental in developing them as cross-cutting themes in global change research and their methodological foundations. Geography and

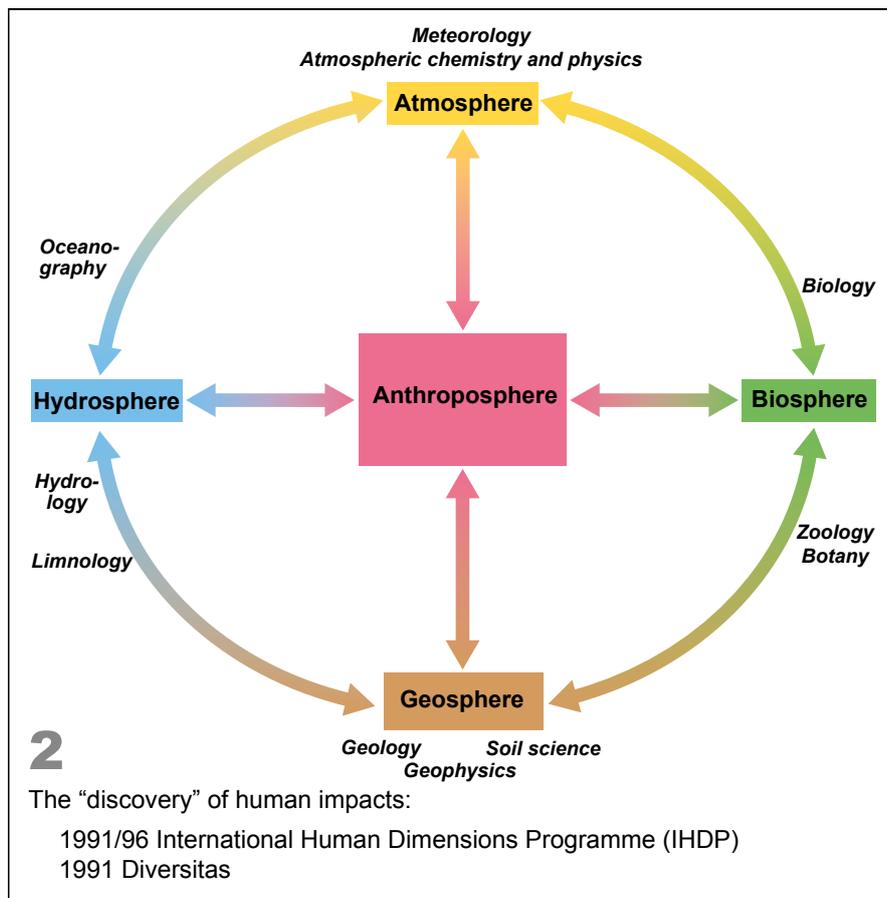


Fig. 1b: From Climate Change Research to Human Dominated Environmental Change Research in the Anthropocene

geographers can take pride in the fact that they are among the leaders in those fields that deal with the consequences of climate and environmental changes and with suggestions to cope with them. As a matter of fact: I am sure that the development of regionally, culturally and technologically adapted mitigation strategies and coping capabilities will be of growing importance for global change research.

In pursuit of my given task, i.e. to set the frame: I think that the four key topics of the 32nd International Congress of Geography

- Global Change and Globalisation
- Society and Environment
- Risks and Conflicts
- Urbanisation and Demographic Change

are a timely signal of and for geography's responsibilities to humanity in the 21st century. I hope sincerely that the intellectual impulses emanating from this congress will stimulate our discipline's future

development and foster its increased participation in the steadily growing demands of global change research.

And: global change research will have growing demands – unfortunately, one may say. *Population growth*, quantitative and qualitative, will continue; and therefore: human pressures on and exploitation of our planet's limited resources. Even worse: hopes are vanishing to reach the Kyoto Protocol's 2° C limit of *global warming*. This failure will lead to further increases of nature's extremes, to growing risks and hazards and to intensified vulnerabilities of nature and societies. As a consequence, there will be new demands for human adaptation and mitigation strategies.

All this will open wide fields also and especially for geography: physical and/or social; basic and/or applicable; intra- or interdisciplinary. My question to all of us:

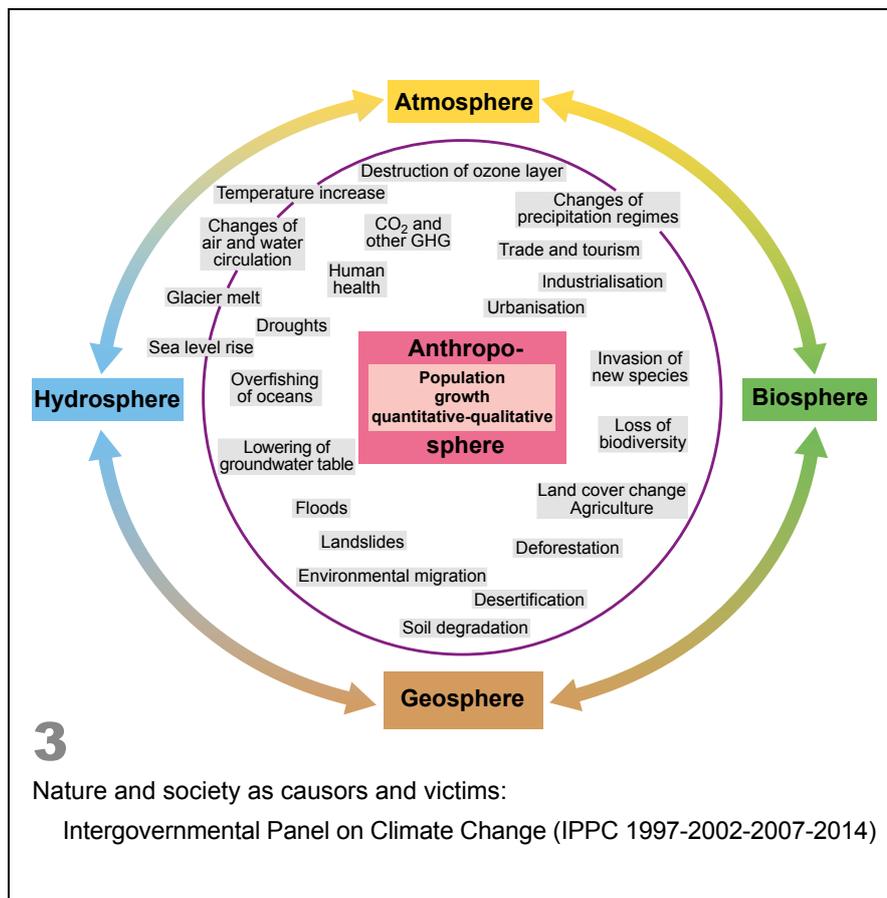


Fig. 1c: From Climate Change Research to Human Dominated Environmental Change Research in the Anthropocene

- Are we willing to take up these challenges, tasks and chances and go beyond our present endeavours?
- Or will many of us, maybe: too many prefer to remain part of an intellectual/academic “industry” with its own more or less selfish interests, for which there are hardly consumers and no public recognition?

I am well aware of the fact that these questions may be considered as purely rhetorical ones. And they may remain rhetoric as long as the institutional framework conditions of academic teaching and research are not adjusted to the new challenges of integrative-holistic scientific research problems and their solutions. The increasing complexity of almost all forms of global change research with their intricate interactions and interdependencies between nature and society cries for innovative forms of university curricula away from purely disciplinary approaches to more inter- and transdisciplinary teaching and research. And these endeavours must be honoured

by creating adequate positions and careers in universities and research institutions in order to attract young enthusiastic academics and offer them future-oriented perspectives, e.g. in the varying fields of global (environmental) change research!

Ladies and gentlemen, dear friends and colleagues! Let me conclude and add two personal remarks.

First: I am well aware that much of what I have been pleading for, is by no means new. My plea for an intensified revival of human-environment geography has a bright pre-history, dating back in fact to Alexander von Humboldt and the beginnings of scientific geography. But today’s paradigms and necessities are different. I share the pride of those who – already in 1997 – propagated the rediscovery of geography and its “new relevance for science and society”. Much has been done in this respect by a few. However, much more needs to be done in this respect by many more.

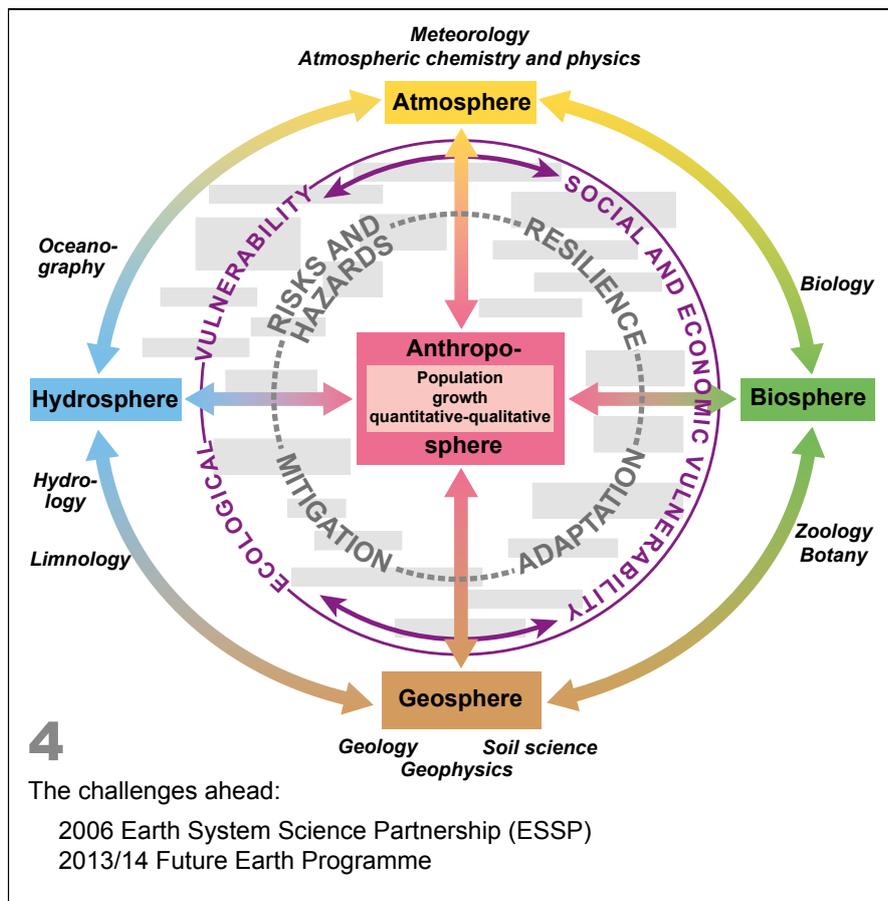


Fig. 1d: From Climate Change Research to Human Dominated Environmental Change Research in the Anthropocene

Second: My urgent plea for a human-environmental geography does by no means exclude any other form of geographical research and specialisations. On the contrary: disciplinary variety and diversity are basic preconditions for the development of always new ideas and scientific approaches, out of which, however, also and always new ideas may emerge as meaningful contributions to solve our globalized societies' manifold problems also beyond global change.

In 1899 Frhr. v. RICHTHOFEN argued in favour of a "common fostering soil, offered by geography" on which "some of the most beautiful flowers of research mature...". Today, 113 years later, those flowers of geographical research have developed into an almost exotic "botanical garden" in which geographies of different kinds have been growing – maturing – or vanishing again after short periods of blossom.

But what, then, is v. RICHTHOFEN's "common fostering soil"? I want to suggest that the interrelationships between nature and humankind be such a "common fostering soil" – and geography an indispensable and versatile fertilizer of this soil. And this the more as nowadays no one single discipline will be able to solve the environmental complexities and coupled problems of the anthropogenic future.

For millennia of years, humanity has lived under the threats of nature. Today, nature is existing under the threats of humankind. Let us all come back "**Down to Earth**" and follow the Nobel Prize Laureates' advice for new forms of interdependent social-ecological systems of global change research. They argue:

"It is time for a new social contract for global sustainability rooted in a shift of perception – from people and nature seen as separate parts to interdependent social-ecological systems."

"Most current economic and technological solutions are ecologically illiterate and too linear and single problem-orientated."

"We need a new type of 'social-ecological' innovations and technologies that work more directly for

social justice, poverty alleviation, environmental sustainability and democracy..."

(3rd Nobel Laureate Symposium on Global Sustainability 2011: 15/16)

And nothing has to be added to that!
Thank you for your attention and "Glückauf!"

References

- CRUTZEN, P. (2002): Geology of mankind. - Nature, 415: 23.
- CRUTZEN, P. (2012): Anthropocene. The geology of humanity. Global Change Issue 78. - Stockholm.
- CRUTZEN, P. & STOERMER, E.F. (2000): Anthropocene. - IGBP Newsletter 41: 17-18.
- EHLERS, E. (2008): Das Anthropozän. Die Erde im Zeitalter des Menschen. - Darmstadt.
- HETTNER, A. (1905): Das Wesen und die Methoden der Geographie. - Geographische Zeitschrift 11: 549-553.
- HETTNER, A. (1927): Die Geographie - ihre Geschichte, ihr Wesen und ihre Methoden. - Breslau.
- IPCC / Intergovernmental Panel on Climate Change (2007): Climate Change 2007. The physical basis. - Cambridge.
- MACKINDER, H.J. (1887): On the Scope and Methods of Geography. - Proceedings of the Royal Geographical Society 9: 141-174.
- Mackinder, H.J. (1904): The Geographical Pivot of History. - Geographical Journal 23: 421-437.
- National Research Council / National Academy of Sciences (1997): Rediscovering Geography. New Relevance for Science and Society. Rediscovering Geography Committee. Board on Earth Sciences and Resources. - Washington DC.
- v. RICHTHOFEN, F. (1901): Eröffnungsrede des Vorsitzenden der Gesellschaft für Erdkunde. Verhandlungen des Siebenten Internationalen Geographen-Kongresses Berlin 1899. London, Berlin, Paris: 17-33. (see also: J. STADELBAUER (2012): Berlin 1899: The Seventh International Geographical Congress. A Retrospective on Occasion of the 32nd IGC, Cologne August 2012. - Cologne).
- SWITSKI, J. (2012): Anthropocene: An epoch of our making. Global Change Issue 78. - Stockholm.
- Third Nobel Laureate Symposium on Global Sustainability (2011): Transforming the world in an Era of Global Change. Executive Summary of Scientific Background Reports. - Stockholm.



The logo features a large magenta circle. The top half of the circle is white, and the bottom half is magenta. Two magenta triangles point upwards from the top edge of the circle. The text 'IGC' is in green, 'COLOGNE 2012' is in white, and 'DOWN TO EARTH' is in white, all positioned in the magenta section of the circle.

IGC

COLOGNE 2012
DOWN TO EARTH

1.4

Keynote Lectures

ON THE WAY TO THE ANTHROPOCENE. CONSEQUENCES OF SCIENTIFIC RESEARCH, SOCIETAL UNDERSTANDING AND POLITICAL RESPONSIBILITY

Klaus Töpfer

Executive Director of the Institute for Advanced Sustainability Studies (IASS), Potsdam and former Executive Director of the United Nations Environment Programme (UNEP)

I have to admit that I was a little nervous to give this keynote speech. I am not a Geographer and I know there are some people thinking ‘is he really a scientist? He was a very long time a politician, but a scientist?’

Going back and forth between science and politics there is always a risk being judged as a hybrid person, which means, you have to overcome some prejudice.

Nevertheless I believe we need more and more of those hybrids in these days, because we are in an open democratic system and integration of all kinds of opinions and knowledge is highly important.

Some years ago, in October 2007, the first interdisciplinary symposium of Nobel Prize Laureates took place in Potsdam, next to Berlin. The symposium was held under the title: “Global Sustainability - a Nobel Cause”. More than fifteen Nobel Prize Laureates of a range of different scientific disciplines participated. It was an intensive, deep rooted discussion also with leading politicians, like the German chancellor Angela Merkel as well as with representatives of civil society and business. At the end of the symposium, the considerations and conclusions were summarized in the so-called Potsdam Memorandum. The main conclusions underline in the very beginning: “the worldwide socio-economic acceleration has pushed our planet into an unprecedented situation. Humanity is acting now as a quasi geological force on a planetary scale, that will qualitatively and irreversibly alter the national earth system mode of operations should business as usual be pursued”.

In those days, in 2007 I had just finished my eight years as Executive Director of the United Nations Environment Programme UNEP. UNEP is headquartered not in New York and not in Geneva but in Nairobi, in Kenya, in the middle of the African continent.

For more than eight years I had to fly again and again mainly from Amsterdam to Nairobi and vice versa. What drew immediately my attention, looking out of the window of the plane, was a simple fact: Flying over the so-called developed European countries from Amsterdam to the northern coastline of the Mediterranean, I noticed with surprise those exceptional areas or small places not used by mankind. On the other side of the Mediterranean, looking down, those exceptional areas used by mankind raised my attention. It was exactly the opposite.

Participating actively in the Potsdam discussion, formulating and reading these findings of a quasi-geological force, those different pictures between Europe and Africa came back to my mind.

Mankind – Designers or a “quasi-geological force”?

“Development” in the expectation of the Western world has resulted in reshaping of nature, in landscape designing, in changing wet lands into agricultural land, changing soil fertility with fertilizers, damming rivers for electricity production and many other uses.

Rivers have been changed in their course, for example the river Rhine just in Cologne, for reasons of agriculture, settlements and transport. The Rhine was shortened by the visionary plans of a genius engineer named Tulla, a Professor at the University of Karlsruhe in 1817. It was shortened for more than 60 kilometers, changing of course the flood condition after heavy rainfall quite drastically. In this case, development resulted in a manmade, so called natural disaster. The probability of floods and the intensity of these floods increased quite drastically. Are these now natural disasters or manmade disasters? The changes in courses of rivers are mainly regional, in

some cases even local, examples for the designing of nature by mankind; the experience in this field has long tradition. These changes are in principle reversible. The direct and indirect impacts are usually limited to the regional scale. This kind of a manmade nature can be reshaped again echoing new human needs, better scientific insights or correcting negative consequences of previous intervention.

To mention the river Rhine as an example again: In my time as the Environment Minister of Rhineland-Palatinate, a German state bordering the Rhine, we decided to construct a number of manmade polders. The aim of this intervention: to store the water of the Rhine river preventing most disastrous floodings downstream the Rhine, for example in this old, wonderful city of Cologne. Needless to say that this is a hell of a job having in mind that all those areas were of course used quite intensively in the meantime – for agriculture, for recreation, infrastructure – for villages, cities and roads. The consequence: huge protest of the people. Until now not a single polder is operational. But nevertheless: you can correct the negative consequences of previous intervention by a new manmade intervention.

The Acceleration of science and knowledge development

The fascinating progress of science, this acceleration process of research is more and more as we know revealing the construction pattern of nature, of creation, of life.

All these findings are characterized by the same denominator: their consequences are far reaching in time and in geographical scale. The sociologist Elias named it the prolongation of the action chain. These results of science and research enable mankind to change willingly or unwillingly by chance or by purpose the condition for the stability of nature of the large ecosystems, from the oceans via the cryosphere, the biosphere and the atmosphere. These changes are increasingly characterized to be irreversible and global in scale. The negative of human actions based on scientific findings in our time in the time of synthetic biology, of artificial intelligence, of the decoding of the genome and the protein of life of men, consequences far-reaching and irreversible.

This quasi-geological force of mankind reaches much further than the one described before as a consequence linked with ability to design the physical earth for the sake of economic development in a world with already more than 7 billion people today and 9 billion to be expected by 2050. Today, not only our landscapes are designed but there is a vision, to some extent already reality, that man is capable to design weather and even the climate.

Rainfall will be more often a manmade event bringing access to water in a world with more than 9 billion people in a new dimension of conflicts.

The case of climate change is in this context especially relevant. Mitigation of greenhouse gases is and will stay the best option for any serious global change approach in politics and for economies. What to do, when all the activities to mitigate or to adapt to climate change are not sufficient, not successful? How to handle what the IPCC mentioned in its last report, if we are confronted with a climate emergency situation?

The Anthropocene – A daunting task for engineers?

Engineering in order to handle the negative consequences of previous human activities has become an issue in the case of climate change. Scientific research is crucial to single out the possibilities for this kind of engineering, climate engineering, geo-engineering, to identify the negative consequences, the different regional implications and reversibility, to name only those few questions for intensive scientific research.

This new dimension of human influence on shaping nature and life, on shaping the capacity and the structure of the earth revitalizes a fairly old question. The question whether the Holocene, the actual earth period lasting already for more than 10.000 years, is coming or has already come to an end. Is the new era the manmade world, the quasi-geological force, the anthropocene? The article of the Nobel Prize Laureate Paul Crutzen in “*Nature*” in 2002 titled “Geology of mankind” started a quite controversial discussion on this topic, on the anthropocene. The Stratigraphy Commission of the Geological Society of London accepted to discuss the proposal to

make the Anthropocene a formal unit of geological epoch divisions in 2008, the Geological Society of America entitled its 2011 annual meeting: “*Archean to Anthropocene: The past is the key to the future.*”

Paul Crutzen, an atmospheric chemist and for a long time the head of the Max Planck Institute for Chemistry in Mainz, Germany, was honored in 1995 with the Nobel Prize together with Mario Molina and Sherwood Rowland. Those three scientists were honored due to their research on the ozone depletion for scientifically tracing the reasons for the ozone hole in the CFCs. In the above mentioned article in *Nature* Paul Crutzen underlined “*With regard to the ozone topic, things could have become much worse: The ozone destroying properties of the halogens have been studied since long time, but more by luck than by wisdom, this catastrophic situation (the ozone hole becoming a global year round phenomenon) did not develop*” (CRUTZEN 2002).

This remark gives a clear signal for the necessary perspective of science and research. In a time where, and to quote Crutzen once more “*mankind will remain a major environmental force for many millennia. A daunting task lies ahead for scientists and engineers to guide society through environmentally sustainable management during the era of Anthropocene.*” The engineering is a counter measure to handle the negative consequences of human action based on scientific findings.

I don’t believe that only scientists and engineers are responsible for handling these challenges of the Anthropocene. Scientists and engineers have to do their utmost to study the direct and indirect consequences of this knowledge coming from the detection of the construction of pattern of life.

We are living in a time of intensive global economic competition. We are living in a time with an ongoing dramatic increase of human population as I mentioned before. All those people, all those 9 billion are determined to detect new chances and options to overcome poverty, to make economic development with jobs possible.

TINA-principle or “The Principle of Responsibility”?

What are the consequences of this dilemma? In the Potsdam Memorandum, the question is raised “*Is there a third way between environmental destabilization and persisting underdevelopment especially with regard to the situation in the energy markets?*” The answer is “Yes”, and they add “*through reinventing of our industrial metabolism through a great transformation*”, a great transformation mentioned years and decades before by Polanyi in his famous book. What does this mean for the real world we are living in? This world, to cut it short, lives under the dictate of short-termism.

All the crises we are confronted with right now, the climate crisis, the crisis of ecosystems and biological diversity, the crisis of food production and last but not least the crisis of the economic and financial architecture in the world, all those crises and many more are nothing more than the oath of disclosure of this short-termism. In Germany, the so-called bad word of the year is announced annually. In 2010 this word was ‘without alternative’. In Maggie Thatcher’s time there was the mentioning of the so-called TINA principle. TINA means ‘there is no alternative’.

As an economist by training I have to confess I learned that on the short term all costs are fix costs, and that on the medium and long term all costs are flexible costs. So we come back to the question of time. “Without alternatives” everything is fixed, too big to fail. This is an indicator for the short-termism in the world. Wherever societies accept the TINA principle the consequence will be a growing crisis, especially of a parliamentary democracy. In a time of short-termism and the reign of the TINA principle, there is no room for parliamentary discussion concerning alternatives. This was underlined by Herfried Münkler in his article in the “SPIEGEL” (MÜNKLER 2012), where he illustrates how parliament only gets to agree what has already been decided under the pressure of stock exchanges and rating agencies.

The Anthropocene will challenge scientists of all fields; will challenge civil society and politicians to prolong again the time scale to overcome short-termism and to develop alternatives.

It was the German-Jewish philosopher Hans Jonas in his landmark book 'The principle of responsibility' who singled out a new categorical imperative for our times of technology: *"Act in a way that the consequences of your actions are comparable with the permanence of genuine human life on earth"* (JONAS 1979, translation by author), exactly the long-term perspectives. Responsibility, this is an ethical question for the long-term consequences, that is the great transformation we need, that is sustainability in my interpretation. This principle, more than three hundred years old in 2013, started from Carl von Carlowitz, the mining official in Saxony. The dilemma is unsolved until now if I see it correctly. The dictate of short-termism in policy and society on the one side, and the need for the prolongation of the action chain combined with a growing influence of mankind in the Anthropocene, in a time where mankind is a quasi-geological force.

Going back to the concrete example of climate change, knowing that human actions result in massively releasing greenhouse gases and changing the climate, how to decide on the research and the implementation of climate engineering? Correcting the mistakes of human actions by interventions of engineers and scientists by injecting particles, for example sulfur dioxide in the atmosphere, who will be responsible for the decisions to come to such a forced adaptation? What are the ethical consequences of this? Is that changing, that mankind is not only a part of the creation, but it wants to be a creator?

A global contract between science and society

The IPCC mentioned the possibility of a climate emergency topic in the 4th Assessment Report. Who is developing an emergency response policy having in mind that the consequences of those interventions may be worse than the emergency itself? Will the water to fight the fire of the crisis be more destructive than the fire itself?

Take, for example, the way the financial crisis in Europe and worldwide has been handled. After having been an Under-Secretary-General of the United Nations for eight years I come to the conclusion that there is no global governance structure for such situations at all. There are national laws and regulations for issues like climate engineering, like in the US or

UK, but there is clearly a lack of a global governance regime. This is an urgent need for the political class to develop new governance structures for the era of the Anthropocene. The Nobel Prize Laureates in Potsdam asked for a "Global Contract between Science and Society", a contract that would "embrace many elements". Is that a real option, how to integrate such a process in an open democratic system?

This is the task for science, to adopt not only an interdisciplinary but a transdisciplinary approach, to integrate the private sector and the civil society in the development of science and research and not only let them participate in the implementation of the findings of science. This is quite a huge challenge.

More people around the world need to become aware how heavily the world is influenced by decisions with long lasting irreversible consequences. It is necessary, that more and more people draw consequences, that *they themselves* accept responsibility. Responsibility in the sense that, Ulrich Beck, underlined: *"If society is made responsible, nobody is responsible. This is nothing else than a collective un-responsibility"* (BECK 1988, translation by author). If you make an abstract body responsible, nobody really is responsible. In the light of the development of climate policy it can be seen, that governments seem to be unwilling or unable to handle the issue, so civil society has to take on the job, which also has been criticized, that climate policy has been privatized.

But in the meantime, with the "Energiewende", giving individuals not only responsibility but also the right to participate in this vital part, the energy system, it became evident, that there are many people willing to take on the challenge, by taking an active part in this transition process. This is not necessarily out of a sense of responsibility, but still the massive growth of community owned production sites of renewable energies can be seen as a sign of awareness. Awareness for the fact that the transition from a nuclear energy system, which was seen as without alternatives for many years, to a system with less long-term effects must be taken on as a societal challenge, as the high degree of acceptance reflects. The role of science in this process is and has to be to accompany the transition in an integrated manner.

The discussion whether we are living already in a new manmade world in the Anthropocene, whether all those influences of mankind on nature, are as old as mankind itself, this discussion will go on and I believe it has to.

More activities and programmes across the sciences, arts and society have to involve the people actively in controversial discussions on such issues; otherwise we would be again in the same trap that we accept too early that there is no alternative.

But the simple fact that quantitatively and qualitatively mankind is more than ever influencing nature is unquestioned. The differentiation between nature, natural and manmade catastrophes is more and more fluid. The share of mankind in all kinds of catastrophes is growing, especially having in mind the consequences of these nature catastrophes. A Tsunami is of course as far as we know it now, not manmade. But the consequences are dramatically different with a manmade structure of human habitats, industrial sites, and nuclear power plants on the coastlines.

It is an immense challenge for the (geographic) scientific community not only to describe the conse-

quences of this quasi-geological force. More than ever, it seems most demanding to take over responsibility for transparency of developments, for singling out consequences in the medium and long term as early as possible and to be aware of the new categorical imperative of Hans Jonas.

Integrating civil society in research topics and to learn the other way round that knowledge can also be produce by and with the civil society. I am absolutely convinced that this IGC in Cologne will contribute manifold to this request.

References:

- BECK, U. (1988): Gegengifte. Die organisierte Unverantwortlichkeit. - Frankfurt a.M..
- CRUTZEN, P. (2002): Geology of Mankind. - Nature, 415: 23.
- JONAS, H. (1979): Das Prinzip Verantwortung. - In: Böhler D. (ed.): Hans Jonas. Leben, Wissenschaft, Verantwortung. - Stuttgart.
- MÜNKLER, H. (2012): Die rasenden Politiker. Vom absehbaren Ende der parlamentarischen Demokratie. - Der Spiegel, 29: 100-101.

DIVERSE PERSPECTIVES ON SOCIETY AND ENVIRONMENT

Anne Buttimer

Geographer, IGU Past President, University College Dublin, Dublin, Ireland

It is delightful to be here in Cologne, the city of the great Saint Albert and his associates, evoking memories of Meister Eckhart and the Rhineland mystics - all these wonderful counter-point voices that have questioned hegemonic orthodoxies down the years. You have invited me to speak about society and environment and I wish to deal with ideas, emphasizing particularly the importance of counter point voices¹. I approach this from the vantage point of my favorite subject, Geography, GAIA, this great orchestra of life, including especially the *noosphere*.

Looking at society and environment, I claim that there can be no adequate description of society without reference to its environmental setting. Nor can one really understand humanity without reference to its earthly context. The term "human" (*humanus* from *humus* = earth) is defined in all Indo-European languages as an earth dweller (Fig. 1).

Landscape images reveal the record of interactions between humans and their environments over time, and indeed the relationships of society and environment vary dramatically around the world. I speak mainly about Western traditions, but recognize many common denominators with other traditions of thought, belief and practice. Most societies, for example, regard their location as the centre of the world. Consider this Sixth Century image from China which regarded itself as global centre with increasing barbarism extending outwards from there (Fig. 2).

A HUMAN BEING IS AN EARTH-DWELLER

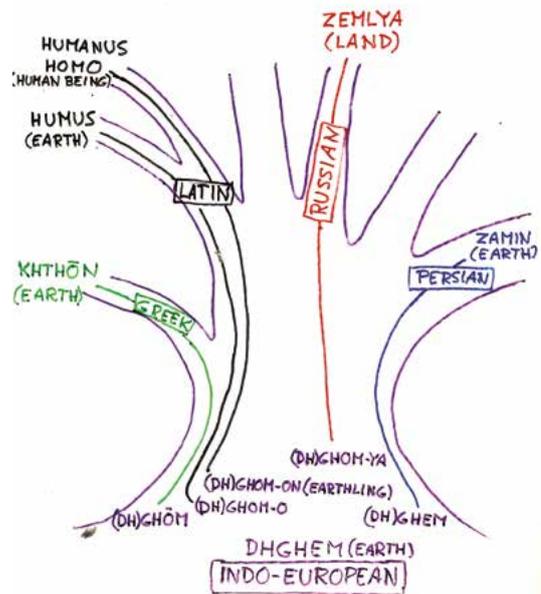


Fig. 1: The human being is an earth dweller

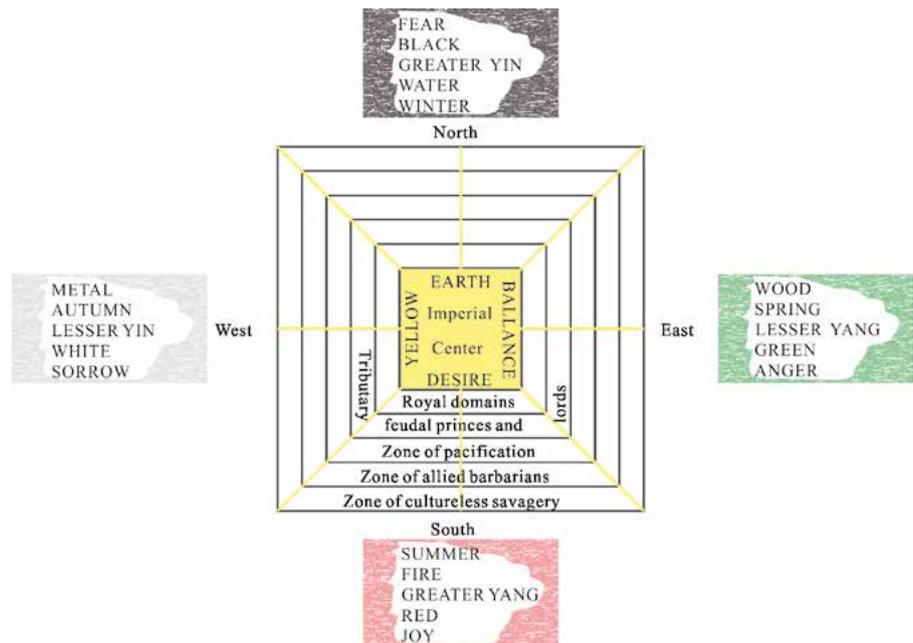


Fig. 2: Sixth century Chinese world view

Each of the four cardinal directions is associated with one of four basic elements (fire, wood, metal and water), the four annual seasons, four human emotions (fear, joy, anger and sorrow), four distinct colours (black, green, red and white) all enshrined in the perennial dialogue of Yin and Yang. Each year an imperial pageantry visited these four stations at the appropriate season.

In the Western world, too, there was a Heraclitean tradition of seeing the universe and humanity in an integrated way, although the definition of “elements” was quite different (Fig. 3a, 3b).

In this view (Fig. 3a) the unifying force among the four basic elements (fire, air, earth and water) is human love, and the dividing force is human hate. Now came the Socratics, and they stripped this concep-

tion of its dynamism. The Socratic theory of the humours eliminated human emotions (Fig. 3b).

For the Pre-Socratics, too, there was a closer connection between mind and body – between the intellectual and physical aspects of reality. *Nous* - knowledge, consciousness – was regarded as integral to *Physis* (Fig. 4). In the Socratic tradition, however, these elements became separated (Fig. 4).

This distinction between thought and being – between the quests for truth and goodness – became a separation. And this “Socratic split” influenced Western thought on society and environment down the centuries. But there have been some counterpoint voices, chief among these the Rhineland mystics, such as Hildegard of Bingen, as well as the famous Leonardo da Vinci (Fig. 5).

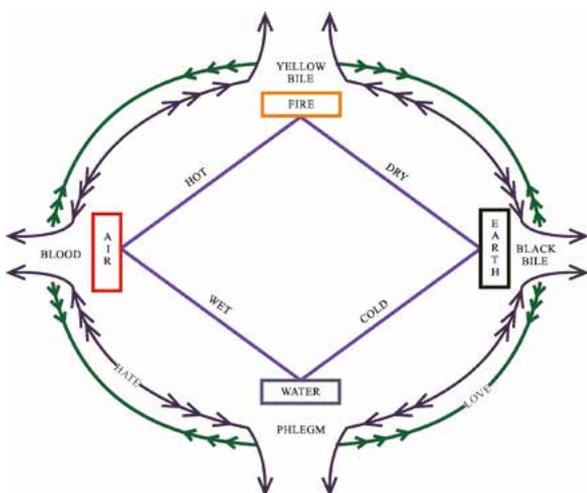


Fig. 3a: Heraclitean views of health/wholeness

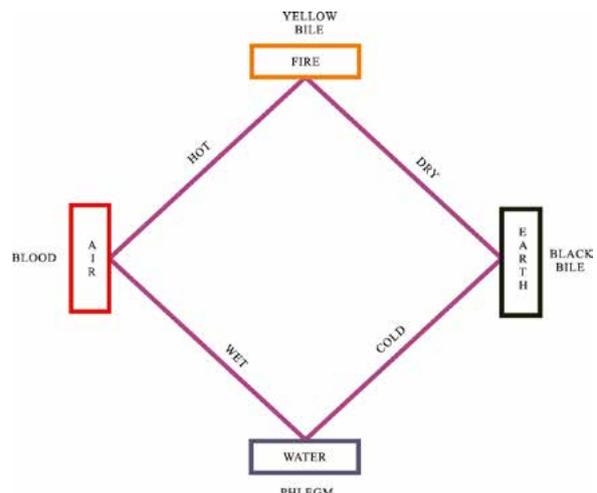


Fig. 3b: Socratic theory of the humours

PRE-SOCRATIC		
SOCRATIC	THOUGHT	BEING
ROMAN	TRUTH	GOODNESS
ARAB	RATIO	HUMANUS VS BARBARUS
SCHOLASTIC	COSMOLOGY	HEALTH
	LAW	ESSENCES
ENLIGHTENMENT		

Fig. 4: Pre-Socratic and Socratic views on *Nous* and *Physis*

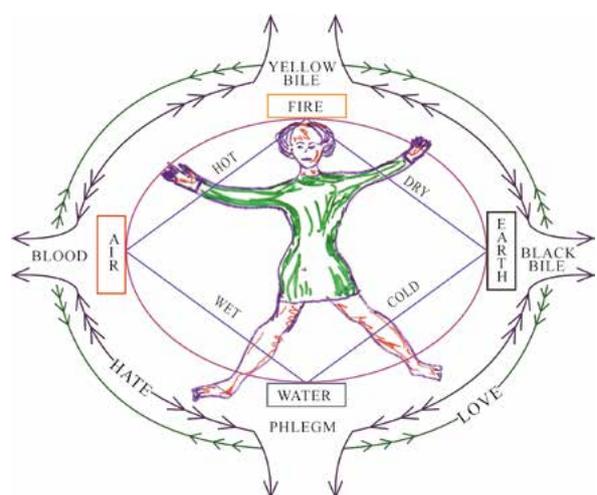


Fig. 5: Leonardo da Vinci: The human body as microcosm

These counterpoint voices re-iterated the need to consider human experience – thought and being – in the context of the overall universal experience of society and environment.

Down the centuries, indeed, geographers have looked at interactions of *nous* and *physis* with a special focus on lived landscapes (Fig. 6a).

There are records of idealist, ecological and environmental determinist lines of research over the years. The big difference which occurred in the mid-20th century was an exclusive focus on “spatial analysis”, thus sublimating attention to *nous* and *physis*. Environment became a kind of *tabula rasa*, a featureless space, where processes unfolded (Fig. 6b). And no attention was paid to variations of bio-physical milieu; nor was there much concern about environmental protection or quality of lived space.

But again there were some counter-point voices. The massive volume entitled *Man’s Role in Changing the Face of the Earth* certainly made a stir (THOMAS 1956). Many of my generation will remember the opening essay by Gutkind on the great turning points in the history of humankind, revealing major transformations of attitudes from fear and longing for security, to growing self confidence, later to aggressiveness and conquest, and finally to responsibility and unification.

The essays in this book re-opened questions about society and environment. They also evoked interest in the evolution of livelihoods and technology, and questions about whether these were products of diffusion or of independent invention. Another great counter point voice of the 1960s was that of Rachel Carlson’s *Silent Spring*, a book no doubt familiar to all here (CARLSON 2000). The book that really re-introduced concerns about historical aspects of society and environment was Clarence Glacken’s *Traces on the Rhodan Shore*. Glacken reviewed classical ideas about society and nature, and identified various conceptions that had dominated Western thought from classical times to the Eighteenth Century (GLACKEN 1967). From all these sources, therefore, came the conviction that geographers should re-ex-

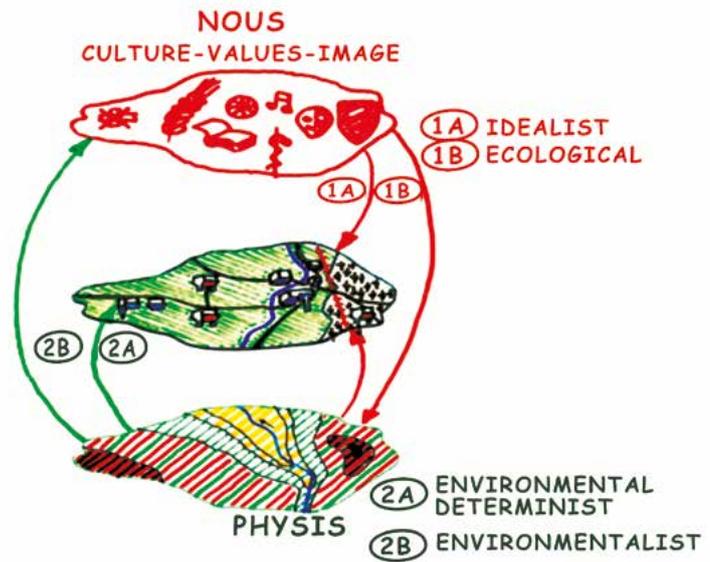


Fig. 6a: Traditions of geographic enquiry

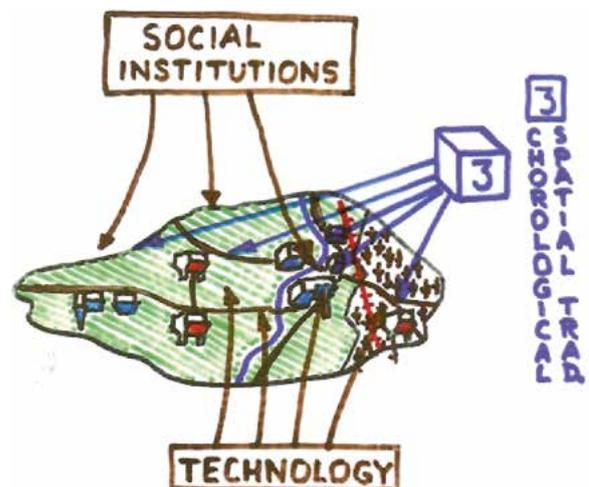
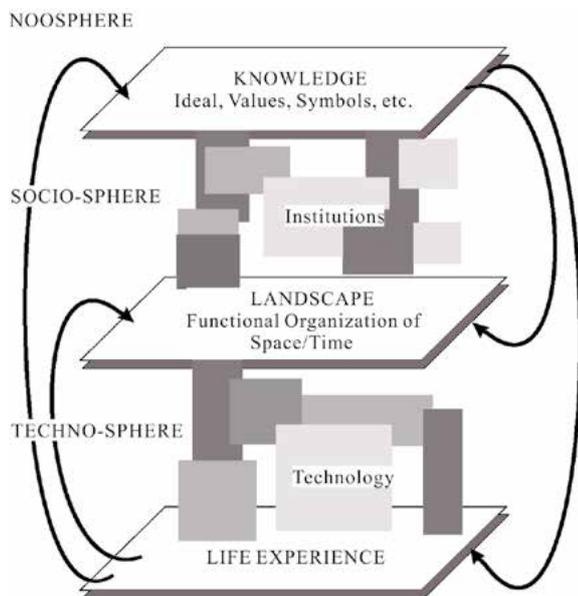


Fig. 6b: The spatial tradition

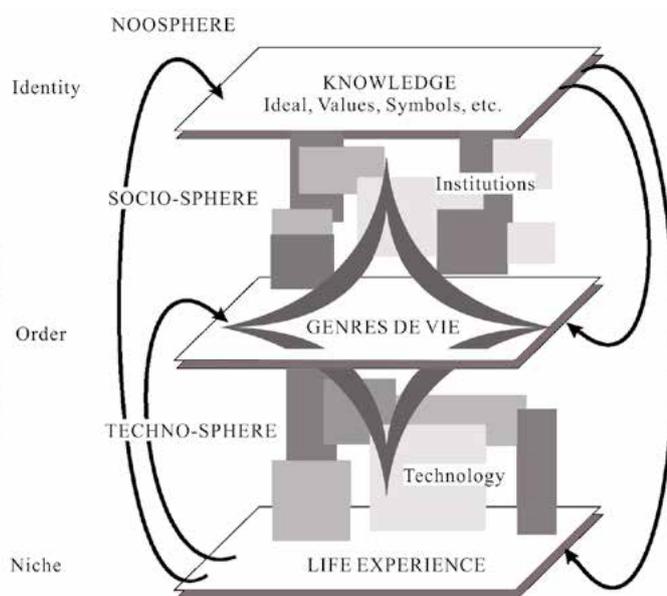
amine livelihoods - everyday ways of life - as central foci of concern.

Here is the structure of geographic enquiry and, thanks to *la géographie humaine*, the framework of *genre de vie* – probably one of most integrated concepts that geographers have ever cultivated (Fig. 7a, 7b).

Associated with *nous* are issues of **identity**; associated with landscape are issues of **order** and socio-spatial organization; at the level of *physis* – biophysical environment – are issues of **niche**, i.e., ecological attunement of livelihood to the natural environment. I’ll come back to these three cardinal societal interests later.



BIOSPHERE
Fig. 7a: Structures of geographic enquiry



BIOSPHERE
Fig. 7b: Genres de vie: Taken-for-granted lifeways

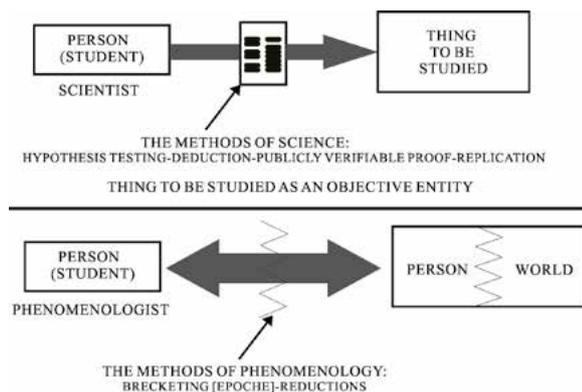


Fig. 8: Critical reflections on traditional views of science



Fig. 9: Specialised perspectives on earth and society

The 1960s also witnessed a questioning of traditional theories of science. Conventional views held that scientific lenses worn by the observer could guarantee objectivity in descriptions of the objects observed. Well, then came phenomenology, existentialism, hermeneutics and a few other schools of thought which noted the “inevitable ripple” (HEISENBERG 1958, see also COHEN 1985) between the observer and the thing observed. They therefore emphasized the need to “put in parentheses”, as it were, all the pre-conceptions which scientists brought to the object of study (Fig. 8).

There was also concern about functional specialization. To what extent was the analytical specialization among scientific fields echoed in the sectoral fragmentation of policy? Views on the earth, for example, were quite obviously projected by “tunnel-vision” experts (Fig. 9).

How to reach an integrated knowledge about the earth – let alone about the relationships between society and environment from across the various fields of science and humanities? This was a worry particularly in Sweden and it was a project on which I spent many years, together with Torsten Hägerstrand during the 1970s and 1980s (BUTTIMER 1980, 1986). We video-interviewed a few hundred senior and retired scholars about their career experiences, to see if we could find some common denominators among

specialists of various fields. These recordings were then shared with specialists from diverse backgrounds who shared insights from their own career experiences and raised critical questions about knowledge integration. These responses were also recorded. From a scrutiny of these conversations, as well as from the reactions, three major potential bases for mutual understanding and communication among specialists emerged: “meaning”, “metaphor” and “milieu” (BUTTIMER 1983, 1993).

The age-old Aristotelian categories of scholarship seemed appropriate as bases for defining vocational **meaning** (Fig. 10).

Teachers, for example, tend to understand teachers, researchers tend to share insights into analytical methods, critical (philosophical) thinkers can also share questions and applied scientists (e.g., those involved in planning), easily find bases for communication and mutual understanding.

In terms of **metaphor**, we found Stephen Pepper’s idea of “World Hypotheses” to be quite effective in the discernment of common denominators of “cognitive style” (PEPPER 1942). As far as **milieu** is concerned, the traditional public concerns about identity, order and niche were immediately identifiable in all of the interviews with scholars in diverse fields.

Here I wish to focus primarily on world views or “root metaphors” as explicated initially by PEPPER (1942) (Fig. 11).

A view of the world as an organic whole can be found in the work of historians, theologians, some physicists, poets and geographers. It is an integrated world view. Then there is a view of the world as a mosaic of patterns shared by people in various disciplines, including art and architecture, cartography and crystallography. There is also a widely-held view of the world as a mechanical system, with integrated functional relationships, dear to the heart of physicists, engineers and some economists. Finally, there is a view of the world as an arena of spontaneous

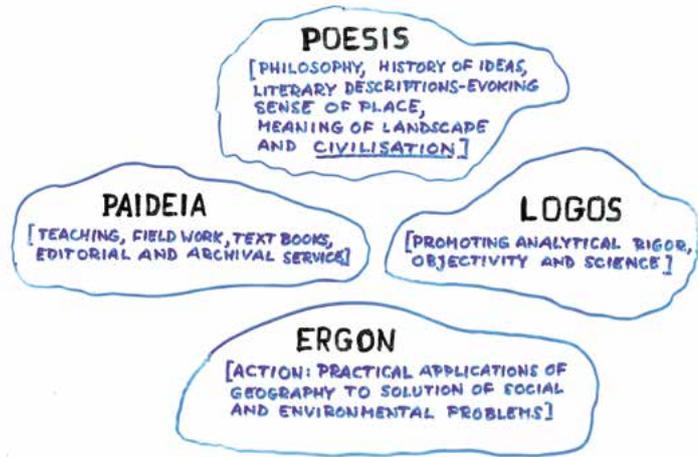


Fig. 10: Scholarly practices: constellations of vocational meaning

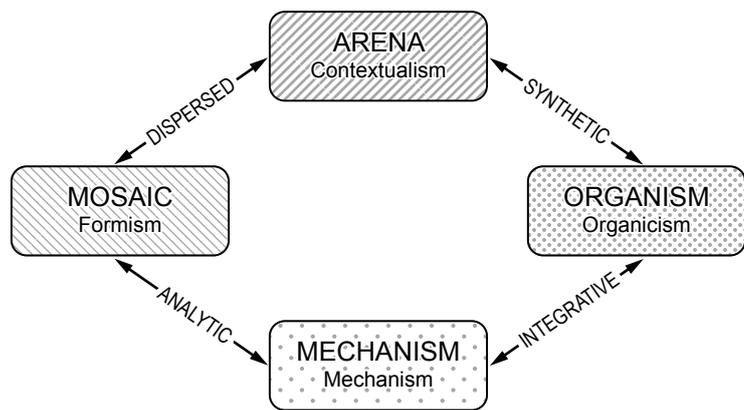


Fig. 11: Four world views: root metaphors

World Hypothesis	Roof Metaphor	Theory of truth	Process
Organicism	Organism	Coherence	Dialectical Unifying
Formism	Mosaic	Correspondence	Form-ation Patterning
Contextualism	Mechanism	Causal	Mechanistic
Contextualism	Arena	Operational	Spontaneous Events

Table 1: World Hypotheses and Practices of Geography²

events, which has a growing appeal for post-modernist scholars. Each of these world views is anchored on a particular theory of truth (Table 1).

Organicism emphasizes coherence and regards ongoing world processes as dialectical and unifying.

Formism, or the mosaic view, has a correspondence theory of truth and its concern is to find ways to correctly represent forms as they occur in reality. Mechanism has a causal theory of truth and it emphasizes functional relationships. And the arena point of view (contextualism) rests on an operational theory of truth. All four world views were probably simultaneously present throughout the 20th Century, even though one would tend to dominate over the others at different times. Organicism was popular in the early part of the 20th century, replaced by formism in the thirties; mechanism dominated after World War II and then contextualism became popular after the 1960s.

An **organicist world view** would treasure instances of human dwelling which is harmoniously settled within its natural bio-physical environment (Fig. 12).

The scale of such settlement could also facilitate the development of community. In geography, such perspectives were used in studies of particular regions, sense of place, geo-politics, livelihood and resources. It is based on a coherence theory of truth which assumes that world reality consists of fragments which progressively converge into nexuses, and then through dialectical processes and contradictions, wind up as an organic whole. And that whole was already implicit in the fragments (Fig. 13).

This world view was popular among both anarchist and imperialist circles in early 20th century Western Europe. It was used by empires and big nations to justify colonization. It was also deployed in studies on the “evolution of civilization” to show that the cultural superiority of certain nations was also bolstered by ideal environmental conditions. So then it became a kind of hegemony. When such world images become monopolistic, critics come to regard them as monsters inviting attack. So the organicist world view was viciously denounced – not on strictly epistemological grounds – but rather on the grounds of alleged environmental determinism and imperialism.

In its place came the **mosaic world view** which aimed to empirically represent, as accurately as possible, realities presented to the senses. Its cognitive claims rested on a correspondence theory of truth (Fig. 14a, 14b).

This is a dispersed world view, reality construed as a mosaic of patterns. Beneath each pattern there are formative processes at work. This perspective characterized geography’s chorological tradition, one which produced many national atlases – much information but no attempt at integration (Fig. 14b). This was documented in the work of Hartshorne, the major authority of orthodoxy in mid-20th century American Geography (HARTSHORNE 1939).

As hegemony therefore, the mosaic image of the world also produced an imaginary creature,

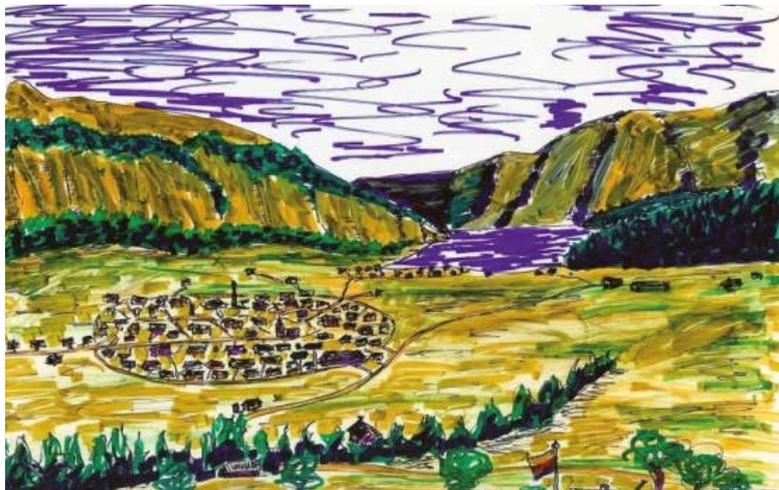


Fig. 12: World as organic whole: an “organicist” landscape



Fig. 13: A coherence theory of truth

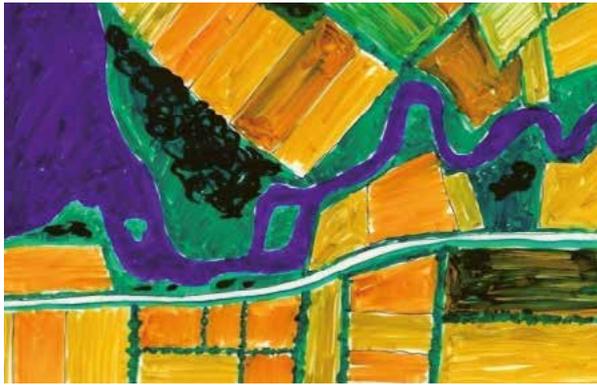
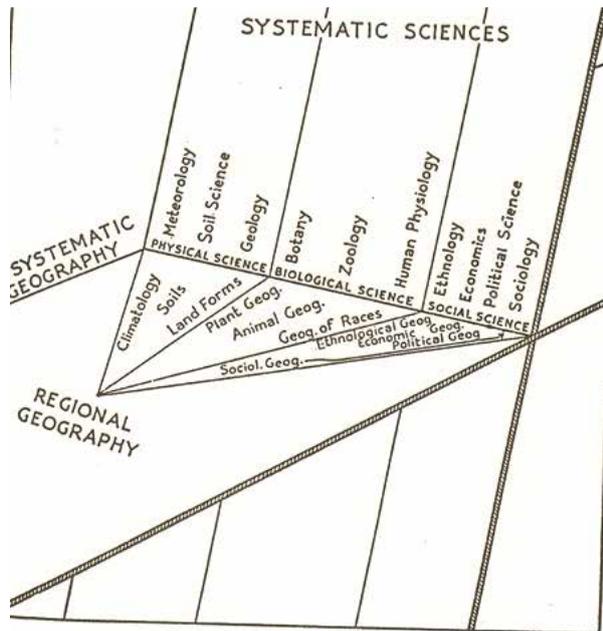


Fig. 14a: World as mosaic: a formistic landscape



Fig. 15a: Mechanistic process



The geographic plane. Richard Hartshorne's view of the interrelations of the systematic sciences with geography as two intersecting planes.

Fig. 14b: Hartshorne's Nature of Geography

a “Chimera”- or, like a layer-cake - something to transcend. Further, this formistic – ground-mapping - approach had not really helped in wartime. It had worked well for infantry-led battles during World War I, but it didn’t work for the air-borne strategies of World War II. Systems analysis, beloved particularly by those who witnessed its effectiveness in guiding target-bomb landing strategies during World War II, began to appear in the early 1940s and 1950s. Students at American University programmes were all encouraged to write papers on the nature of geography: “Areal differentiation or spatial interaction?”. The latter option was usually regarded as the preferred one. In place of the “mosaic” world view, therefore, came that of the world as mechanical system.

A succinct image of the **mechanist world view** could be either that of a wheel or that of a steam

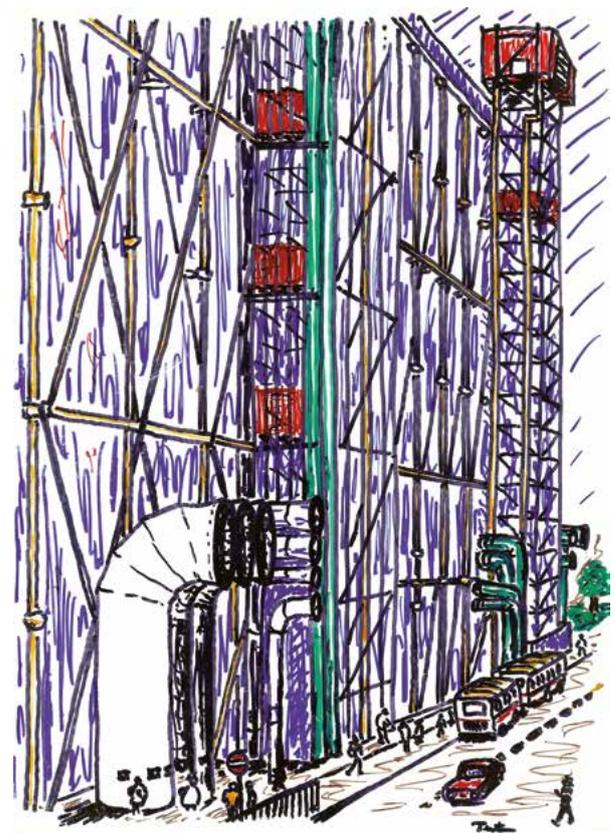


Fig. 15b: Place Pompidou

ship (Fig. 15a). Post-war building design, e.g., Place Pompidou (Fig. 15b) is also symbolic.

In geography, mechanistic views gave rise to a series of new research questions, e.g., on industrial location, marketing systems, hydrological cycles, urbanization, and so on. One explored time-cost distance in access to various destinations (Fig. 16).

“Environment” was still regarded as a *tabula rasa*, a featureless space, organized around nodes, networks and time-cost distances. Technology had become the essential explanatory element in relationships between society and environment. In

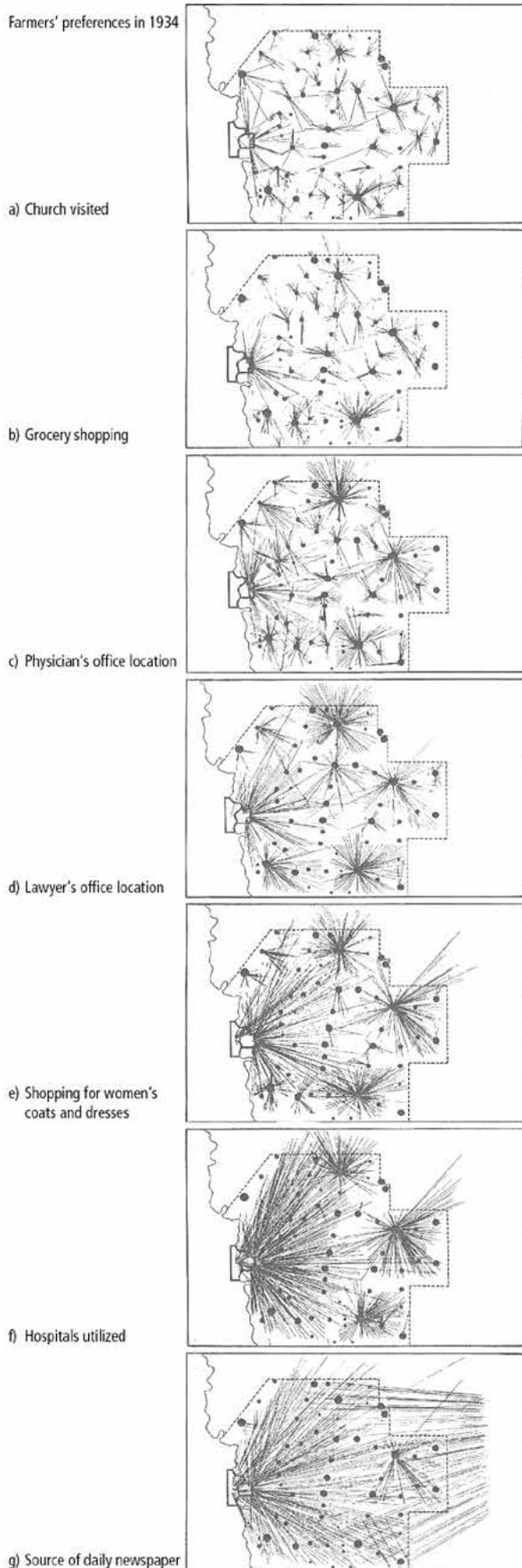


Fig. 17a: World as arena of spontaneous events

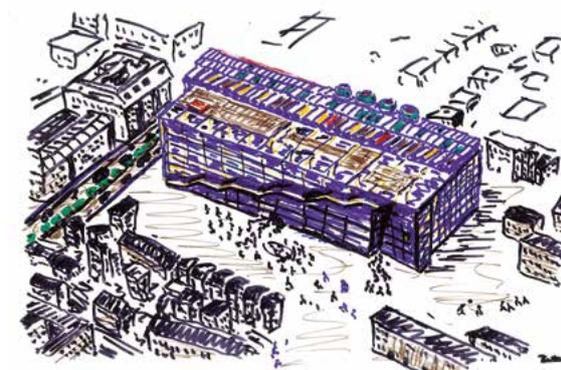


Fig. 17b: Place Pompidou as arena

America, in fact, civilization was defined as available only within ten miles from the railway! Now this hegemony was not attacked in any directly aggressive way. Rather, it was progressively undermined by the gentle voices of people like Yi-Fu Tuan, Kevin Lynch, Jane Jacobs and others (JACOBS 1961). By the early 1970s, serious questions were raised about the proclaimed certainties of the mechanistic world view.

In its place came the view of **world as an arena of spontaneous events** and a revival of contextualist theories of truth. In a sense this represented a revival of New England pragmatism and of Bergsonian views on intuition. It was applied in studies of resources, hazards, sense of place, and especially of environmental perception. Ideas such as “street ballet” (JACOBS 1961), “city image” (LYNCH 1962) and *genius loci* became popular (Fig. 17a, 17b).

Each of these four world views sheds its own particular light on the range of subjects, related to society and environment (Fig. 18).

Fig. 16: Time-cost access to various destinations³

There are strengths and limitations to each of these perspectives. Consider, for example, the notion of “region”. For organicism, a region was a cell within an organic whole. For the mosaic view, it was a set of land-use patterns, some co-incident, others not. Mechanism regarded the region as a node within a network, and in the “arena” view, it was a place, a playground, a theatre where things happened.

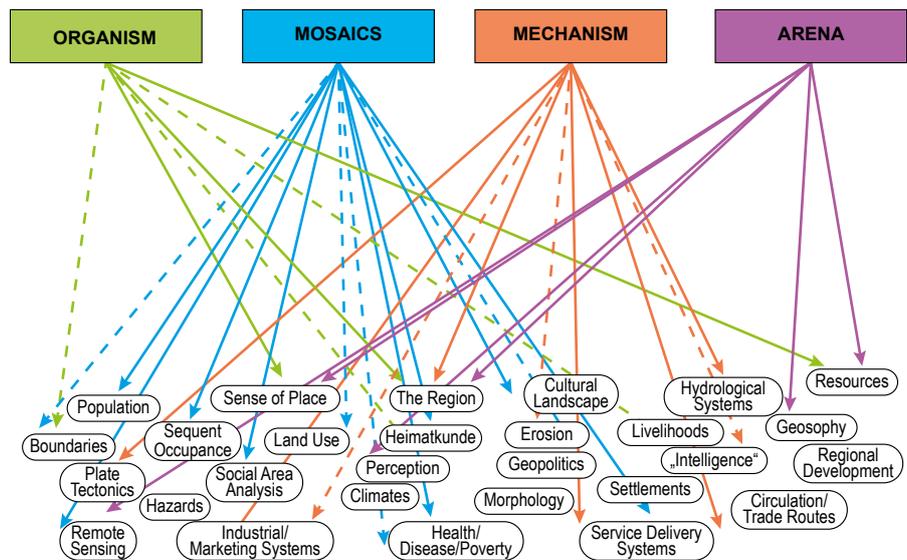


Fig. 18: Four world views on society and environment

The mistake that was made so often was to judge the results of research conducted in any one of these lines of enquiry using the categories of another. And that is illegitimate. Each of these root metaphors is anchored on a particular theory of truth. This understanding was immediately apparent among the people we interviewed. They were able to locate themselves in terms of changes over time which they had actually experienced. One convincing approach to the problem of knowledge, fragmentation, therefore, is a study of root metaphors.

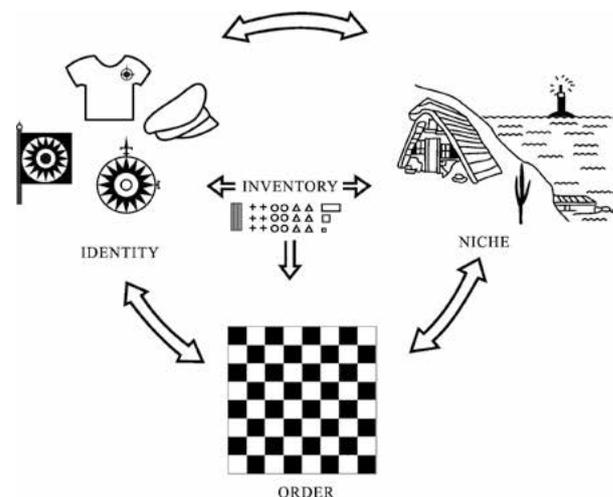


Fig. 19a: Enduring societal interests

Now let's examine possible connections between these world views and the societal interests mentioned earlier: identity, order, and niche (Fig. 19a).

During the early part the twentieth century, organicism shed light on niche, for sure, but also on identity (Fig. 19b). This world view endured even through World War I. Others were there in the background, but they weren't prominent. In 1922, when IGU (as well as the League of Nations) was founded, geography was just described as **mapping**. So the map became known as the central identity of geography. The map did, of course, shed some light on questions of identity, but its main focus was on order - socio-spatial and national - and administrative boundaries within the post-war world. After World War II, however, issues of “order” again came to the fore, but now the terms were no longer chorological but rather topological, hence the importance of mechanism in their elucidation. Emphasis was placed on the functional dynamics of spatial systems. Issues of niche (relationships of livelihood with bio-physical

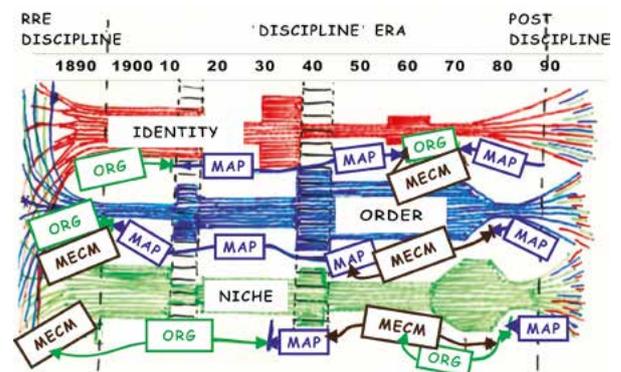


Fig. 19b: Root metaphors and societal interests: changing emphases

setting) – ignored for some decades – again evoked attention after the 1960s but this did not necessarily involve a re-introduction of organicist views. Rather

there were attempts to address environmental issues with global mechanistic models.

A major story at the opening of the twenty-first century regarding studies of society and environment is the move from the alleged certainties of the “modernist” era to the uncertainties of the post modern. Here the “arena” vantage point may well herald a “post-discipline” era in studies of society and environment. Much of the recent literature appears to be heavily influenced by the post-modern approach in literary criticism. A good deal of writing in human geography seems reluctant to make any definitive statement concerning society and environment. And I find that to be quite worrisome. It is worrisome and it is also ironic, because it comes at a time when there are extremely urgent environmental issues that need to be resolved.

This post-modern turn is also coming at a time when we have more precise documentation on the exponential transformations that have occurred in society and environment, population, energy, technology, and mobility, all of which have serious consequences for humanity. So Pegasus returns, and I think there is a message for geographers particularly: to get back out there in the field and map, measure and analyse.

As President of IGU (2000-2004) I attended meetings with other geo-scientists to look at issues that we all regarded as important and to explore ways to foster inter-disciplinary collaboration. We met face-to-face several times, each union agreeing to take initiatives on one of our shared themes, and all others promising collaborators from their own fields. One important outcome was the United Nations Year of Planet Earth (2007-2009).

The opening years of Century 21 are also marked by a series of centennials. Among these is the 200th anniversary of Alexander von Humboldt's famous excursions to South America and his inspiring *Tableau*. There is also a growing interest in the work of Teilhard de Chardin on evolution and a fresh look at the “story of the universe” by scholars such as Berry, Swimme and Tucker (BERRY et al. 1988, SWIMME & TUCKER 2011). Overall questions of society and environment, of humanity, place and space - once the cardinal foci of geographic enquiry - have now become highlighted in a wide range of fields. What remains, however, is the critical issue of policy and

the traditional tensions between “top-down” versus “bottom-up” action. In existential terms this could be symbolized as tensions between the archimedean approach (scientifically-based social engineering) versus that of *Le Petit Prince* who advocates a caring about all that humans have domesticated (“tamed”) on the earth.

Bringing all this to a conclusion, let me suggest that, down the centuries, questions of society and environment have elicited not only major voices, but also important counterpoint voices. These counter point voices – Eckhart, Leonardo, Hildegard, Albert and Teilhard de Chardin are really important and I would like to symbolize them graphically using other figures from Western mythology that signal the importance of listening carefully to creative voices (Fig. 20).



Fig. 20: Phoenix

Phoenix offers a symbol for emancipatory cries evoking attention to aspects of life and thought which were neglected, repressed or forgotten. These cries could also announce new discoveries in art, science or philosophy. But when these *cris-du-coeur* – emancipatory messages - are first expressed, they are not usually acceptable in society. Phoenix has to die and then be re-born. But when this idea is eventually accepted in society, another phase ensues. The general idea gets structured, it is given a home, even a castle and a flag. I symbolize this phase as Faust, re-calling Goethe's Faust, who has to keep building for the sake of humanity. Because if he should ever stop (*Verweile doch Du bist so schön*) Mephistocles was there, ready to steal his soul (Fig. 21).

So thinking people ask: how come we arrive with this structure, when we really envisaged something else? As in the case of unions, universities,



Fig. 21: Faust

churches, academies, tensions obviously arose between ethos and structure – between the agenda of structures which strove to maintain and even expand themselves and the original ethos. If this tension becomes too serious, thoughtful people take another step and go to consult the Muses at the waters of Helicon. I symbolize this phase as Narcissus. In a vulgar version of this story, instead of consulting the Muses, Narcissus fell in love with his own self image (Fig. 22).



Fig. 22: Narcissus

But there are other versions of the story. One of these envisages Narcissus being beckoned away from the pool by EROS, realizing the need to become free from the shackles of the Faustian period and open his mind for a new Phoenix.

This is the sequence that I had been thinking about with respect to Western ideas about society and environment (Fig. 23).

Once I expressed these to a group of Dutch ecologists and one participant said “No! you got it wrong”:

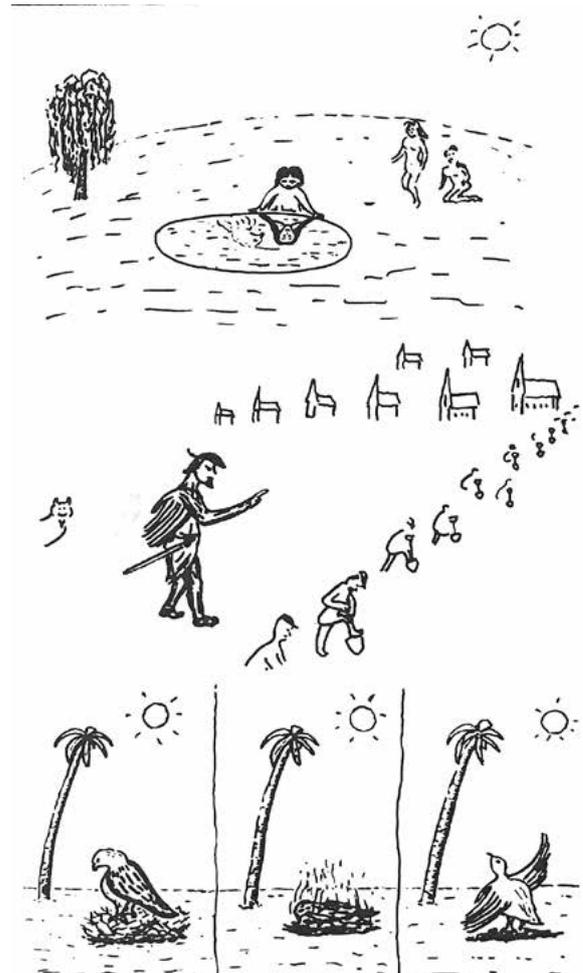
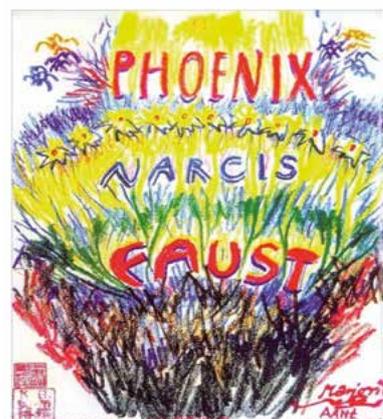


Fig. 23: Phoenix-Faust-Narcissus: Cyclical refrain in the western story

“we have been in the Faustian period, we are now emerging in the post modernist period into a Narcissus mood, and on the horizon is a Phoenix” (Fig. 24).



And on the horizon a new Phoenix beckons

Now in post-modernist mood critically reflecting on experience (Narcis)

Emerging from a long shadow of Faustian structures

Fig. 24: Faust – Narcissus – Phoenix: Hopeful Geographies?

So this is my concluding image. We are today emerging from a long shadow of Faustian structures, still in post-modernist mood, critically reflecting on experience, ever hopeful about the horizon where a new Phoenix beckons.

But I cannot leave you without sharing a thought from perhaps our most illustrious forebears, Prince Pitirim Kropotkin, who offered some advice to geographers, over more than a century ago (KROPOTKIN 1885):

Geography [...] must teach us, from our earliest childhood, that we are all brethren, whatever our nationality [...]. It must show that each nationality brings its own precious building stone for the general development of the commonwealth [...].

References

- BERRY, B.J.L. et al. (1988): Market centers and retail location: theory and applications. - Englewood Cliffs, N.J..
- BUTTIMER, A. & HAGERSTRAND, T. (1980): Invitation to dialogue. DIA paper no. 1. - Lund.
- BUTTIMER, A. (1983): The practice of geography. - London, New York.
- BUTTIMER, A. (1986): Life experience as catalyst for cross-disciplinary communication. Adventures in Dialogue 1977-1985. - Lund.
- BUTTIMER, A. (1993): Geography and the human spirit. - Baltimore.
- CARLSON, R. (2000): Silent Spring. - London, New York.
- COHEN, I.B. (1985): Revolutions in science. - Cambridge.
- DE CHARDIN, P. T. (1959): The phenomenon of man. Translation by Bernard Wall. - New York.
- GLACKEN, C. J. (1967): Traces on the Rhodian Shores. - Berkeley.
- HARTSHORNE, R. (1939): The nature of geography. A critical survey of current thought in the light of the past. - Lancaster.
- HEISENBERG, W. (1958): Physics and Philosophy: The Revolution in modern science. - New York.
- JACOBS, J. (1961): The death and life of great American cities. - New York.
- KROPOTKIN, P. (1885): What geography ought to be. - The Nineteenth Century, 18: 940-956.
- LYNCH, K. (1962): The image of the city. - Cambridge.
- PEPPER, S.C. (1942): World Hypotheses. - Berkeley, California.
- SWIMME, B.T. & TUCKER, M.E. (2011): Journey of the Universe. - Yale.
- THOMAS, R. L. (ed.) (1956): Man's Role in changing the face of the earth. - Chicago.

Endnotes

- ¹ Many of the graphics included in this presentation were sketched by my late husband, Bertram Broberg.
- ² Based on the theory of Stephen Pepper, op.cit.
- ³ Consumer preferences among Iowa farmers. In: Berry, B.J.L. et al. (1988): Market centers and retail location. Englewood Cliffs, N. J.: 12.

DEMOGRAPHIC CHANGE AND URBANISATION WITHIN THE BOUNDARIES OF A FRAGILE PLANET

Martin Lees

Former Secretary General, Club of Rome

Mr. Chairman, Your Excellencies,
Ladies and Gentlemen,

It is a great honour and challenge to make a presentation to this distinguished and expert audience at the International Geographical Congress 2012 which is taking place at a time of turmoil and profound change in world affairs. I have been asked to outline the key global issues of demographic change and of urbanisation. I think it will be useful if I first provide a broad context by swiftly reviewing the critical, connected issues we face in the modern world.

Global economic growth has undoubtedly produced enormous benefits for hundreds of millions of people in both developed and developing countries. But we are heading fast into a perfect storm of connected environmental, economic and social challenges. The issues confronting the world community today are more intense and threatening than those we have faced in the past. They are on an unprecedented scale, with truly global implications; they are evolving fast; they are essentially connected and systemic and they will behave, individually and together in non-linear ways. We must understand that we face a future not of steady, predictable trends but of irreducible uncertainty with the risk of discontinuities and of rapid, unpredictable change.

On a more positive note, although the Rio+20 Conference on Sustainable Development in June produced little significant outcome at the intergovernmental level, it did clearly demonstrate that there are vast potentials of creativity, knowledge, scientific and technological capacities, accumulated experience, expertise and resources of all kinds which could be intelligently deployed to create a more just, stable and sustainable world.

The future is by no means pre-ordained but will be determined by our choices and actions – if, that is, we act in time. But time is running out.

The existential challenge we must face is to meet the needs and aspirations of a growing world population in coming decades while respecting the capacities and boundaries of our fragile planet. Partial, incremental change is clearly necessary but it will not be sufficient to contain our deepening, interconnected problems. The time has come for transformational change and urgent, concerted action.

The issues of the 21st Century are essentially systemic and interconnected. I am therefore particularly pleased to be speaking to a group of expert geographers. The special contribution of geographers to meet these challenges will be of particular importance.

Geography is a scientific discipline which integrates knowledge and expertise across many fields, from the physical world of resources, energy, climate, water and the environment, through the natural world of ecosystems, biodiversity and agriculture to the fields of anthropology, sociology and economics. Geography also recognises, intrinsically, the importance of international and global realities. Your efforts to develop new intellectual models, to propose coherent policies and to educate the leaders of the future to manage complex, systemic problems will lay the foundations of a better world.

1. The fundamental Challenge of the 21st Century: Meeting Human Needs and Aspirations within the Boundaries of a Fragile Planet

The fundamental challenge of the 21st Century will be to meet the human needs and aspirations of a growing population while preserving a viable environment and a stable climate.

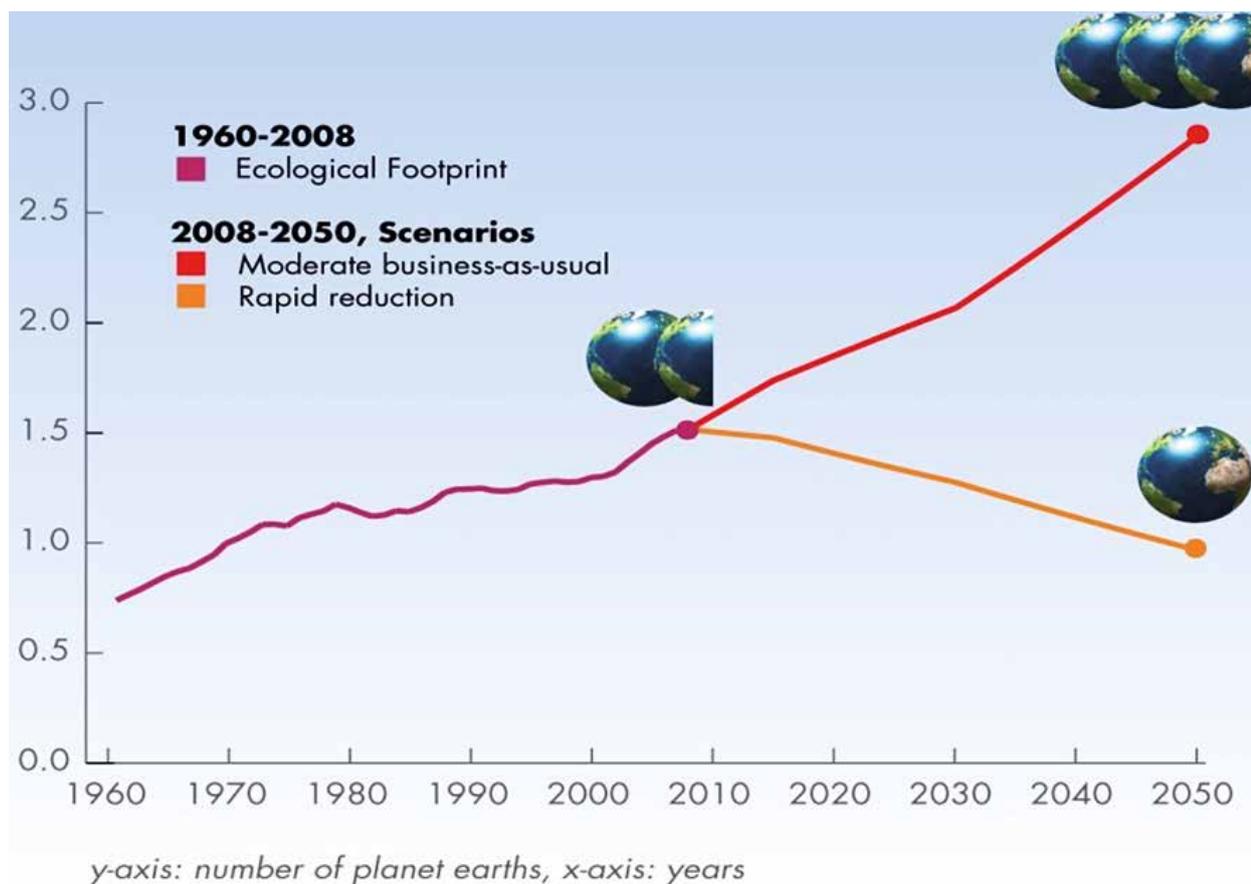


Fig. 1: Overuse of the Biosphere (Source: Global Footprint Network 2011)

Environmental Challenges

I will start by focusing on the crucial but failing relationship between humanity and nature. The escalating scale of human impacts in this “Anthropocene Age” is devastating the environmental and ecological systems on which humanity absolutely depends. According to the Red List of IUCN, nearly 20,000 species of animals and plants around the globe – of those we have identified – are at high risk of extinction: we are provoking the sixth mass extinction in the past 540 million years.

Humanity is overusing the regenerative capacities of the planet by some 50% each year: we are using up our biological capital, not only our revenue, at the cost of future generations (Fig. 1). This is clearly unsustainable. We are also exploiting the energy and physical resources of the planet at an increasingly unsustainable rate: in particular, we are coming to the end of the era of cheap oil on which our civilisation is founded.

The fresh water, vital to human life and to the ecosystems on which humanity depends is under increasing stress across the world, through overuse, contamination, mismanagement and climate change. Water use is doubling about every twenty years. The state of the oceans, which support 95% of life on this planet, is also desperate. Human impacts have changed the oceans more in the last thirty years than in previous human history. Mean ocean acidity has increased by 30% in the last 200 years. This has severe consequences for both marine life and the global climate (Fig. 2).

Overall, the current trajectory of world growth and development is, in many respects, infringing the critical physical boundaries of our fragile planet, as made very clear by the impressive research on Planetary Boundaries led by the Stockholm Environmental Institute. If we continue on a business as usual path, the environmental consequences will be devastating. This becomes very clear when we focus on the crucial issue of climate change.

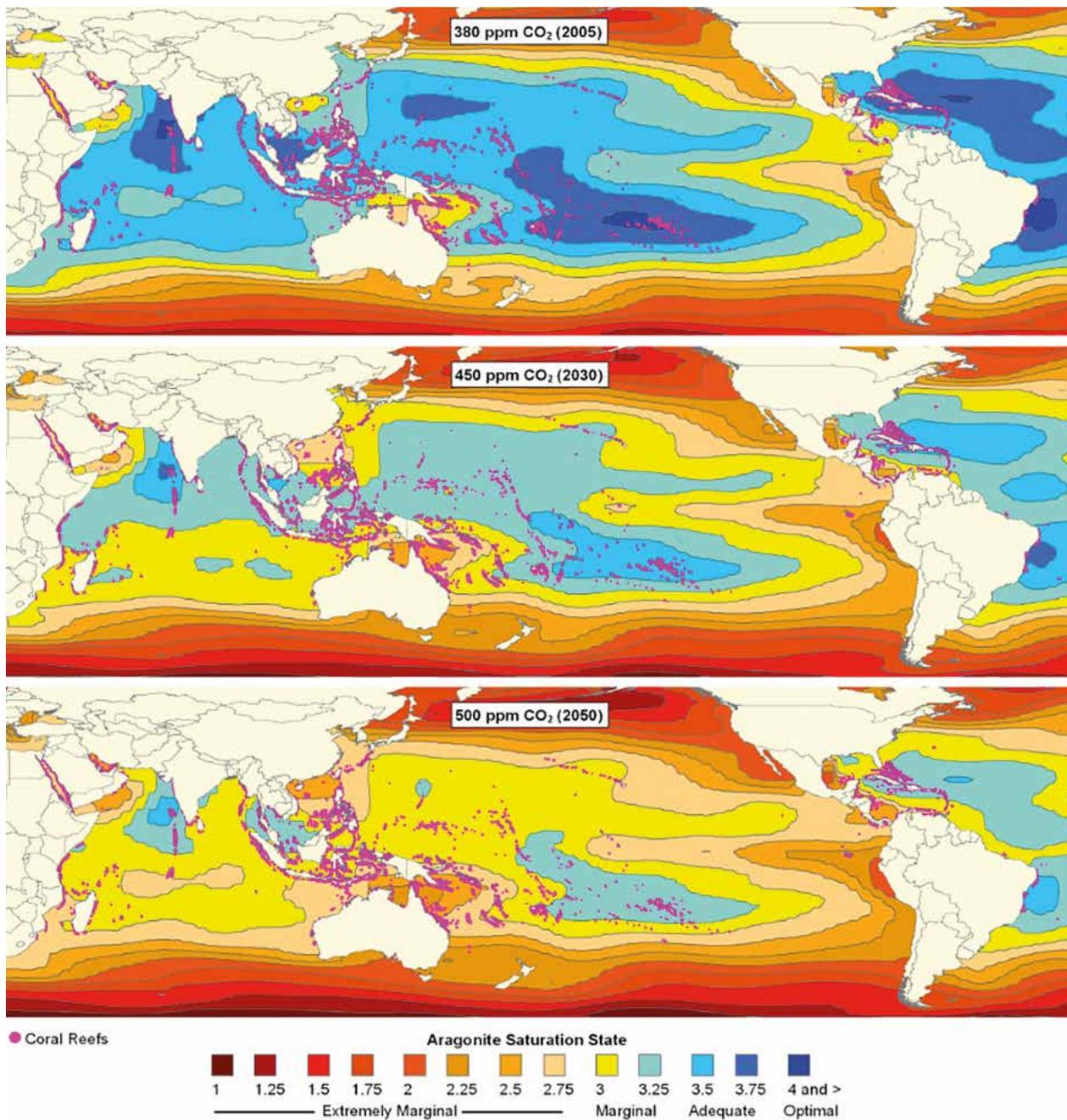


Fig. 2: Threat to coral reefs from ocean acidification in the present, 2030, and 2050 (Source: adapted from CAO & CALDEIRA 2008)

The world is warming fast. But the preservation of a stable climate is essential if we are to meet the needs of a growing population and to achieve sustainable world development (Fig. 3).

The world community has been struggling for more than twenty years to reach agreement to limit the rise in global average temperature to a target level of 2°C by limiting the concentration of greenhouse gases in

the atmosphere below 450 ppm. But even a rise of 2°C would have massive and irreversible impacts, particularly on the poor. And it would have devastating consequences for the terrestrial and ocean ecosystems on which we depend. In comparison, the major impacts we already see across the world are the result of the temperature rise of only 0.8°C since the start of the industrial revolution in 1750. Imagine the consequences of a 2° or a 6°C rise!

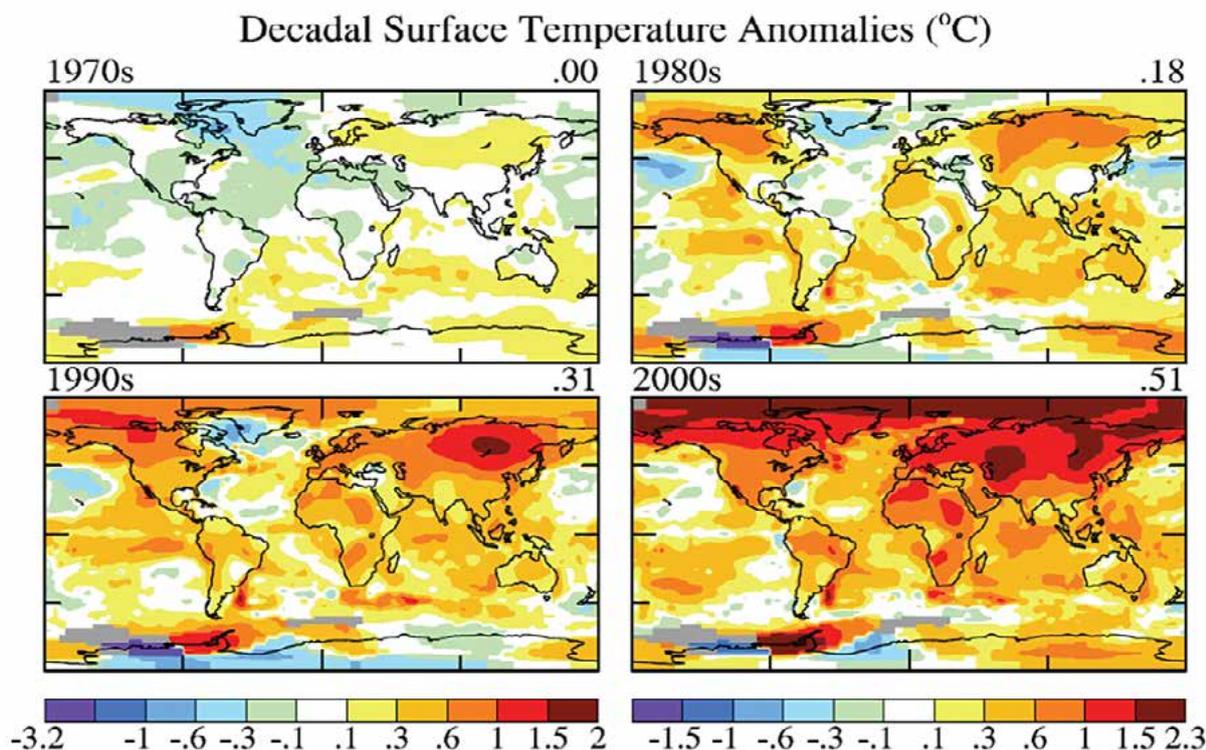


Fig. 3: Decadal mean surface temperature anomalies relative to base period 1951-1980 - Arctic is warming fastest (Source: update of HANSEN et al. 1999)

If we fail to act and continue on the present “business as usual” path, global average temperature could rise by over 6°C by 2100, above the worst-case scenario of IPCC (Fig. 4). Such a rise would provoke intolerable conditions for humanity and most other living species. And this estimate is a global average figure. It would imply a temperature rise of double this amount in some regions of the world, such as the Greenland and West-Antarctic ice sheets and the Alps. This would provoke a sea-level rise which would endanger millions of people in coastal cities. A rise of at least one meter by 2100 is almost inevitable: the melting of the Greenland ice sheet alone would raise sea level some seven meters.

These then are the realities we face. But as we have seen, international negotiations are failing to agree on strong and timely climate action. Carbon emissions, far from declining, have cumulatively risen by 49% since 1990, reaching a record high in 2011. A recent independent study shows that even if, optimistically, all the reduction targets and pledges which have been made in Copenhagen, Cancun and Durban were implemented, we would still be on a path to an average temperature rise of 3.5-4.5°C, with intolerable consequences.

This is bad enough. But climate change will not be a steady linear process of gradual warming. We also face the grave risk that we may push the climate beyond the tipping points which can trigger a number of “positive feedback” processes which could generate “runaway” climate change, beyond human influence. As we fail to act and the planet warms, these feedback processes are already beginning to operate (Fig. 5). This is a grave threat to the future of us all. It would seem obvious that strong, precautionary climate action must be taken within the next crucial decade to avert such risks. But the Durban Platform for Enhanced Action (agreed in December 2012) envisages a new international agreement to be established only in 2015 with a commitment to binding emission cuts from 2020. This is too little, too late.

In reality, there is no choice between development or emissions reduction to avert the threats of climate change. Development and environment must be integrated within one coherent strategy. This is now increasingly understood, for example in China, which established – twenty years ago – the China Council for International Cooperation on Environment and Development. The scale and urgency of the climate

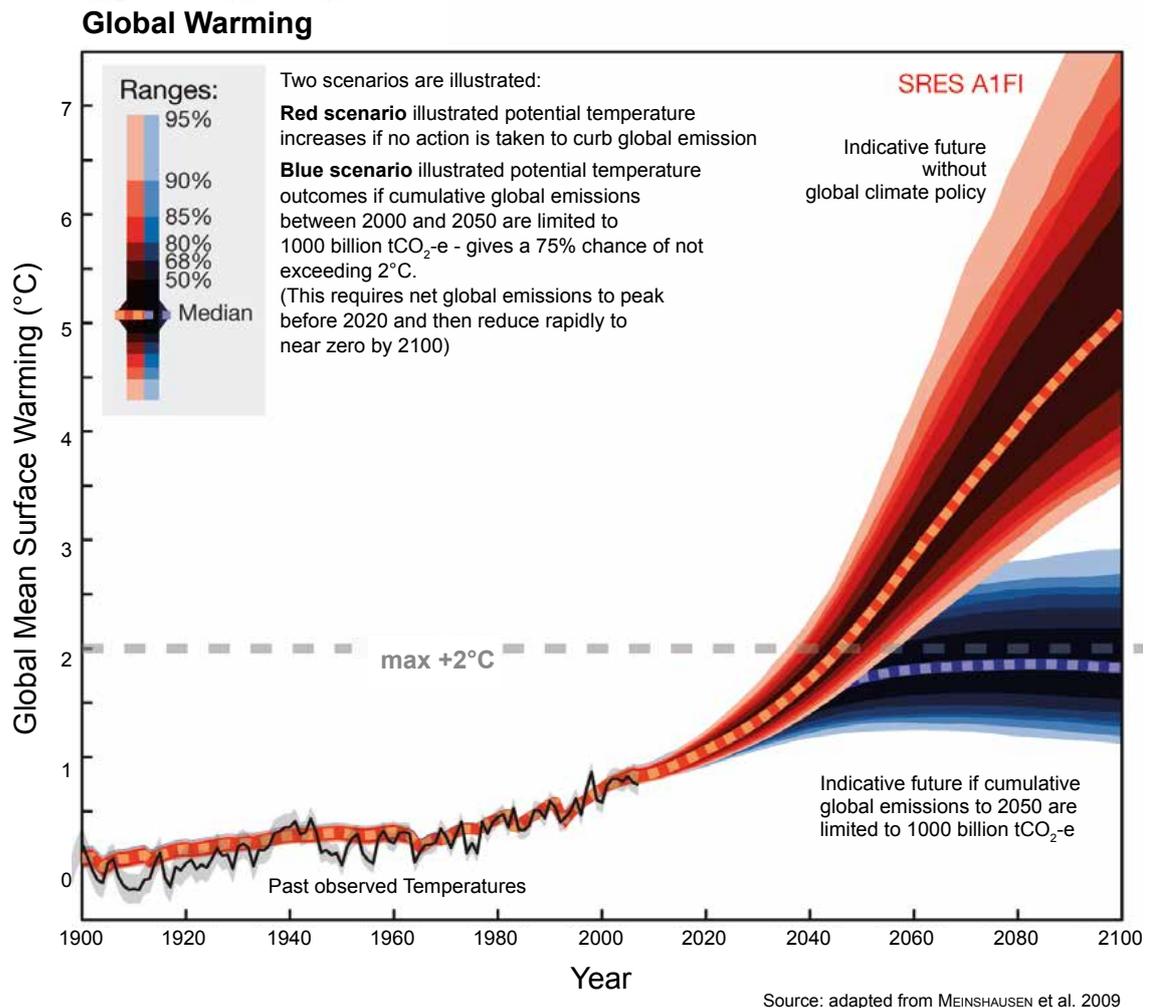


Fig. 4: Global emissions and warming scenarios - median projections and uncertainties of global mean surface air temperature (Source: adapted from MEINSHAUSEN et al. 2009)

The systems dynamics of climate change

We risk triggering runaway climate change, driven by “positive feedback loops” such as:

- Albedo Effect: loss of white ice which reflects 80% of incoming radiation
- Degradation of forests and ecosystems reduces carbon sink capacities
- Melting permafrost releases methane - a GHG 20 times more damaging than CO₂
- The release of methane from clathrates (methane hydrates in the oceans) can be a massive driver of warming
- Increasing acidification of the oceans reduces the capacity of plankton to absorb carbon

Once these feedback loops are operating, cuts in emissions will have little effect

Fig. 5: Some critical positive feedback loops which may drive accelerating climate change (Source: LEES 2008)

challenge is set out clearly in a Statement, “Action to Face the Realities of Climate Change” presented at the Rio+20 Conference, of a Task Force convened by President Gorbachev within the framework of Green Cross International.

Social Challenges

Besides its devastating impacts on the natural world, our present path of growth is also generating major social imbalances and injustices. Inequality in wealth and income is rising while the number of people living in abject poverty is again increasing. According to the World Bank (2011), some 1.3 billion people are trapped in poverty while around 2 billion people are living on less than \$2 per day, with their basic needs for security, employment, health, food and nutrition unmet.

The escalating demand of a growing world population, linked to increased prices for food and energy, has already provoked a food crisis across the world. And the livelihoods of the poor are under threat from food and energy insecurity and from widening water stress, desertification and intensifying extreme weather events aggravated by climate change.

Unemployment and underemployment are now endemic in both developing and industrialised countries while social cohesion and political systems are suffering under the impacts of economic failure and globalisation. The creation of employment must become an explicit priority of policy. Jobs can no longer remain the residual of an economic strategy dominated by financial considerations and aimed at growth as measured by GDP. This is particularly important in order to provide opportunities for young people to develop their talents and to build happy and productive lives.

Economic Challenges

Besides these intensifying environmental and social issues, we are living also at a time of crisis in world economic and financial affairs with growing imbalances, instability and vulnerabilities. And the processes of globalisation have been widening the gaps between rich and poor: 2% of the richest people own around 50% of the world’s wealth while the poorer 50% own only 4% (Fig. 6). Further, the balance of economic power and influence across the world is changing at a pace which was unanticipated only a few years ago, with the rise of powerful new economic actors, notably the major emerging economies of the “global south.”

One indicator of this profound change is that China now has foreign currency reserves of over \$3 trillion.

What then is our strategy to deal with the crucial challenges which I have outlined? We remain committed to an unrealistic strategy based on the presumption that our deepening economic, financial and social problems, and ultimately, the fundamental problems of environment and poverty, can be resolved by stimulating demand for further consumption so as to return as soon as possible to the established path of exponential economic growth as measured by GDP.

This strategy presumes that the world economy can double in size by 2030 and that it could double again by 2050: this would imply of

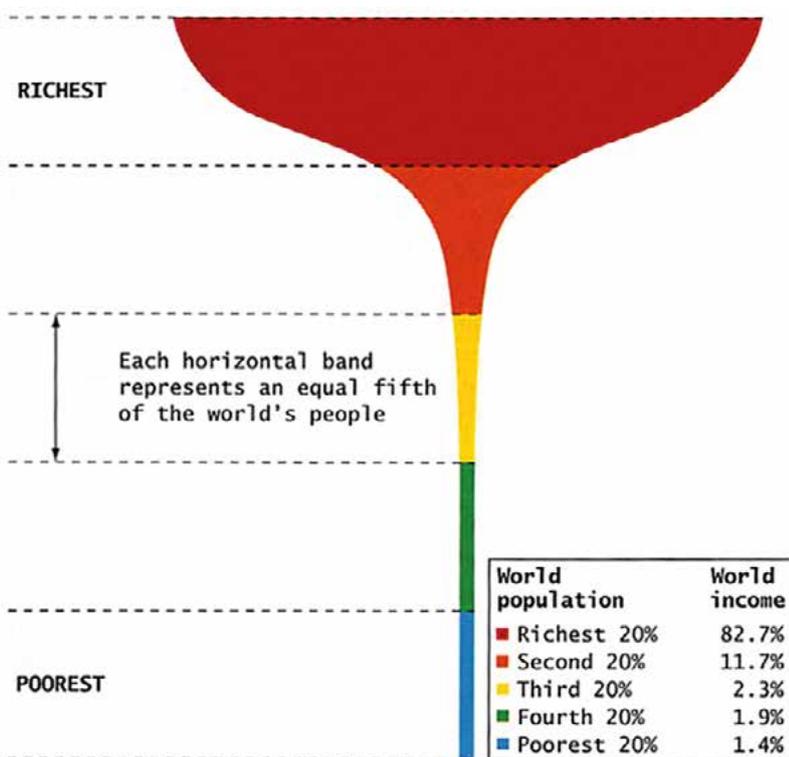


Fig. 6: Champagne glass distribution (CONLEY 2008)

course that three new world economies would be added to today's economy in 40 years, driven by the needs of a growing world population and of a rising middle class.

While this established strategy may appear logical and feasible to policy makers preoccupied with acute economic and financial issues, it is clearly not feasible and not sustainable when we consider the present and future realities of climate, environment, energy and resources, demographic change, inequality and development. For example, according to IPCC, under this scenario, passenger vehicles would increase across the world from 600 million today to 1.7 billion in 2050, heavily concentrated in congested cities.

We are in effect at a turning point in thinking, strategy and international cooperation. We must first accept that our present models and strategies for economic growth are failing in critical respects. We must then define and implement a new path for inclusive, equitable and sustainable world development, recognizing the systemic nature of the challenges we face, if we are to meet the needs and aspirations of a growing world population within the boundaries of a viable environment and a stable climate. This would not only reduce the risks and threats to stability, peace and progress which are now emerging but would bring enormous opportunities and co-benefits, laying the foundations of the innovative, resource-efficient, inclusive economies and societies of the future. To map out such a “New Path for World Development” is now a focus of the programme of the Club of Rome (Fig. 7).

2. The Prospects and Consequences of Demographic Change

Within this overall perspective, I will now outline the key aspects of demographic change, first the question of the absolute numbers of people, then the spatial distribution of population and then the changing age structure of population and its implications.

The prospects and consequences of demographic change are very well presented in a statement on “Demographic Challenges for Sustainable Development” by the Wittgenstein Centre for Demography and Global Human Capital (2011), recently es-



Fig. 7: Logical framework for a new path for world development (Source: LEES, Club of Rome 2008)

tablished in Vienna. This statement was drawn up by a distinguished panel and was targeted for the debates at Rio+20. However, demographic factors were not given significant attention in Rio, covered in three banal paragraphs out of 283 in the final declaration.

The Size of World Population

Over the last 50 years, world population has more than doubled, from 3 billion in 1960 to over 7 billion today. (Fig. 8). The total size of world population is likely to increase further to between a low estimate of 8 billion and a high estimate of over 10 billion by 2050. Clearly, the prospects for sustainable world development, for a stable climate and for world peace would vastly improve if the outcome is nearer to 8 billion than 10.5 billion. This wide range of possible outcomes is due to the uncertainties of future fertility and mortality trends in different parts of the world. In 2011, the median projection of the UN Population Division (2012), which had been around 9.15 billion by 2050, was revised upwards, reflecting the fact that fertility rates, principally in Africa, are not diminishing as expected.

The Distribution of World Population

We face a demographically divided world. Population size in most of Eastern Europe, in Russia and Japan and in Western Europe, apart from migration,

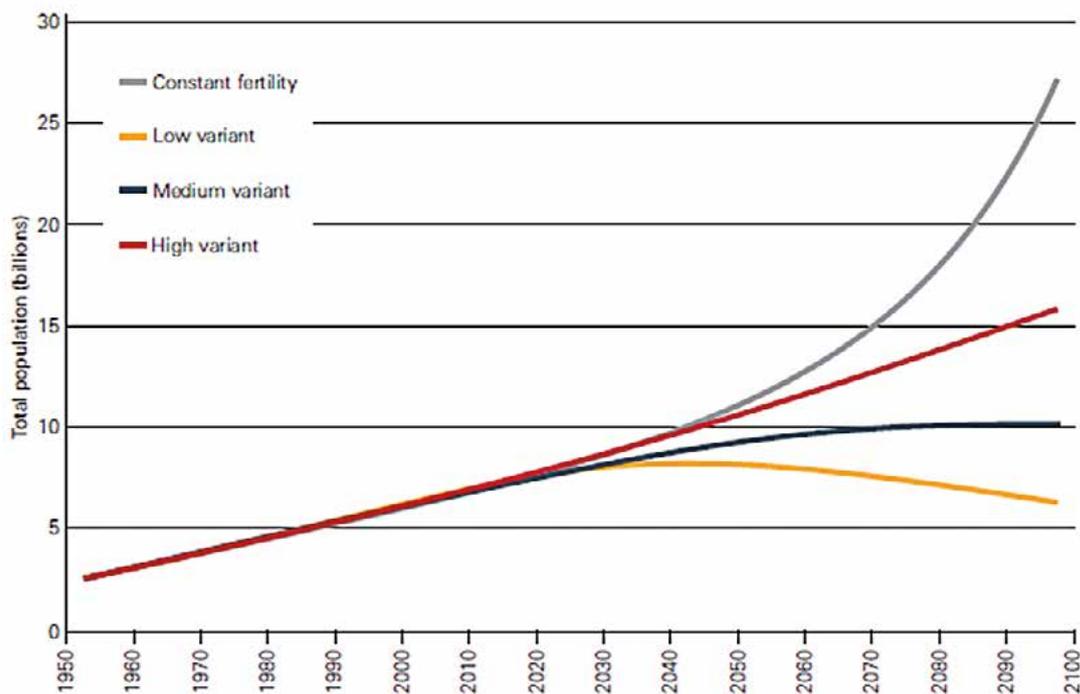


Fig. 8: Global population numbers for the low, medium and high variants, and what happens if fertility rates remain constant, up until 2100 (Source: UNDP 2011)

is in decline. In contrast, populations in Sub-Saharan Africa and some Asian countries are still set to double or triple in size. China's population will continue to grow for two decades before entering a decline while India is headed for a population increase of between three and four hundred million by 2050. The size of the US population is also increasing due both to internal growth and immigration.

Nearly all the growth in population will occur in developing countries but, within this broad grouping, there are major differences. The demographic transition has been quite fast in some countries where fertility has declined substantially in just three decades. In around 37 developing countries fertility is below replacement levels. But in some 20 or more Least Developed Countries, fertility rates remain stalled at average levels of 5.0 or above, with many others between 4 and 5. In Niger the fertility rate remains at around 7.

The implications of such high fertility rates are ominous. The population of Sub-Saharan Africa which was around 611 million in 2000 is now around 800 million. It is expected to grow to around 1 billion over the coming decade and to around 1.6 billion by 2050 with an uncertainty range of 1.3-1.9 billion.

Another telling example is Afghanistan with a population of 28 million today which is set to rise to 45 million by 2025 and around 75 million by 2050. The security implications alone of such an evolution are of immense concern.

Putting such figures in the wider framework which I have described, the Center for Global Development in the US, in a recent study, concluded that climate change impacts, during this same period of rapid population growth, could result in a fall in food production in Africa of 28% by 2050. The impact on India would also be severe: a reduction of 38%, over the same period when the Indian population is expected to increase by 400 million. Where will Nigeria be on the present path when its population will have risen to almost 300 million?

A further factor of increasing importance will be the migration of refugees within and between countries driven by sea level rise, destructive storms and extreme weather events, by expanding deserts, rising levels of pollution, degrading soils and ecological support systems, by the lack of jobs and economic opportunity and by insecurity and violence. In many regions of the world, the flood of people into cities is driven by such pressures.

The Changing Age-structure of Population

Besides the consequences of absolute increases in the numbers of people, a critical aspect for the future is the changing age structures in different countries. In broad terms, the industrialised countries of Europe, North America and Northeast Asia, including China after 2030, will face the consequences of demographic ageing, affecting labour markets, health care costs, public finance, and economic performance. As phrased by Vice President Wu Yushao of the China National Committee on Ageing, "Population ages fast and the numbers are enormous: the elderly population made up 5% of the total population in 1982 and 10% in 1999 and it increases by 100 million every ten years." (2008).

In contrast, countries in Africa, Latin America, the Middle East and Asia will face the intense problems of providing employment, education, healthcare and opportunity to meet the needs and aspirations of rapidly growing, youthful populations. A tide of young people is entering labour markets in search of productive employment. There are at present worldwide around 1.2 billion young men and women aged 15-24 with many more to come. In Sub-Saharan Africa alone, this group will increase from 170 million to 360 million by mid-century: hence my emphasis on the central importance of employment.

The growth of world population will evidently put added pressures on the natural capital and ecosystems of our fragile planet and on the economic, social and political fabric of society. On the other hand, if additional people have the opportunity to live healthy, fulfilled lives, this will add to the human capital of creativity and productive work to improve the world. This is a key policy opportunity. As stated by the 1992 UNCED Rio Declaration, "Human beings are at the centre of concern for sustainable development".

What should be the Priorities for Policy and Action?

Fortunately, feasible policies are available to influence the trajectory of demographic growth, and they can deliver relatively rapid results. Some key priorities should be:

1. First, to provide basic health services for all and in particular, to ensure universal access to voluntary programmes of reproductive health and family planning. At present some 215 million women have no such access, 59% of these in Sub-Saharan Africa. Together with their families, they represent around one billion people.
2. Second, a sustained effort to provide education and empowerment, particularly for girls and women. This has been shown to be even more effective in reducing fertility than rising income alone.
3. Third, the eradication of poverty is critical: many examples demonstrate that rising income contributes to lower fertility rates.
4. Fourth, explicit, sustained efforts should be focused on the creation of productive employment which is crucial to reducing poverty and hunger, to building productive economies and to preserving social cohesion, effective governance and stability.

These policies and measures together – health, education, poverty eradication and employment – would be mutually reinforcing, within a coherent strategy for sustainable and inclusive human development. They would together strengthen the human capital which is the foundation of progress. And they would influence the trajectory of demographic growth so as to stabilize world population between 8 and 9 billion people by 2050.

From this brief analysis, it is clear that sustained policies to promote a reduction in the rate of growth of world population are feasible and that they would greatly contribute to reducing pressure on the world environment, to reducing the risks of climate destabilisation, to achieving a sustainable path of world development and to improving the prospects for the prosperity and security of future generations. This should be a top policy priority in the common interest of the world as a whole, but at present, it is not.

3. Urbanisation in the 21st Century

Let me now sketch the scale, the speed, the risks and the implications of the rapid urbanisation of our species.

The proportion of world population living in cities has risen from around 10% in 1900 to over 50% today. According to the United Nations (2012), it was in 2008 that the shift occurred that over half of humanity now lives in cities. If present trends continue, this proportion will rise to over 70% by 2050. The implications are enormous. The McKinsey Global Institute (2011) has calculated that, between 2010 and 2030, the world's 600 largest cities will contribute around 65% to global growth and that they will require \$10 trillion in additional annual investments by 2025. This would imply the construction of additional floor space equivalent to 85% of all today's residential and commercial building stock with immense implications for land use and the environment. To meet this scale of urban demand, the supply of fresh water will have to increase by some 80 billion cubic meters per year, a rise of 40% above today's total urban demand.

It is clearly of the highest importance that this process of urbanisation should be undertaken in the most resource efficient and least environmentally damaging way. In China, for example, where the rate of urbanisation is most rapid, nearly half the world's new floor space is built each year: putting up and using buildings accounts for around 30% of China's climate change emissions.

According to the International Energy Agency (2010), cities are likely to account for over 75% of global fossil-fuel based climate emissions by 2030. A key domestic and international priority must therefore be to extend access to modern energy-efficient technologies so as to avoid the "lock-in" of inefficient technologies for buildings, transport and infrastructure. If efficient technologies can be deployed, this will reduce energy-use and emissions for decades to come and thus the risks of climate change. As energy systems in many cases are inefficient, energy intensity can be reduced significantly through sustained policies.

The central importance of cities in achieving sustainable development was recognised at Rio+20, both by governments and by civil society. Several major international associations of cities were very active in Rio, in particular ICLEI, the organization of Local Governments for Sustainability which held its World Congress of some 1,500 mayors and representatives from cities across the world, the C40 grouping

of major cities and the World Mayors Council on Climate Change.

The growth of cities throughout history has been driven by the aspirations of people to find better jobs and opportunities, better access to education, health and culture. But there is wide diversity in the circumstances and conditions of cities. Immigration into many cities of the developing world today is driven less by the hope of a better future and more by the breakdown of rural livelihoods brought about by a combination of demographic pressures, insecurity and environmental degradation. As population increases and environmental constraints tighten, the flow of migrants into cities will increase, intensifying the challenges of rapid urbanisation.

Cities are immensely complex systems, dependent on their hinterlands, regions and nations. They rely on the functioning of supporting systems to provide energy, water, food, resources, waste disposal, transport and access to markets and security.

In the coming world of rapid change, economic instability and environmental risks and constraints, cities therefore will be increasingly vulnerable to trends, disruptions and shocks beyond their control.

We should not therefore automatically assume that the present rapid trend towards urbanisation is inevitable and sustainable in the longer term. It will be a key challenge to city administrations, to governments and to the world community to focus on and support the policies which will ensure that continuing urbanisation contributes to a sustainable and peaceful world.

4. What can Geographers contribute at this critical Time?

Finally, what can geographers contribute at this critical time? In my view, the challenges of the modern world are becoming so severe that they cannot be resolved through traditional thinking and incremental adjustments to business-as-usual. The conventional wisdom which has guided policy in recent decades has broken down: we need new ideas, new strategies, new values and new partnerships if we are to assure a decent future.

I believe that geographers are well placed to make a number of contributions along the following lines:

- In the field of research, geographers can contribute to the elaboration of the new paradigms and indicators of growth and development which can improve coherence between the physical, environmental, economic, social and human facets of policy and action which must become mutually reinforcing to achieve sound and sustainable development.
- Geographers can also help to develop the application of integrated systems-thinking to understand better the systemic, connected nature of the challenges we face. This would improve the results of intervention, strengthen resilience and the anticipation of shocks and provide a sound basis for the effective management of risk under uncertainty.
- Education is a key factor in every respect: teaching curricula and methodology must be adapted to create a new generation of leaders, experts and practitioners with the knowledge and skills to understand and manage the complex issues of the modern world. Also, the general public must be made more aware of the reality of the challenges we face in order to support essential change. The development of educational capabilities in the developing world is of particular importance to meet the situation-specific challenges of sustainable development.
- The interface between science and policy is of critical importance. At present, the insights of science are not properly reflected in the design of policy, particularly in relation to ecosystems degradation and climate change. Policy makers must come to understand the reality and urgency of the threats to the future. Geographers can play a valuable role in developing coherent, longer-term perspectives of the challenges and opportunities ahead and, as concerned and informed citizens, explaining the realities we face and pressing for the urgently needed action.

I hope that this brief overview of global prospects for demographic change and urbanisation on our fragile planet will provide a useful contribution to your expert discussions. I wish the Congress every success.

References

- CAO, L. & CALDEIRA, K. (2008): Atmospheric CO₂ stabilization and ocean acidification. - *Geophysical Research Letters*, 35 (19).
- CONLEY, D. (2008): You may ask yourself: An introduction to thinking like a sociologist. - New York.
- HANSEN, J., RUEDY, R., GLASCOE, J. & SATO, M. (1999): GISS analysis of surface temperature change. - *Journal of Geophysical Research: Atmospheres* (1984–2012), 104 (D24): 30997-31022.
- International Energy Agency (2010): World energy outlook. - Paris.
- LEES, M. (2010): Hongkong Climate Dialogue. Keynote Address: Climate Change in the Global Context. Nov. 2010.
- McKinsey Global Institute (2011): The Urban World. Mapping the economic powered cities. - http://www.mckinsey.com/insights/urbanization/urban_world.
- MEINSHAUSEN, M., MEINSHAUSEN, N., HARE, W., RAPER, S.C., FRIELER, K., KNUTTI, R., FRAME, D.J., ALLEN, M.R. (2009): Greenhouse-gas emission targets for limiting global warming to 2°C. - *Nature*, 458 (7242): 1158-1162.
- UN Department of Economic and Social Affairs (2012): World Urbanisation Prospect. The 2011 Revision. - New York.
- Wittgenstein Centre for Demography and Global Human Capital (2011): Laxenburg Declaration on Population and Sustainable Development. IIASA Oct. 2011.
- World Bank (2011): World Development Report 2012. - Washington.

EMERGING GLOBAL URBAN ORDER AND CHALLENGES TO HARMONIOUS URBAN DEVELOPMENT

Surinder Aggarwal

Geographer, University of Delhi, New Delhi, India

Good afternoon Ladies and Gentlemen,

Before I begin my lecture I would like to acknowledge some of the materials and ideas borrowed while browsing some abstracts of various sessions under the Urbanization and Demographic Change theme. When I look closely at those abstracts, I find much of negativity reflected from the contemporary urbanization performance. It means, contemporary urbanization is causing more problems than creating solutions. That is the kind of message I convey from the examined abstracts.

There are four major components of my speech. First, I would like to develop how the global urban order is changing and shifting towards the developing countries, in particular Asia. Secondly, what are the associated challenges with this kind of urbanization? And third, what can be done to transform the threats into challenges and opportunities. In the last part, as a geographer, I would like to put some research questions for the consideration of the present audience and beyond.

1. The Context

Well, to begin with, why concern about contemporary urbanization? Urbanization, both as a social phenomenon and a physical transformation of landscape, is one of the most powerful, irreversible and visible anthropogenic forces on earth. Many of the most important and significant changes associated with globalization are taking place in urban areas. Conversely, globalization itself is as much an inter-city phenomenon and cities have become major driving force of globalization. In this sense urbanization is a defining phenomenon of this century and the developing countries are at the locus of this transformation.

For the first time in human history, more than half of the world's 7 billion population lives in urban areas. Nevertheless not all regions of the world have reached this level. The demographic shift has happened in the last few decades largely due to rapid urban growth in the developing countries. Of course such rapid urban shift is not for the first time as often proclaimed. Rapid urban change did happen in late 19th century when countries like Germany, United Kingdom, Canada and the US were industrializing fast. Now it is the huge urban number of 3.5 billion that alarms us. Of course, this kind of demographic shift presents challenge but also vast opportunities. Urbanization has a new face now, and weakly associated with industrialization and linked economic development as was true in early industrializing Europe and elsewhere. Rather, quaternary and tertiary sectors are now propelling contemporary urbanization and economic transformation. Further, it is not the sheer number of persons living in the urban settings that is important to celebrate urbanization. It is the quality of urbanization that will matter most. Unfortunately, that's not happening and we need to be concerned and proactive to produce this qualitative shift. Issues like environmental degradation, ecosystem damages, growing vulnerabilities and inequities and informality are the serious concerns that need to be addressed to make urbanization process environmentally sound and socially inclusive. These will be addressed later. At present we recognize the driving forces behind the present style urbanization. New forms of advanced capitalism, neo-liberalization and globalization have unleashed the market forces of consumption and resource use to undermine the development of harmonious and just cities. Cities still perform the functions of innovations, creativity and centrality (hubs) however to the benefit of few. The real challenge lies before us is to convert the challenges into opportunities by advancing new theories of urban change, adopting new urban plan-

ning tools or models, good governance approaches and empowering citizenry with citizen's right to the city. I will elaborate about these at a later stage.

2. Emerging urbanization patterns and demographic changes

According to 2011 Revision of World Urbanization Prospects (2012) there is significant diversity in the urbanization levels reached by different global regions (Fig. 1). More developed regions like US and Europe and many countries in Latin America and the Caribbean have reached high levels of urbanization as more than 70% of their total population is urban now. Asia and Africa are following the same path and will cross 50% mark by 2020 and 2035 respectively to catch up with the developed countries by 2050. We find that urban population is not uniformly distributed by location and nearly 65% is relatively concentrated within low elevation coastal areas (Fig. 2). And such areas will contain almost three-fourth of the global urban population by 2025. Such a concentration has serious implications under climate change scenarios. Moreover most of these cities are located in the Asian region or within the developing countries, who are least prepared for such climate and other environmental threats. Developing countries with 73% share of global urban population and high urban growth rates are henceforth the new actors of urbanization. By 2030 urban population pressure here will become two times whereas land demand for urban expansion is expected to go by three times. This is supposedly the greatest challenge to reckon with.

Urban growth is not uniform and megacities, global cities and emerging urban agglomeration dominate towards a rising share and fast urban transitions. Recent trends indicate that mega- or emerging megacities are slowing down in growth, whereas mid-size cities exhibit greater buoyancy and will absorb most of the future urban population growth (Fig. 3). I think this is a very interesting trend towards more balanced urban growth, of course still hierarchically organized. Voluntary migration that fueled early migration streams is now supplemented and reshaped by recruitment agencies, employment regimes and immigration policies of various countries. Push factors which propelled urbanization until mid 1990s are getting reversed by pull-factors.

The demographic structure, exhibits signs of change, with more women migrants and swelling elderly and young population cohorts. Developed countries on the contrary, exhibit a stabilizing or even negative urban growth which follows their declining fertility levels. The previous speaker very clearly mentioned about that process. Another interesting development is also noticed in some industrialized countries. Immigrants share in urban growth is rising in comparison to native groups. Such countries apprehend dominance of new immigrants in urban politics and socio-economic spheres and a possible reason for future ethnic conflicts. Spatially, there is a visible counter-urbanization trend with more expansion in the rural settings for both working and living environments. Mega-urbanization has of course slowed down and urban transitions have matured, except in the transition countries of industrializing Eastern Europe. In Latin America, big countries like Brazil have crossed the fast urban transition and joined the developed countries list with high urban population share.

3. Asia: The major player of 21st century urbanization

It is often stated that 21st century urbanization belongs to Asia (Fig. 4). Of course in figures or volume. Century or decades is not that important to celebrate. It is the quality of urbanization that will matter most. Despite a low urbanization level of 45%, Asian region with 75% of the developing countries urban population and 52% of the global is expected to remain the major contributor to the future urban growth. Importance of Asia urbanization is also recognized by the fact that urban areas contribute close to 84% to their national economies, whereas they contain only 42% of the urban population (Fig. 5). China and India having urban population weight of 700 million, which is close to the population of the U.S. and Europe, shall remain the major players. After Africa it is the second fastest growing region with average annual growth rate of 3.2%. Despite declining urban growth rate of almost one-third by 2050, Asia will accommodate around half of the global 6.3 billion urban population.

The growth of urban population across various size settlements is not uniform in Asia. The region is characterized by mega-urbanization process. Asia con-

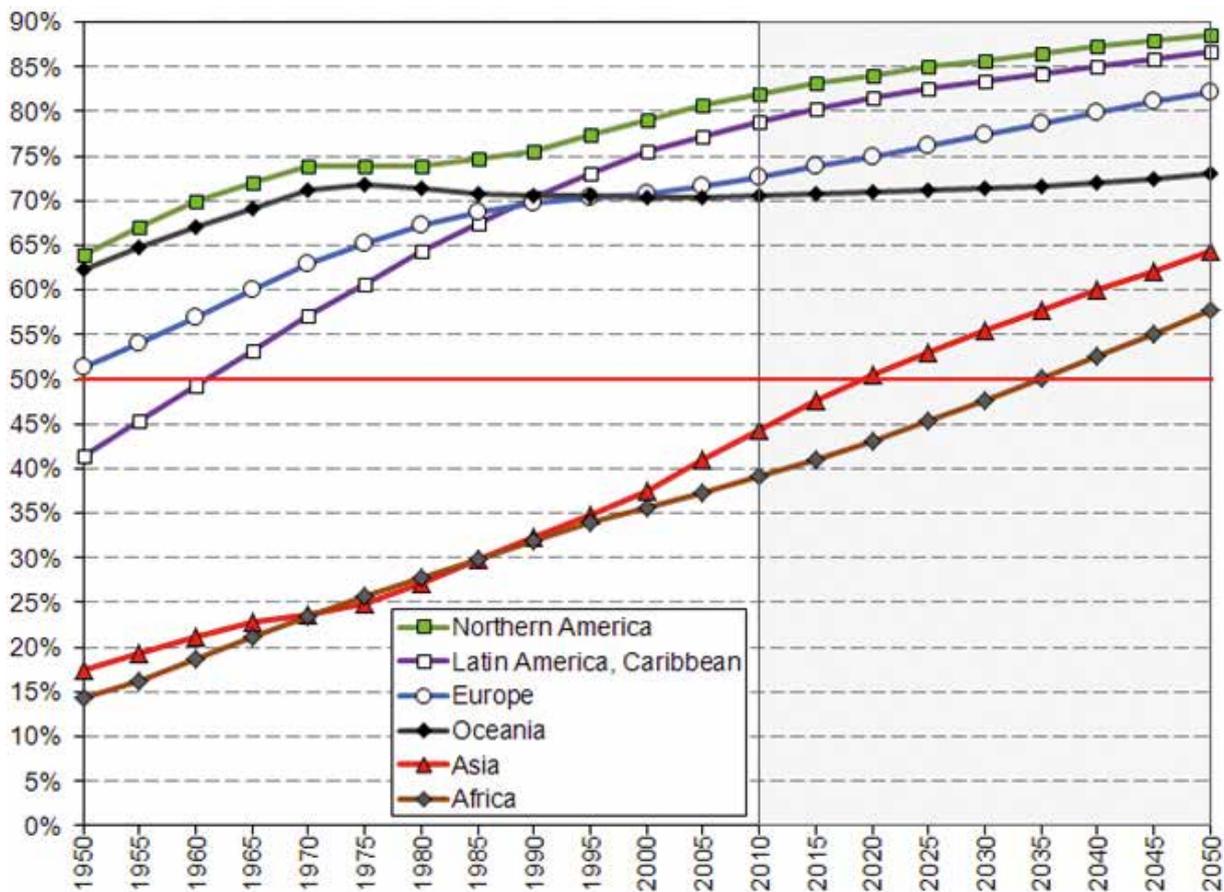


Fig. 1: Urban population by major geographical area (in per cent of total population)
 (Source: United Nations 2012)

tained only one mega-city, that is Tokyo, in 1970, and its count rose to five out of ten in 1990 to 13 out of 23 in 2011 and is projected to reach 22 out of 37 by 2025. In 2011, thirteen megacities of Asia contained around 11% of the total urban population of the region and their share is expected to rise further. Many of the Asian cities, like Singapore, Hong Kong, Kuala Lumpur and Dubai, are placed among the global cities due to their specialized functions and global connectivity. They may not be megacities but they are global cities.

Globalization has made the category of “third world city” as obsolete in many Asian cities and they are proud to have their own style urban design, models of urban growth and planning governing principles. Peter Rimmer and Howard Dick in their recent publication on „Views from the City in South East Asia“ claim, that Hong Kong, Dubai, Kuala Lumpur, Shanghai, Singapore, Istanbul, Bangalore and Mumbai are third world cities in a limited way. Due to their transnational connectivity, construction of sophisti-

cated information and communication technology infrastructure, they are no more third-world cities in a conservative sense. We may consider to look at Asia or regions of Asia, as a set of cities, rather than a block of countries. Roy and Ong (2011) from their book on „Worlding Cities: Asian Experiments and the Art of Being Global“ conclude that in the globalizing world, Asian cities like Singapore and Dubai are emerging as centers of global finance while New York and London are struggling the aftermath of the great recession of 2008. Likewise Shanghai and Hong Kong have become share selling capitals of the world. Asian cities today also map their own path and models of being global cities and not strictly following the master blueprint of the West. Mumbai for example, the financial capital of India is struggling to catch up Shanghai, as emerging global city become competitive. So they are now in competition within the region themselves. Cities like Mumbai, Chennai and Bangalore boost not only India’s economy, but its mood. And certainly they are not un-Indian anymore than New York is un-American. Today how-

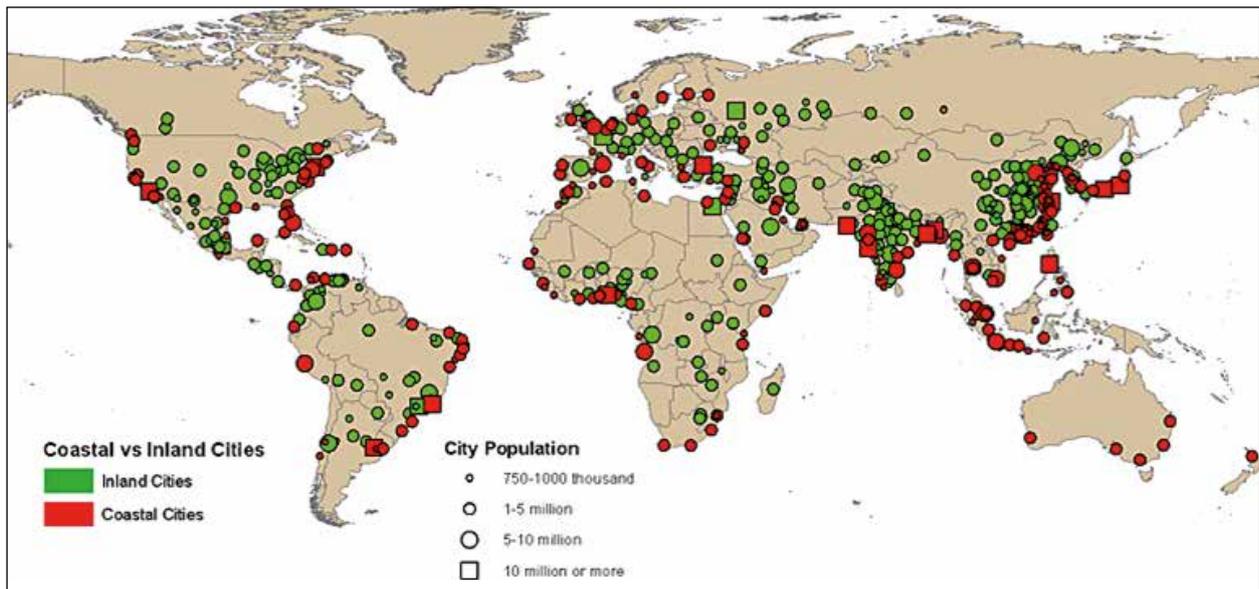


Fig. 2: Urban agglomerations by size class and inland or coastal location (Source: United Nations 2012)
 Note: The coastal areas were defined as areas between 50 meters below mean sea level and 50 meters above the high tide level, or extending landward to a distance of 100 kilometers from shore, including coral reefs, intertidal zones, estuaries, coastal aquaculture, and seagrass communities (World Resources Institute 2005).

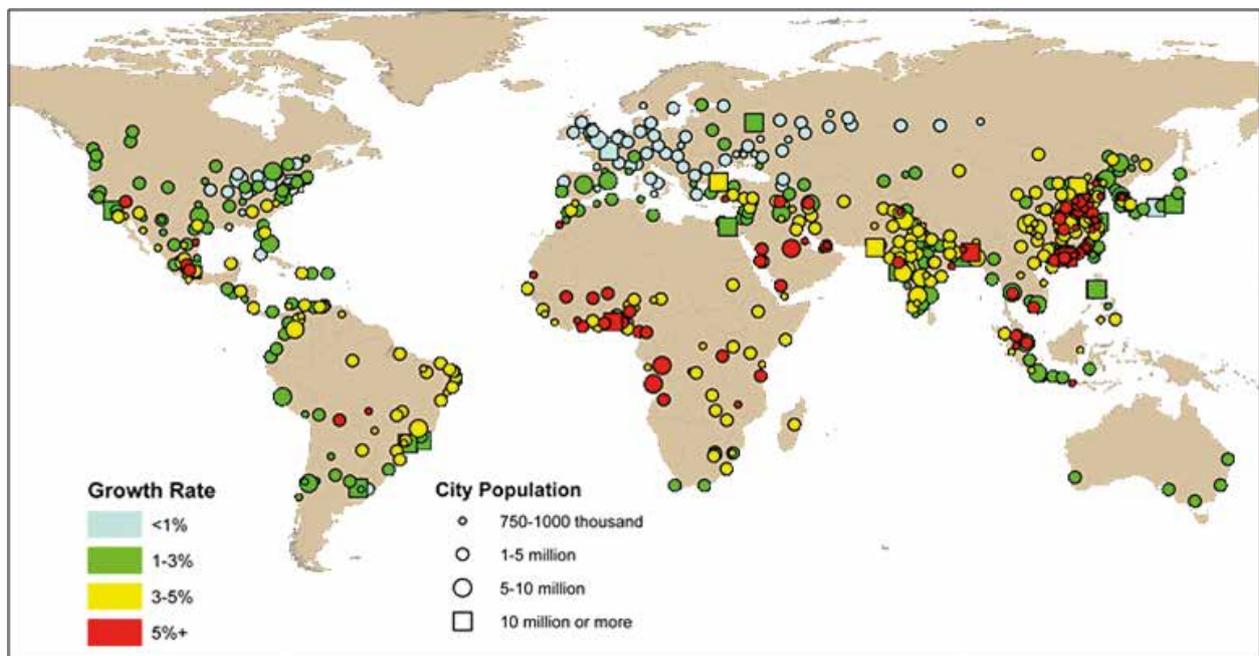


Fig. 3: Growth rates of urban agglomerations, 1970-2011 (Source: United Nations 2011)

ever, Bangalore and New York and London all depend on the ability to innovate. Why did Bangalore out of all Indian cities achieve this status as hub of IT? Skills, and human capital perhaps not geography are the source of Bangalore's strength. Companies like Infosys, and a virtuous circle was born wherein smart firms and smart workers flocked to Bangalore

to be near each other. Quite a few other non-capital cities such as Shanghai or Mumbai have substantial international presence despite the dysfunction of their home nations.

As in case with modern nation cities, cities in the new industrial economies, China, India, Indonesia,

Brazil for example, embody national ambitions of wealth, power, and recognition. Major cities in the developing world have become centers of enormous political investment, economic growth and cultural vitality and have thus become sites for global significance. According to a McKinsey Global Institute study, almost the entire world economy is represented by approximately 400 cities, including many Asian cities. Chicago Council of Global Affairs on Global Cities Index featured three Asian cities among the top ten, demonstrating the stability of Asia's relevance on the world stage. Singapore, Hong Kong, Seoul, Shanghai, Beijing and Mumbai represent up-and-coming metropolises. According to Saskia Sassen: networks of 20 global cities (many in Asia) will determine world's geopolitical future and not G2 of US and China. Using TAYLOR'S (2012) analogy that the world today is more about interrelationship of cities than countries. Nations are no longer driving globalization – cities are. A city like Seoul is more connected with Singapore and Hong Kong than other South Korean cities. Absence or weak interaction with wider network of national/regional cities, of course is a worrisome trend within this globalization process. City ranking matrices developed by many institutions and researchers to qualify a city global, local connectivity has been found lacking. I conclude the first part of my talk by a few statements.

Urbanization in Asia is not a uniform process and influenced by national or sub-regional characteristics. It started with slow growth rate and picked rapid speed and turned into hyper mode after 1980's. Demographically, Asian urbanization process encouraged mega-urbanization and developed a new kind of economic and demographic primacy, wherein global capital and export oriented economy played decisive roles in promoting and strengthening capital/mega/global cities. At the same time major Asian

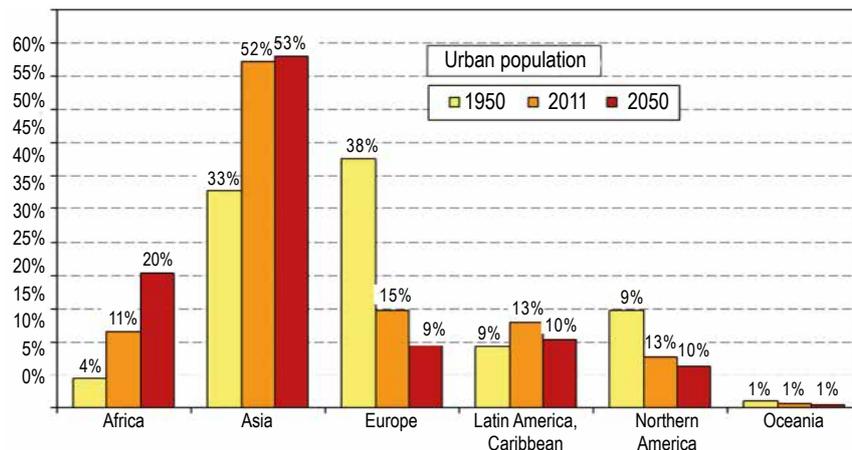


Fig. 4: Distribution of the world urban population by major areas, 1950, 2011, 2050 (Source: United Nations 2011)

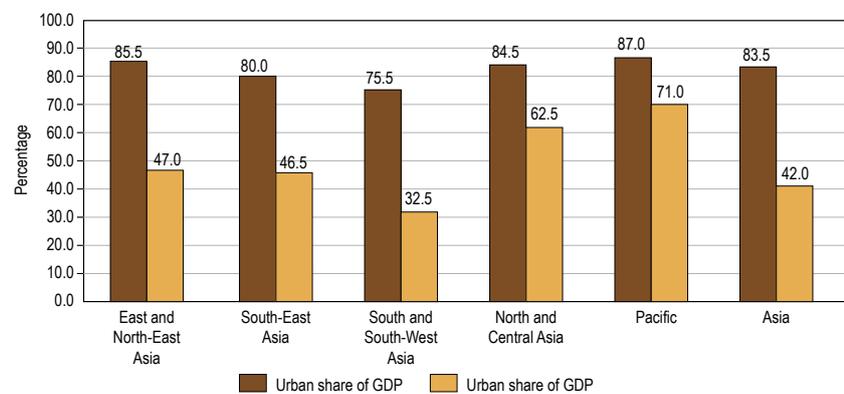


Fig. 5: Share of Urban Areas in GDP, Asia and the Pacific (Source: UN-HABITAT, ESCAP 2010)

global cities are not doing well on environment and liveability aspects, despite their good economic performance (Fig. 6). Lower tier cities and distant hinterlands have not grown as well under the shadow of mega-urbanization and sea-board corridor urban development. Asian style urbanization is largely characterized by heavy global capitalism (extension of dependency model), huge land portfolios and encroachment on scarce rural land, and damages to environmental and ecosystems.

4. Why contemporary urbanization is disturbing and discriminatory?

Globally, the contemporary urbanization processes, as discussed above, are environmentally disturbing and socially discriminatory. It is distancing humans from nature and individuals from the larger society by the division of labour and malicious land use and

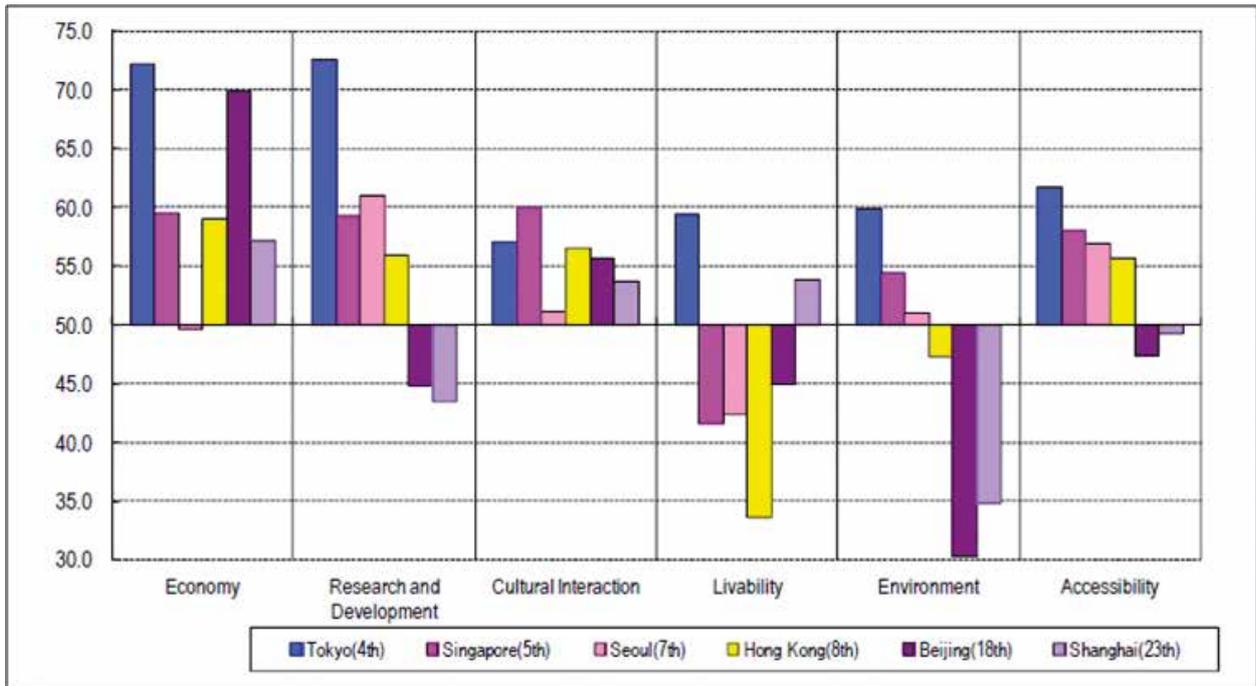


Fig. 6: Function-specific deviation scores (Major Asian Cities) (Source: Global Power City Index. Oct. 2011)

land cover changes. The nature (including urban ecosystems) is being abused and mediated through the processes of resource exploitation and indiscriminate land use and land cover changes such as unsustainable energy use and urban sprawl. Air and water pollution, climate change, ecological footprints and increasing natural hazards and disasters are all the evidenced outcomes.

4.1 Environmental and ecological threats

Urbanization as a major cause for colossal fossil energy use, urban sprawl, land use/cover changes exhibits local, regional and extra regional environmental impacts. Such impacts are visible in most cities of the developing countries through inefficient water services, deteriorating water quality, groundwater depletion, air and land pollution. Even though availability and coverage of municipal drinking water supply has significantly improved (90%-95%) during the last decade in the cities of poor countries, waste water disposal and treatment has not shown commensurate improvement (close to 50%) and is a big health risk to the vulnerable communities and health of the water ecosystems. Cities consume more than two-thirds of total global energy against 50% share in population, however its health impacts are conspicuous in the cities of poor countries. According to

WHO (2011) estimates, concentration of PM10, also a byproduct of energy consumption, and responsible for major respiratory diseases and deaths, is observed to be among the highest in major cities of Asia (Fig. 7). Beijing's toxic air pollution has broken records recently and both Beijing and Delhi are infamous for toxic smog related health risks and deaths.

Extra regional/global impacts of mega-urbanization like loss to ecosystems, climate change, natural and hybrid disasters, and biodiversity loss are getting stronger and drawing greater global attention. Urbanization is inherently not bad for ecosystems as urban areas account for only 2.8% of land area, nevertheless mega-urbanization, associated with urban sprawl, natural resource exploitation and release of ordinary and toxic wastes into their natural sinks is largely responsible for damaging the ecosystems. Many developing countries are already running into ecological deficits, more so in the urban areas. The eco-health of many water bodies is seriously threatened and these are unable to provide free ecological services of bathing, performing rituals, livelihood generation etc., especially for the poor. World Resources Institute (2005) clearly establishes mega-urbanization responsible for the biodiversity loss and health of the urban ecosystems. Cities also concentrate vulnerability to natural disasters and to long-term changes in climate. Urban climate stress in a

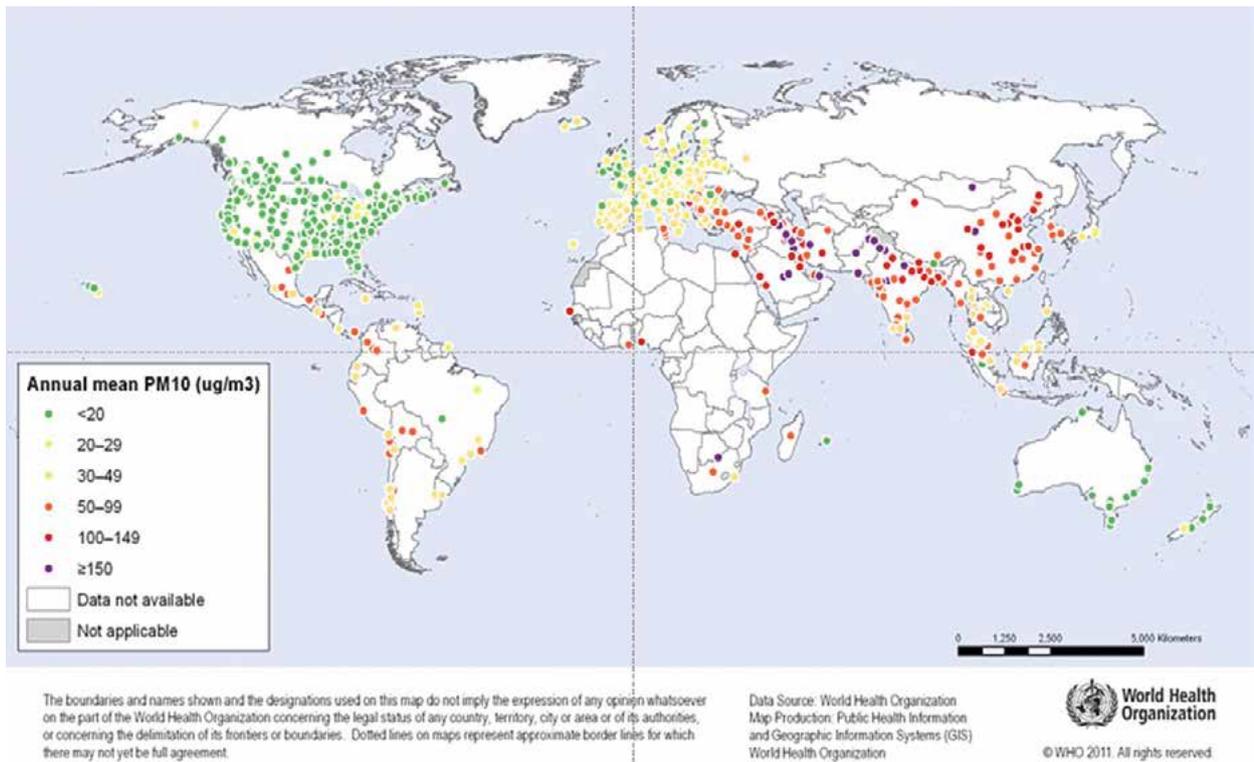


Fig. 7: Exposure to particulate matter (PM 10) in selected global cities (Source: WHO 2011)

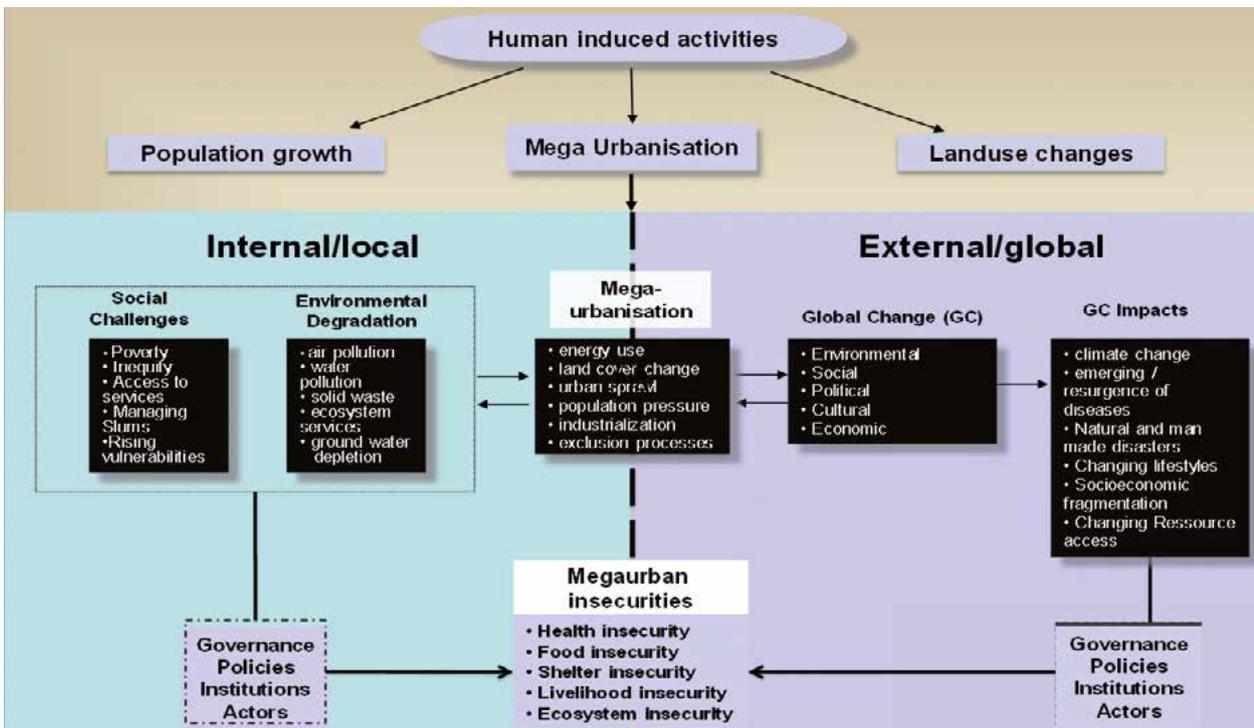


Fig. 8: Mega-urbanization and threat to human security (Source: AGGARWAL & BUTSCH 2011)

global climate change scenario coupled with natural and man-made hazards threaten most emerging mega cities of today and of tomorrow. According to United Nations (2012) urban agglomerations of

various size experience potential risks of cyclones and floods. Such risks are noted to be high for the cities located along the Pacific rim and the Eastern US coastal zone. Due to enormous concentration

of human life, global lifelines of communication, and valued goods and economic infrastructure, the potential effect of disasters on megacities is enormous. KRAAS (2003), therefore, addresses mega-cities as global risk areas, which are exposed on the one hand to environmental hazards and on the other hand to man-made hazards.

Mega-urbanization threaten human and environmental security (Fig. 8). The impacts threatens, of course are not equal on all social and economic groups as these are influenced by human sensitivities, vulnerabilities and thresholds. Factors like governance, policies, institutional roles and citizens involvement also produce differential impacts on the communities. Nevertheless, the vulnerable and marginalized groups suffer most from such environmental impacts as their sensitivities are high and preparedness low.

4.2 Urban inequities and conflicts

Cities are basically man-made environments, which means that a society transforms natural landscapes according to its cultural and social values and norms. In the process of mega-urban development we notice that not only the urban environment is damaged, as shared before, but also it has affected the social and economic environment and produced landscapes of poverty, informality inequality and marginality, largely in the developing countries and in a limited way within the rich countries. Urban divides with several forms - digital, income, social, urban services, spatial (core vs. periphery) are becoming more pronounced and sharp. According to SASSEN (2002), the ascendance of information industries and the growth of global economy, both inextricably linked and located in megacities, have contributed to a new geography of centrality and marginality. This centralized urban economy has given unparalleled power to the already advantaged to produce distinct division of labour and space in urban systems. This is resulting into economic and social conflicts and spatial fragmentation. Contestation on competing social and economic spaces have produced conflicts and disturbed the social harmony of the urban society. Neo-colonization along with neo-liberalization has thus produced wide social costs for many along with narrow economic benefits for the few. On the new trajectory of current urbanization and globalization, phenomenon of 'local losers' and 'glob-

al winners' is becoming evident. Global inequality has added a new dimension. As urbanization forces accompanied with neoliberalization are advancing, inequality manifests now within societies, particularly key cities and the hinterlands, rather than across them (between rich and poor nations).

These inequalities and inequities find manifestation in access to housing, municipal services, quality education and healthcare. WHO Commission on social determinants of health (2008) identified urbanization as the biggest social determinant of health globally. The report asserts that much of disease burden and health inequity in the urban settings (places of growing, living and working) is avoidable and can be improved with action on social determinants like sex, age, income, ethnicity and location.

A clear manifestation of the urban divide is the presence of slums and prevalence of poverty. Slum dwellers are either clustered in space as in Sub-Saharan Africa and in other places like India scattered within the urban fabric and most can be found in the decaying urban centres, and at the periphery of the city. The social and spatial divide created by slums is not only the result of income inequalities, but also a by product of inefficient land and housing markets, bad or non-existent policies and poor governance mechanisms that force many non poor/low income families to reside in slum areas for lack of better alternatives. The urban divide is not only about fragmented space and socio-economic differences, it is also about inequalities in opportunity, between social groups, age groups and men and women in access to knowledge, use of technology and employment, among others. UN-HABITAT and ESCAP 2010 report on Asian Cities found varying degree of inequalities across many leading cities of Asia (Fig. 9).

At a more radical level, Harvey argues that urban conflicts will probably be decisive in the wake of Western deindustrialization. He replaces the traditional concept of class struggle with the struggle of all those who produce and reproduce urban life. With surplus global/national capital and sharp division of labour, urban development projects like Commonwealth games (India), Olympics (China), musical concerts, convention centers, soccer world cup, ICT parks and designed residential and commercial complexes are making cities competitive, exclusionary, and giving birth to rising social conflicts and

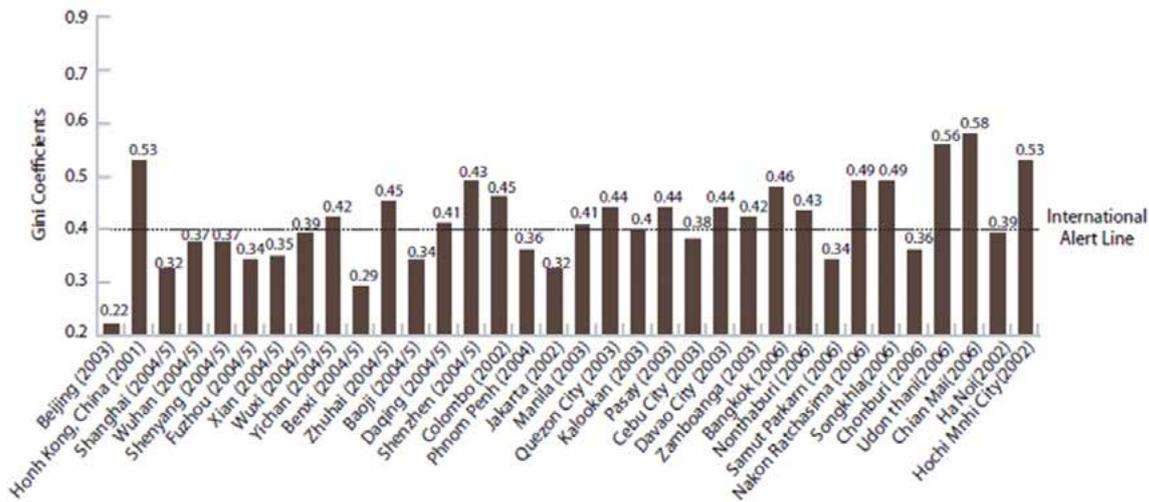


Fig. 9: Intra-urban inequalities (Gini Coefficients) in selected Asian cities (Source: UN-HABITAT, ESCAP, The State of Asian Cities 2010/2011)

movements for “city rights“ such as Occupy Wall Street in New York. Such movements are justified since public pays for the rising prices (a kind of city rent) to live in this uniquely built iconic city. Symbolic projects led urbanization can solve economic crises, like in China and India during 2008 recession period, with diversion of labour and surplus capital, but more than anything, it is a way to get out of crises and not a sustainable solution for growing exclusionary tendencies. World Urban Forum 5 also echoed “Right to the City” concept as a new paradigm for the transformation of cities, although not in radical/legal right form. It has been interpreted as a theoretical, political and conceptual framework that refers to aspects such as enforcement, empowerment, participation, self-realization and determination, and protection of human rights at the city level. Taking forward the right to the city domains include bridging the urban divide: inclusive cities; equal access to shelter and basic urban services; respect for cultural diversity in cities; good governance and participation and sustainable urbanization.

Notwithstanding the theoretical debate, the concept has relevance for the cities in the South where the interests of the poor and marginalized are often ignored for better housing, civic facilities and social amenities due to their powerlessness. Since they as well contribute to the city economy in a significant way, Right to the City is one of the way to address their deprivation, resentment and empowerment. The recent publication of HARVEY (2013) on “The Rebel City” is also a good expression and approach

for action for asserting rights to the city by peaceful movements like “Occupy Wall Street” in New York. The approach of course gives visibility and voice to the citizens’ concerns for producing an inclusive city.

4.3 Urban sprawl and urban expansion

One of the most significant characteristic of contemporary urban landscape is the phenomenon of urban sprawl or urban expansion. Different population growth rates and level of development generate different demands for urban space leading to urban expansion. On the contrary, urban sprawl has to be seen as an uneconomical and non-linear form of land consumption which creates needless interaction costs, unjustified resource consumption and social conflicts. Largely driven by profit making interest groups builders, developers, urban design professionals, architects, institutional finance - for low density living, and high profile business, urban sprawl has become the most challenging land, social conflict and environmental issue of this century. The auto-centric urban sprawl has attained the most unsustainable urban form and production of urban space in both industrialized and emerging economies.

Globally, urban areas are expanding two times faster than urban population. According to global forecasts of urban expansion to 2030 by SETO et al. (2012) and World Bank (2005), urban built up area will increase by 1.2 million km², by 2030, nearly tripling

the global urban land area circa 2000. Within the developing countries, during the same period, urban population is expected to double from 2 billion to 4 billion, whereas land demand will rise three times. For the industrialized countries the situation is even worse as population is expected to increase by 20% and land area by 2.5 times. 50% increase in urban expansion is shared by Asia (55% of Asia by India and China alone). Every new resident, on average, converts some 160 square meters of non-urban to urban land. Globally, cities may possibly consume as much as 5–7% of total arable land, depending on the future rate of expansion of arable land, which is currently 2% per annum. Urban expansion projections which includes urban sprawl establish that the process is real.

Urban sprawl is a global phenomenon now, with some variations, of course. Developed countries, in particular land abundant US, increasingly display

a counter-urbanization (rurbanization) trend after experiencing the phases of suburbanization, edge city development for both working and living environments. On the contrary European cities are still relatively dense and peripheral development urban expansion is an emerging and growing phenomenon as rental and land values rise in the central city. At the same time peripheral development in most metropolitan cities of the poor economies is a relatively new trend and is largely illegal, unplanned, and disjointed. The disjointed landscape includes supermarkets, malls, office space, urban villages, high-rise residential/commercial complexes, and illegal squatter settlements. The process is threatening the productive agricultural land on the fringe and also damaging natural ecosystems that provide free services, resources and livelihood to the millions living on the edge of the city. Satellite images for the cities of Las Vegas, Dubai, Istanbul (Fig. 10) and Ouagadougou, capital city of Burkina Faso, clearly illustrate

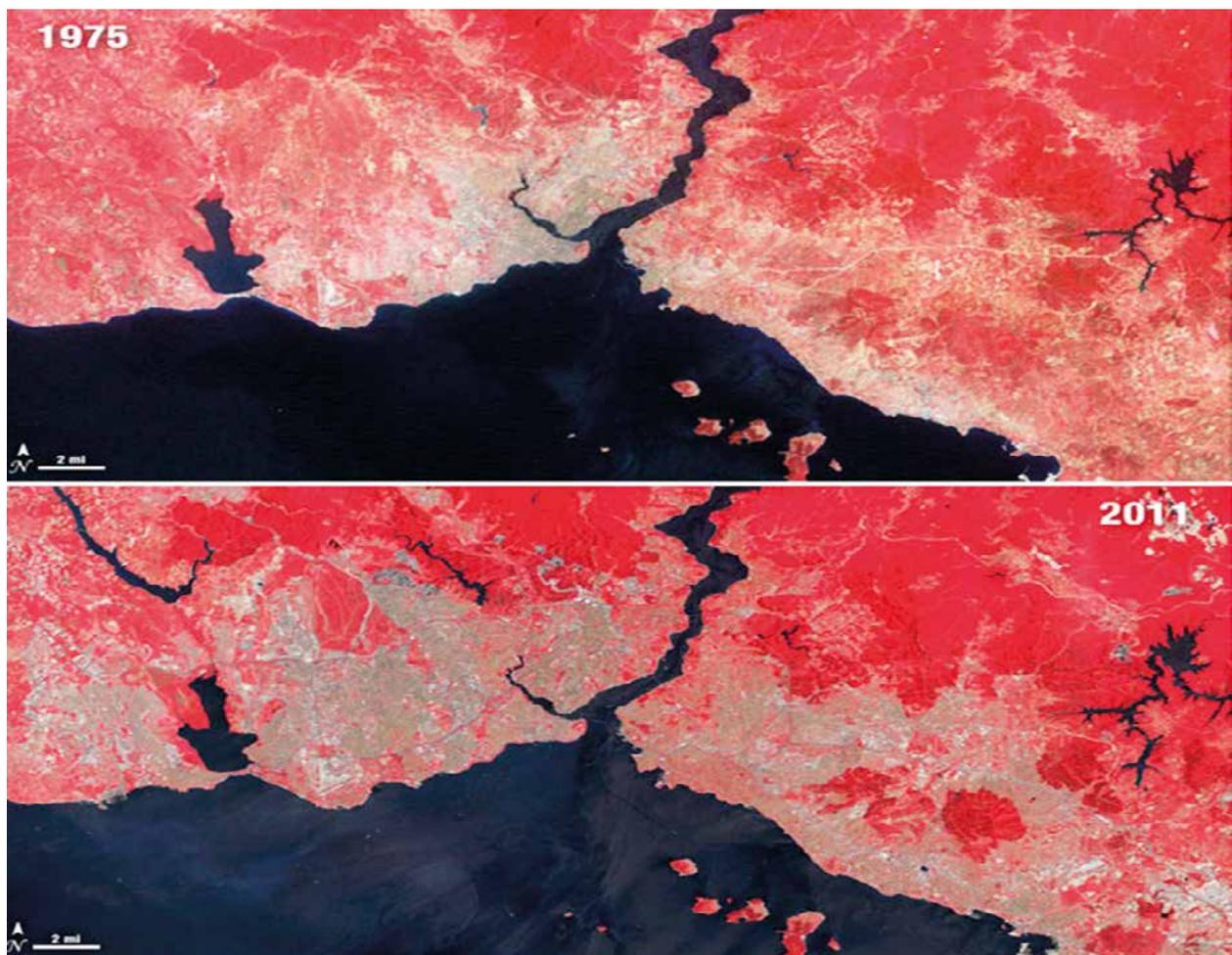


Fig. 10: Istanbul: Urban sprawl 1975 - 2011 (Source: images and caption: NASA/USGS)

such changes along with many other metropolitan cities across the globe. Urban sprawl has thus attained infamous metaphor of “City Cancer” when it weakens communities at the core and destroys natural resources and ecosystems at the edge.

We cannot dismiss some small efforts to contain urban sprawl, at least in the industrialized countries. For example, with the effort of some committed mayors and other interest groups, reurbanization of central cities is also happening in a limited way in some North American cities. This aspect will be discussed later in more detail.

5. What needs to be done to produce and create harmonious urbanization and sustainable cities?

By harmonious urban development we mean a symbiosis between man and nature and across individuals and society towards achieving quality of life in the urban settings. Considering the numerous challenges and concerns of present urbanization trends, it is time to focus on the positive aspects of urbanization in tackling the challenges and also adopting new theoretical insights, new technologies, proactive approaches, innovative methodologies and inclusive integrated planning models and frameworks to create harmonious urban development. There is a strong need to reorient urban thinking that is grounded in the reality of the developing world. Developing countries need systems that work and systems that effectively deliver public goods. We need to treat policies and institutions as essential elements of sound urban strategy. National and international institutions need to empower cities to address the complex environmental, energy and land issues that they face today.

5.1 Shift in theoretical underpinnings of contemporary urban landscape

New forces of urbanization have transformed the role, economic base, social relations function, form, range of demands, iconic meaning and regional relationships of the cities across the world. At present cities get their meaning by actors such as architects, developers, urban designers, material experts, planners and proprietors. These producers

of social and economic space are situated within class and cultural context. People, cultures, ways of life, city icons normally provide identity to a city. Unfortunately it seems that ‘branding a city’ to a new building or set of buildings is a kind of new identity for a city. New forms of urbanity (life styles of global milieu) are emerging within the living territories of cities and with moving in space at variety of scales. Cities are thus becoming sites through which ideologies are projected, cultural values are expressed and power is exercised. They are also becoming places of conflict resulting from division of labour and space. Subsequently, space and time have changed their meaning and context as these become constricted and extraordinary dynamic for the post-modern city. Urban expansion and urban sprawl, a product of divergent forces, is making urban form almost shapeless. Apparently, both convergence and divergence forces are operating simultaneously to produce segregated and highly differentiated and fragmented urban landscapes.

A clear rural and urban divide is also becoming increasingly ambiguous as land uses and employment structure and lifestyles get mixed-up and that poses a great difficulty in classification of such transition regions in binary type rural and urban areas. Such transition areas create challenges and conflicts for administrative and policy implications in most developing countries where land is at premium. At the same time we notice metropolitan border zones in the developed economies as areas of reconciliation and harmony through creation of opportunities of trade and daily commuting.

Past and contemporary urban theories/models of Chicago School, structuralist theories based on city power relations and more recently of the Los Angeles school are found unable to provide anything more than partial accounts of the present city form (internal structure of the cities) and wider relationships. Chicago School theories largely explained the agglomeration type industrial economy and its social relations expressed in urban space. Such models/theories developed to explain largely the internal land use dynamics of the industrial (modern) American city. Centralized Chicago School models are being challenged now by Los Angeles decentralized city form models (dis-assembling the urban) promoted by SASSEN (2002) and others. These polycentric metrourban models capture primarily the sprawling

landscape form of the American city and apparently have more explanatory power particularly in context to the cities in the North. Even the Los Angeles School models are found less convincing and relevant beyond the North American context. Their explanatory power is weak in addressing issues and concerns likey are not powerfufail to address under the influence of new forces such as advanced information and communication technologies, new forms of governance, new economic forces of globalization, global city networking and advanced capitalism that shape the present post-modern city. Rising environmental and ecological concerns further complicate the human-spatial relationships within and beyond the city limits. Contemporary actors of urban land development like developers, builders, urban designers and architects, mainly responsible for promoting urban sprawl and the edge city forms and iconic urban designs also complicate the predictability of the emerging city form. The above driving factors has thus produced the city structure even more decentralized, segregated and fragmented that expresses increased socio-economic polarization and fortress style landscapes of insecurity and fear.

On the contrary, European scholars did not promote any specific school of urban theory rooted in land use approach, rather did more work on understanding the evolution of city morphology (morphogenesis) by utilizing iconographic and descriptive approaches. Understanding the impact of history and culture remained major concern in following the evolving urban form. The European city is equally influenced now by the forces of globalization, new technologies of information and communication and the new urban actors, in shaping their cities and regions beyond.

Urban researchers did not not develop any urban theory/models for the cities in the South that explained the exclusive indigenious and imposed colonial forms of the industrial era. Rather they applied selectively the modified Western models and factorial ecology approach to understand the urban form and underlying social and economic structures. With the shift in gravity of urbanization, mega-urbanization in particular, towards the global South, recent interest has emerged in theorizing the post-colonial and post-modern city. Restructuring of national economies wherein cities now play a critical role and growing influence of globalization through technol-

ogy transfer and capital flow is reshaping the urban form. Here the city form, in particular for the mega/emerging megacities, is more haphazard, unregulated, fragmented and segregated when compared with the North. Combined with the indigenous characteristics including informality, socio-economic polarization, poverty, encroachments, fortified urban landscapes are making the urban landscape even more complex and variegated. Informality, typical and ubiquitous characteristic of the city in the South deserves acceptable consideration and realism within urban theory. Los Angeles school models will have limited explanatory power in such situations, and hence require inventive theories to explain the land dynamics of post colonial and post modern cities of the South. According to ROY and ONG (2011), two major approaches/assumptions have been dominant in defining the parameters and perspectives for investigating contemporary cities and urban conditions in the developing countries; (a) political economy of globalization with city as great place for capital accumulation and remaking citizenship and society and (b) postcolonial focus on subaltern agency with city viewed outside the Euro-American region as a contested place for capitalism and democracy.

The challenge for urban geographers is to debate and refine the existing theories to reflect the cosmopolitanism of contemporary global urban diversity, new type of migrants and immigrants, cultural pluralism, social conflicts, informality and competing land demands by new actors and stakeholders. They need to integrate the prevailing and future trajectories of urbanization. It is evidently clear that “one size shoe” models and explanations are not tenable and we need to consider innovative urban theories/models for the unique features of the city in the North and the city in the South. Probably a meta theory within the context of social theory will be more realistic considering the vast diversity of urban settlements, overwhelming social and environmental issues and the distinct process of urbanization. The only uniformity or global convergence appears for mega-urbanization, which allows for a considerate thinking for mega-urbanization theory or models.

5.2 Conservation of urban ecosystems

Cities are basically ecological spaces. With the kind of urban sprawl/expansion and inner city develop-

ment happening across the world, ecosystems damages (coupled with biodiversity loss) have become equally or even more important than the environmental concerns. Ecosystems conservation helps in producing natural capital by saving on municipal costs (sewage, water, clean air etc.), securing livelihoods, boosting local economy (business, tourism, and delays the tipping point of environmental degradation). Foremost, it provides almost free ecosystem services and livelihood opportunities to the urban poor. Considering the cost component of capital intensive infrastructure, conservation of urban ecosystems like forests, water bodies and river beds is a formidable alternative to alleviate urban poverty, waste water treatment and protection from natural hazards.

Economists are seriously working on assessing economic value of Ecosystem Services towards poverty reduction, and reducing disease burden within the cities and beyond. Likewise urban geographers can take a lead among spatial scientists to bridge this research gap by trans-disciplinary and inter-disciplinary collaboration towards “applied urban ecology”. Henceforth, urban focus should be more on the urban ecology and urban ecosystem approaches to comprehend the processes and linkages with urban poverty, preserving ecosystems health and its manifestations for climate change. We require re-orienting and integrating our thinking of environmental issues with urban ecosystems damages for producing harmonious urban development.

Cities in both developing and rich countries have shown interest in this approach even though in a limited way. The initiatives, however, are worth appreciation and hopefully other countries will catch up. For example, Cape Town a bustling metro with 3.5 million population, well diversified economy, world renowned tourist destination and a biodiversity hotspot (9000 indigenous species of flowering plants) has lost 60% original natural area and the rest is considered endangered due to urban expansion, water pollution and alien aggressive plants. City Department of Environment presented a convincing case for investment in natural assets protection and conservation, rather than business as usual, to boost local economy, protect environmental degradation, expected gains from tourism, waste water treatment and protection from natural hazards. The city was able to save biodiversity hotspots by estab-

lishing a network of ecological corridors. The case study demonstrates that there is a strong need to integrate ecological concerns in urban planning.

5.3 Containing the urban sprawl

Among several alternatives (viz. green belt, revitalization of inner city, new urbanism, neo-urbanism) to contain urban sprawl, smart growth/smart city is the one most talked about and a pragmatic solution. It favours collaboration over regulation between state and local authorities. Smart Growth Strategy (based on 3 Es: Ecology, Economy and Equity) focuses on creating some kind of urban growth boundary that limits outward expansion, and encourages new development in infill-locations in already urbanized areas to accommodate more intense and mixed land use development. The approach preserves open spaces, farm land, critical environmental areas against further urban development and to use space more effectively by using a single comprehensive plan that captures the vision and means for transformation. Primarily, it implies to increase housing density in areas that already have roads, water systems, and transit access — in other words, to build upon the built. To achieve these objectives, smart city encourages the use of digital technology (real time governance and control), data base management, surveillance system, strict land use controls, efficient public transit in inner city and pedestrianization of roads and markets. The approach has great relevance for development of all size urban settlements in the developing countries due to its emphasis on energy efficient land uses, public transport and preservation of open spaces and agricultural land. For the rich countries, among many benefits it will strengthen revitalizing the inner cities and encourage the use of public transport. The only caveat is to avoid vertical growth in the name of high density land uses and iconic image of the city under liberal urban design paradigm.

Among many good practices on smart growth principles, in Maryland, US, for example, the program guides development into „priority funding areas,“ where the infrastructure to handle increased density already exists, as a means of reducing sprawl and preserving farmland. In making Portland as model of smart city growth by developing urban growth

boundary concept, the city has developed a partnership with IBM for technology linked solutions. Many cities across the world are now taking advantage of ICT infrastructure to develop smart transport, home-based business, smart card services. Still the approach has not taken off with wider practice, and needs promotion in the developing countries where the need is equally significant as the cities there are growing very fast and urban sprawl is a critical issue.

5.4 Preservation of historical and cultural heritage

We mention here another less explored action for urban development, primarily with context to the cities in the south. Cities while going through their stages of growth construct and shape their form, build public assets, create way of life. Cities in the developing countries have not given much attention to preserve their endowed historical and cultural heritage, as in the West which has so much of self pride, ownership and belongingness to the city, and if managed seriously has tremendous financial resource value through tourism promotion. Western cities have a lot to share from their experience to their counterparts in the East. UNESCO World Heritage Cities Programme (2005) structured along a two-way process, with 1) the development of a theoretical framework for urban heritage conservation, and 2) the provision of technical assistance to states parties for the implementation of new approaches and schemes is good initiative towards the objectives.

5.5 Policy responses and tools to manage urbanization

Urbanization is emerging as a major driver of economy, wellbeing, and also a challenge for protecting environment, ecosystems, and urban divide. Henceforth clear national and sub-national urban policies need to be formulated and executed for a regulated, efficient and inclusive urban growth. The challenge and need is greater for the countries in the South. National planning to facilitate urbanization to manageable levels, with fair distribution and environmentally sound performance can be a desirable policy priority. In the developing countries attempts by governments to control rural-urban migration flows have all ended in failure. It is time, rather, to focus on

the positive impacts of urbanization and allow more democratic and inclusive process of migration to make it an instrument of growth rather a deterrent. What is needed is to streamline the inclusive process of settlement of the poor to minimize informality of urban economy. Sound urban land policy is equally crucial as it influences urban sprawl, environmental degradation and settlement of the poor. Serious attention is not given to this component of urban development as land is the most contested element of power and profit for many stakeholders. Strong and fair land regulations are required that facilitate the inclusive growth and reduces informality on the urban landscape. Developing countries also need systems that work and systems that effectively deliver public goods. Public goods systems are absolutely necessary to induce private investment to create jobs, to get people to save and to use the financial system. Treat policies and institutions as essential elements of any new urban strategy. National and international institutions need to empower cities to address the complex environmental and energy issues that they face today. On the moral and ethical grounds, the right to the city approach deserves attention and may be debated at national and sub-national level for securing social justice and inclusiveness on fundamental needs of the ordinary citizen.

Urban and regional planning requires a new social face to address and incorporate the national and regional/provincial policies into a holistic planning framework at the city or city region level. The master plan approach, embedded primarily in land use planning, has not addressed adequately the new challenges of environment degradation and inequity issues. Misuse and abuse of prime land by the powerful stakeholders has risen considerably and restricts the benefits of access to land by the poor and marginalized groups. This is abundantly true for most cities in the South. Likewise growth of urban sprawl, informality and slums are among many externalities produced by the archaic urban and regional planning approach. Lack of effective leadership, governance and participatory planning further aggravated chaotic urban growth. To correct and ameliorate such planning deficits, the planning profession, as individuals and professional groups, remained unsuccessful to assert and impress upon the primary decision makers for effective changes in land use based urban planning. To improve the prevailing dismal state of cities, as projected by most

global reports, good governance and management practices should become integral part of innovative urban planning process. Urban planners, architects and urban designers need to focus upon holistic solutions with growing relevance for transdisciplinary and interdisciplinary approaches to integrate environmental, ecological, and social concerns for the development of environmental friendly, equitable and harmonious cities.

6. Questions to ponder over

Based on my shared thoughts, I conclude the speech by suggesting specific questions that can be pondered over to produce a harmonious urban world.

- Is globalization and neo-liberalization going to create/facilitate sustainable and just cities despite the use/transfer of new technologies, capital flows and access to information and communication systems?
- Has present style and form of urbanization really transformed the quality of life/happiness of the communities, particularly in the developing countries?
- How to regulate Asian type (China and India in particular) urbanization to make it fairly distributed, environmentally sound and socially inclusive?
- What kind of cities in Asia will lead to harmonious and sustainable development? Cooperative vs competing?
- How do cities in Asia or in different regional groupings network with cities in their wider hinterlands?
- How do we regulate the uncontrolled process of fragmented urbanization to save land and ecosystems in the rural-urban interface regions?
- What kind of models need to be developed to address spatial reconfiguration (reordering the city) to accommodate the disjointed urban growth, agglomeration economy and informality at different scales and places?
- How does a rapidly urbanizing and polarizing world embrace the contemporary urban issues, and how can urban design translate them into consequential and workable urban form?
- Should we continue with mega-urbanization style urban growth or promote medium and small size cities for harmonious and sustainable development. If yes, how?
- How to cultivate ecological thinking among various city stakeholders and new actors?
- To what degree the locally (or nationally) specific social transformation within the cities can be explained by views and theories of a more generalizing nature?
- Are post-colonial cities following the pathways of US and European cities, or do they require distinctive theorizations 'from the south' with emerging distinctive urban forms?

Thank you so much for your patient hearing!!

References

- AGGARWAL, S. & BUTSCH, C. (2011): Environmental and Ecological Threats in Indian Megacities. - In: RICHTER, M. & WEILAND, U. (eds.): Applied Urban Ecology. - Chichester: 66-81.
- HARVEY, D. (2013): Rebel Cities: From the Right to the city to the Urban Revolution. - Vero, London. Institute for Urban Strategies (October 2011): Global Power City Index 2011. The Mori Memorial Foundation.
- KRAAS, F. (2003): Megacities as global risk areas. - Petermanns Geographische Mitteilungen 147 (4): 6-15.
- ROY, A. R. & ONG, A. (2011): Worlding Cities: Asian Experiments and the Art of Being Global. - Malden, Oxford.
- SASSEN, S. (2002): Global Networks, Linked Cities. - New York.
- SETO, K.C., GÜNERALP, B. & HUTYRA, L.R. (2012): Global forecasts of urban expansion to 2030 and direct impacts on biodiversity and carbon pools. - In: Proceedings of the National Academy of Sciences of the United States of America, 109 (40): 16083-16088.
- TAYLOR, P. J., DERUDDER, B., SAEY, P. & WITLOX, F. (2006): Cities in Globalization. Practices, policies and theories. London
- UNESCO (2005): World Heritage Cities Programme. - <http://whc.unesco.org/en/activities/666>.
- UN-HABITAT, ESCAP (2010/11): The State of Asian Cities. - Fukuoka.
- United Nations, Department of Economic and Social Affairs, Population Division (2012): World Urbanization Prospects, the 2011 Revision. - New York.
- WHO (2008): Commission on Social Determinants of Health: Closing the Gap in a Generation. - Geneva.



WHO (2011): Map Production: Public Health Information and Geographical Information Systems. - Geneva.

World Bank (2005): World Development Indicators 2005. - Washington DC.

World Resources Institute (2005): Millennium Ecosystem Assessment, 2005: Ecosystems and Human Wellbeing. - Washington DC.

GLOBAL PLANETARY CHANGE AND HUMAN GLOBALISATION

Eduardo de Mulder

Initiator and Executive Director of the UN International Year of Planet Earth

Good afternoon Ladies and Gentlemen!

Many thanks to the organizing committee to inviting me here to give a speech to so many people on this topic "Global Planetary Change and Human Globalization". In just 50 years time the world has changed dramatically. For the first time ever, we could see our blue planet from outer space following the launch of Sputnik in October 1957. By that time new scientific evidence had been collected to prove Alfred Wegener's theory of continental drift. Knowing the mechanisms driving this phenomenon caused a paradigm shift in geosciences. This year we celebrate the 100th anniversary of this landmark publication. Yes, the world has changed indeed. Humans became a geologic factor, beginning to interfere with the natural Earth forces and started to make distinct human imprints on geographic maps creating a new era on the geological time scale, the Anthropocene. These observations may trigger us to raise some big questions about our planet and how we humans interact with it. Today I would like to share with you some of these questions. So, what do we know about planet Earth today? How do we humans interact with system Earth and how would that impact its bearing capacity? How can we Earth scientists, that means geologists and geographers, contribute to sustainable development?

But before taking off and diving into our planet's interior, a few words of caution and relativism: I said that we humans have become a geological factor. So, we do generate modifications in the topography of riverbeds, coastlines, sediment budgets, permafrost etc. But I would also like to stress that by all that, we are not really changing or threatening our planet as a whole. Human activities do not yet trigger major tectonic forces as continental spreading, mountain building, nor the convection currents in the Earth mantle. Yes, we may ignite small Earthquakes

by extracting natural gas and oil from reservoirs; or by loading the surface with giant water reservoirs for hydropower generation. But these impacts are confined to the upper parts of the Earth crust only, at a maximum to about six kilometers. Please keep in mind that it's just one permille of the Earth radius which is 6,370 kilometers. There are no indications that impacts of human activities would reach much deeper soon.

So, what do we know about our planet Earth today? Speaking about planet Earth, we should be prepared to go downwards first. 'Down to Earth' is the title of this congress. But many people have mixed feelings about the subsurface. The realm below our feet is often perceived as the domain of scary creatures, darkness, dirt, danger, evil, decay and death. The underground has a negative connotation. The public, including many intellectuals and policy makers have generally no clue about the subsurface, let alone the processes that govern it and how these may determine their lives. Perception of the underground may vary with cultures. So what do we really know about our planet? Anyway, a lot more than 50 years ago. We have witnessed revolutionary progress in our knowledge of this planet. Here I will focus on two aspects on the anatomy and composition of our planet and on the processes. When I was a junior field-geologist quite some time ago, I was involved in a geological mapping campaign in our Dutch swampy deltaic area with a lot of ditches to jump. The subsurface was primarily explored by making drill holes, mostly by hand, and describing the sediments in a small booklet. From these notes we made geological sections and eventually these were compiled in geological maps, which are basically topographic maps with the shallow geological conditions printed on top. Making such maps was a national responsibility and every country did that in its own way. Today, geologists still go in the field and

make such drill holes, but these are part of a wide array of other sources of information, including geophysical and remote sensing techniques. Through GPS all data are sent in three dimensions to a station, which automatically plots the data points on a digital map and stores the geological information in large digital databases. From these databases many types of geological maps can be produced, almost instantaneously and for various applications. In the next few years all companies and organizations that penetrate the Dutch subsurface will be forced by law to copy these into a public database. Vice versa, all public organizations wanting to construct anything in or at the ground will be obliged to check the existing subsurface information first before building to avoid redundant penetration of the subsurface. Moreover, since the launch of the “International Year of Planet Earth” in 2007, geological survey organizations in 117 countries embarked on the OneGeology programme. That programme aims to make all geological map information digital and by translating that into one singular computer language and legend, this will result in a digital map of the world, including the oceans, with free access for all participating nations. Eventually, OneGeology will provide a real third dimension to international geographical search systems as Google Earth. Such digital geological maps provide information about the structure and composition of the upper parts of the Earth crust. But if we speak about the anatomy of this planet, we must look much deeper as well. In the late 1960s, Earth scientists began to apply scanning techniques used in the medical sector for geological purposes. Seismic tomography was born which identifies seismic anomalies to depths of about 2,000 km deep in the Earth mantle. We may actually observe realtime, how crustal plates are spreading and colliding and how they are becoming absorbed by mantle materials in the subduction zones. Together and in combination these techniques have made our planet far more transparent than when I was a field geologist.

The resource industry has benefitted enormously from such advances in technology and from the vastly increased understanding of the Earth’s anatomy. Some of you may remember that the Club of Rome in 1972 predicted rapid and catastrophic depletion the Earth resources and consequently rising commodity prices (MEADOWS et al. 1972). In fact, the opposite was true. Commodity prices dropped significantly and remained low for three decades in

succession until they started rising again recently. Simultaneously, annual productions of such materials increased. But the world’s registered reserves of most commodities rose as well. How come as we are talking about non-renewable resources that normally would take millions of years to be created? This paradoxical situation may only be explained by new discoveries. New generations of geo-scientists, using new exploration techniques, found large new resources of almost all metals and minerals, including oils and natural gas. Apparently the Club of Rome did not include human resources, more specifically human ingenuity in their still primitive 1972 computer models, when predicting the future state of the planet. By today, the proven world reserves for crude oil are at least forty years. And there is sufficient natural gas available and economically accessible on this planet for the next 100 years at today’s production rates. So, it seems, that the Earth has very few secrets left. We roughly know how the Earth is built up and where most of its reserves are located. As science and technology will continue to proceed, we may anticipate further transparency of our planet’s anatomy and new discoveries of traditional and new commodities in the next few decades. By understanding the mechanisms that drive continental spreading some 50 years ago, we basically learned how our planet works. Supercontinent Pangaea broke up some 200 million years ago resulting in the geographic distribution of today’s continents. However, geo-scientists soon realized that Pangaea had been just the last of a series of such supercontinents and that there have been predecessors. The penultimate supercontinent is called Rodinia, assembled about 1.100 million years ago and broke up 750 million years ago. Now we know that there have been about five such cycles of supercontinent formation and successive breakups, all driven by convection currents in the mantle. Geoscientists keep busy exploring our planet for the oldest rock fragments from the oldest cratons that constituted the oldest continents. Such cratons are about 3.5 billion years old, while the oldest rock fragments, some zircon crystals so far identified are 4.4 billion years old. Just 150 million years younger than the origin of the Earth itself. This is the grand story of the super-large scale processes that shaped our planet. But what about micro-scaled processes? Just three decades ago, exciting discoveries were made at the grain-fluid interface level and about the active role of biota in such processes. Sediment particles interact with mi-

croorganisms and groundwater molecules with dissolved chemical compounds. As ground water flows and its composition changes over time, such processes are never in complete balance. Quantity and diversity of microorganisms in the soil is enormous and there is more life below our feet than above. Organic molecules degrade chemically or biologically. Recent research revealed that organic contaminants, like chlorinated hydrocarbons, may fuel biota with energy and carbon while degrading into less harmful products. Over time any such contaminate will degrade. Soil bio-degradation capacity depends on biota availability and on ground water supply and its charge. This natural process might serve as a powerful tool for mediation policies. These findings gave a much better insight in the micro-scale geological processes and in the power of microorganisms in the subsurface. Knowing the basic principles of the Earth's processes and how the Earth works paved the way to forward modeling and predicting the impacts of human interaction with a much better known planet Earth.

To that end we quickly review here some human factors and more in particular trends in human globalization or in global human behavior. Here we will discuss briefly five of such trends for the next decades.

We'll have a look first at population. The UN predicts that 9,3 billion people, that's according to their mid scenario, will live on this planet by 2050 (UN Population Division 2011). From then onwards that number would remain about constant until 2300. Until 2050, the Earth should prepare for a 30% human population growth and societies should make room for accommodating its new inhabitants.

Urbanization: The UN estimates again, that in 2050 there will be 2.9 billion more people living in urban centers than today. That will boost the world's urbanization to almost 70%. Now it's just above 50%. Ongoing urbanization will put major pressures on local geo-environmental conditions and in particular to urban space, as there are often physical limits to urban growth. Urban land will become more and more expensive.

Living standard: Living standard is normally expressed in growth domestic product per capita adjusted for purchasing power parity, PPP. As a longterm trend, living standard has been rising for

more than a century and a half. In particular, after World War II. Between 1950 and 1995 living standards more than tripled, both in industrialized and in the developing countries. And between 1999 and 2010 it almost doubled again worldwide. Simultaneously, life expectancy increased spectacularly. Today, people eat more and better quality food and use more Earth resources than ever before. Environmental awareness, that began to develop since the mid 1970s converted into political action since the Earth Summit in Rio de Janeiro in 1992. Simultaneously, the media gave significant attention to the environment while fuelling the educational systems worldwide. Environmental protection resulted in transforming large areas into natural parks or reserves, sterilizing these for all types of development. Concurrently large areas of arable land degraded. Both, land degradation and environmental protection added pressures to land development and availability of physical space for growing urban populations.

And finally, science and technology. As mentioned before, so far shortages in Earth resources were overcome through science and technology, more in particularly by human ingenuity. The same holds for resolving major food security problems in Asia and Latin America through the green revolution. I will come back to that later.

So, in combination these five trends demonstrate that urban space is becoming a more and more precious resource. This demands for unconventional solutions. And more people need more food and access to clean drinking water. More and wealthier people also demand for more Earth resources, as everything that does not grow should be extracted from the Earth. The same people also produce more waste, which puts additional pressures on the environment. But on the other hand there is one resource that's not under pressure on the contrary. That is the human brainpower. More people on Earth imply more potential human brainpower and ingenuity. If managed well and in concerted action, this resource brought a man to the moon in 1969, revealed the human genome in just 10 years time, developed a medicine that weakened HIV/AIDS, doubled integrated computer circuits every two years and combated hunger through the green revolution. In line with these achievements and fueled by accessible data and information stored in ever larger databases, 30 % more human brainpower may quite well be

able to resolve many of the anticipated challenges that a growing humanity will face in the few decades. So, what can geo-scientists, geologists and geographers in particular contribute, to address such challenges? I recall what geo-scientists have been doing and will continue to: make the Earth more transparent, reduce uncertainty in prediction models and better understand how our planet works. These steps in science and technology constitute the basic ingredients for finding new resources. Geoscientists will continue to do so, by further improve technologies and they will be successful as they were in the past half century. They will thus bridge the time gap until next generations may fully rely on carbon free energy supply. Future geo-environmental challenges will be combated by continuous investments in science and technology. Special attention will be given to the underground biota, which will probably prove to be a great new resource. Lack of urban space will be resolved by building more skyscrapers, and more interestingly, by building underground where space is abundant and risks are low while achieving very substantial energy savings. In the past ten years, excavating techniques have become safer, faster and cheaper. China is taking the lead in this respect today but also in Moscow 15 % of the new constructions will be built underground.

We geoscientists might know what we may contribute to address such challenges, but unfortunately, the general public, nor the politicians and decision makers are aware of this. That urges to promote the use of our sciences to society. Often, geo-scientists were not quite successful in such endeavors. But that changed when the International Union of Geological Sciences and UNESCO began a worldwide campaign to raise public awareness for the important role of the Earth sciences for society in 2001. I am pointing here at the International Year of Planet Earth. For this enterprise we used the successful German 'Jahr der Geowissenschaften' in 2002 as a model. To implement at least parts of our ambitions, we extended the period from one year to three years: starting in 2007 and running to the end of 2009. The first step was to collect support within the geo-family. I am happy to report that the International Geographical Union was one of the very first Unions that embarked on this enterprise by becoming a founding partner. Ten more such founding partners were identified, including all Geo-Unions and some major international geo-sci-

entific organizations. To collect the support from politicians we approached United Nations. That was done through UNESCO, our co-initiator. In 2005, the United Republic of Tanzania volunteered to be the UNmember country to propose programming of the International Year of Planet Earth of Planet Earth in the UN system. Following an intensive lobbying campaign in Paris and New York, the IYPE was proclaimed by the UN General Assembly in December 2005. A separate, non-profit corporation was then created with a board and a secretariat. The secretariat was based in Norway and sponsored by the Norwegian and Dutch governments. UN proclamation, in turn, triggered national geo-scientific communities to create their own national chapter of the IYPE. That was eventually done in 80 countries and regions where tens of thousands of volunteers actively contributed to organize a wide variety of public events. In IYPE we determined ten themes on the interaction between the Earth sciences and society. The megacity theme was spearheaded by IGU, and more in particular, by Professor Frauke Kraas. For all themes brochures were produced and translated into 15 languages. The national committees strongly focused on outreach and that made IYPE particularly successful. We organized three major international events and 45 nations did so at national levels. Such events were typically highlighted by the participations of national champions, politicians, presidents and even a king made public statements in support of the geo-sciences in their countries and so attracting significant media attention. The legacy of the IYPE Triennium has been abundant and very significant. It includes the emergence of the young Earth-scientists group, YES it is called, with now 3,000 active members. And, also as I said, the OneGeology project, which is a concerted action for transparent Earth. Following the IYPE, student numbers rose in at least 11 countries. Several Geo-parks were opened, a dedicated scientific book Series was printed by Springer on the IYPE themes, to mention just some of the many legacy items.

The title of this presentation is "Global Planetary Change and Human Globalization". I briefly discussed the global change of planet Earth through its 4.5 billion years of existence. Geoscientists discovered the roots of our continents and came quite close to its earliest beginnings. This demonstrates how fast the geosciences have evolved and that we are well underway to understand how our planet

actually works. I also showed that planet Earth has become close to transparent from the crispy crustal plates into the rather viscose lower mantle. We need such knowledge to predict the Earth system's response to human-induced geo-environmental pressures, which have grown to geological dimensions. The important question is, how much geo-environmental pressures can planet Earth accommodate before its response will seriously affect our societies.

That question basically points to the concept of sustainable development. Addressing human basic needs brings us to the second part of the title. Human globalization. Five trends in human globalization and development were explored generating some the most relevant future human needs and challenges: food, water, urban space and Earth resources and the surplus of waste. Human ingenuity fueled by 30% more and culturally quite diverse brainpower by 2050, greatly ignored as a resource so far, will help addressing such challenges. Geoscientists trained in geo-environmental issues should play a major role. That role should, however, be better exposed to society as was done for example through the International Year of Planet Earth. The IYPE served also as a model for an initiative by the International Geo-

graphical Union, an UNproclaimed International Year of Global Understanding. This initiative builds on the Brundtland statement 'think globally act locally'. The added value of the IYGU is including cultural diversity, which has been largely ignored in debates on sustainable development so far.

Well, crustal plates are driven by convection currents in the Earth mantle, people are driven by their cultural backgrounds and roots, even in times of significant human globalization.

Thank you very much for your attention!

References

- Meadows, D.H., Randers, J. & Meadows, D.L. (1972): Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind. - New York.
- UN Population Division (2011): World Population Prospects: The 2010 Revision, Highlights and Advance Tables. Working Paper No ESA/P/WP.220. - New York.

GLOBAL CHANGE AND GLOBALISATION - CHALLENGES FOR GEOGRAPHY

Bruno Messerli

Geographer, University of Bern, Bern, Switzerland

First of all I thank all the organizers for a session concerning Global Change and Globalisation.

I read the 32 abstracts of the sessions submitted under this key topic and I was impressed by the variety of titles and texts. I am persuaded that Global Change and Globalisation will become very serious challenges for Geography from the local to the global level and from now to the end of our century and beyond.

1. Global Change in Nature and Society – The Situation of Today

Figure 1 shows the increasing human impact on climate change from 1870 to 2100, based on the predicted CO₂ values. You see the slow increase of the worldwide temperature from about 1870 to 1960 and then a more pronounced increase until today, showing a global average warming of about 1°C, but in the arctic regions it is about the double. Major volcanic events interrupted this process for one or for some years, but without changing the general warming process. Between 1870 and 2000 the most important 6 eruptions are mentioned here, beginning with the Krakatau in Indonesia 1883 and ending with the Pinatubo in the Philippines 1991. But now, with the beginning of the 21st century, we are not only reaching a point of uncertainty about the future, but also a point of decision connected to the following scenarios: Can we limit the increase of temperature to the so-called danger threshold of 2°C, a scenario which we could still call 'Environment oriented'. But if we think on the growth of the world population and the world economy, then the most realistic assessment is probably this compromise between the 'environment oriented' and the 'economy-growth oriented' scenario. This most realistic 'compromise scenario' would mean a temper-

ature increase of more than 2°C, but less than 4°C, because we would certainly learn through an increase of extreme events and sea level rise: Natural disasters are always also social catastrophes. By the way, in a report of the Club of Rome (RANDERS 2012), we find the prediction that the danger threshold of 2°C will be passed by 2050: The younger generation of geographers, here present, will be the witnesses of this process. But let's keep in mind, China, India and USA are emitting close to 50% of the global CO₂, without participating in the Kyoto protocol. No doubt, these human induced natural driving forces need a forward-looking Global Policy with the necessary control instruments. Otherwise, as OECD writes in the Outlook 2050, we shall have significant costs of inaction, both in economic and in human terms (OECD 2012).

Figure 2 gives us an overview of the global changes in demography, economy and technology. I am using the data of the American environmental historian John McNEILL (2005). He tried to reconstruct the processes in the 20th century.

Behind these impressive and alarming figures of growth stands an unequal world with very poor and very rich countries. Moreover, 40 years ago the Club of Rome published the book 'Limits to Growth' (MEADOWS et al. 1972). Did we learn something? Is the financial crisis an early warning of 'limits to growth', as it is discussed in some competent publications? Only 8 years ago, the results of a fascinating conference with a limited number of participants from all over the world at the Free University of Berlin were published under the title 'Sustainability or Collapse' (COSTANZA et al. 2005). All the same, it is a pity that the figures of McNeill in Figure 2 were reconstructed for the whole of the 20th century, because most probably about 70% to 80% of these data were produced only in the second half of the 20th century

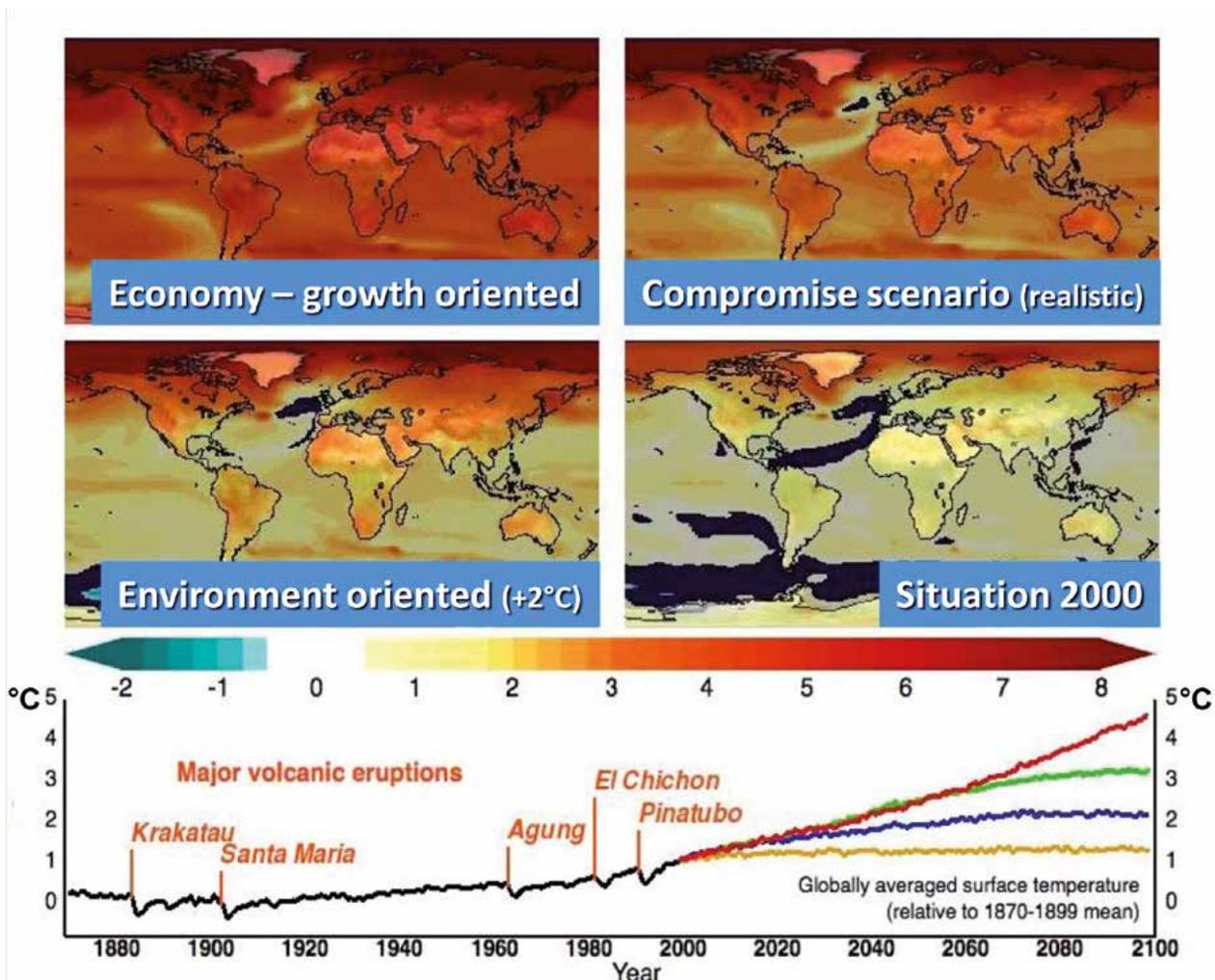


Fig. 1: Climate Change Simulation 1870 - 2100 (Source: UCAR 2007)

The 20th Century

Driving forces behind Environmental Change		Scale of Environmental Change	
Human Population	grew 4 fold	Freshwater Use	9 fold
Urban Population	13	Marine Fish	35
Global Economy	14	Cropland	2
Industrial Production	40	Irrigated Land	5
Energy Use	13	Cattle Population	4
CO2 Emission	17	Life Expectancy at Birth Globally	
		1800: 30	1935: 35
		1950: 45	2000: 67

Nothing like this had ever happened in human history. The mere fact of such growth, and its unevenness among societies, made for profound disruptions in both environment and society.

Fig. 2: Global Environmental History of the 20th Century (McNeill 2005)

or even in the last 50 years. Then we would realise the unbelievable speed of human induced global change and globalisation processes much more distinctively. What a challenge for Geography to analyse these processes at the local and national level, and link them with the available data about the changing natural systems and resources.

As a summary of this turbulent and dramatic development we could quote the statement of Sir John Beddington, Chief Scientist to the UK government: 'by 2030, a perfect storm that combines food, water and energy shortages will unleash public unrest and international conflict' (BEDDINGTON 2011). This courageous declaration may show the results of our rapidly progressing global change and processes of globalisation. Can we continue like that, or do we have to change the Global Change? Of course we can discuss the year 2030, will it begin before or after this year? But more important is the question, where are the most vulnerable regions for shortages of food, water and energy?

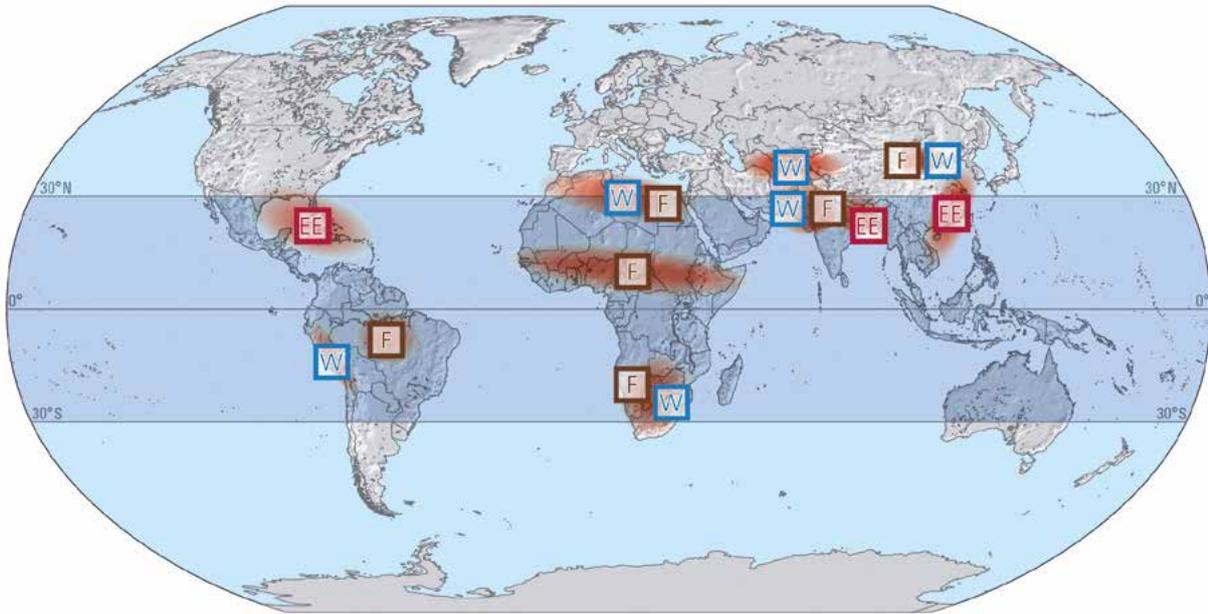
Figure 3 shows a map drafted by the 'Scientific Advisory Council on Global Change for the German Government' in 2007. Food and water shortages, connected with a potential increase of extreme events are concentrated mainly in the monsoon belt, in the latitudes between the equator and 30° to 35° North and South, where probably more than 70 % of the world population is living. In this zone we find most of the poor developing countries. But also in the economically successful countries like India we see just this year big damages in agriculture due to missing monsoon rains. In several discussions with specialists of the IPCC (International Panel on Climate Change) I have heard that this monsoon system is very complex and it is still very difficult to make any predictions about future changes. Let's keep in mind, natural catastrophes are also social and economic catastrophes, causing migration and political instability. It is indeed a challenge for Geography to invest much more in basic and applied research partnerships with universities in this critical zone in order to understand the highly different ecosystem services and the depletion of natural resources.

2. Global Change: New-Old Challenges for Geography

2.1. Linking Natural and Social Sciences – Geography as a Bridge Builder

The unlimited growth processes in the second half of the 20th century found a reaction in three decisive events with a high global significance. We could call also the awakening of a global environmental consciousness with its three vital political and scientific impulses: First, in the last months of 1971, the UNESCO started the 'Man and Biosphere' research programme, accompanied by appeals of UNESCO for a new and innovative cooperation between natural and social sciences. Second, some months later in 1972, the first global conference 'On the Human Environment' took place in Stockholm, invited by the government of Sweden. The MAB programme was mentioned several times in the declarations and recommendations. In 1972 Climate Change was not yet a hot scientific and political topic and the expression 'Sustainability' was not yet existing. The negative effects of the fast growth in demography and economy were visible in processes of degradation, deforestation, soil erosion, pollution, etc. and these damages should and could be avoided or corrected. At least, these topics dominated the thinking in the Stockholm conference 1972. The third event was in the same year the publication of the famous book 'The Limits to Growth' (MEADOWS et al. 1972) by the Club of Rome. For 40 years science and society have been in a fierce debate about this book. However, if one compares the forecasts with real data of today, the limits might be much closer than one thinks.

Figure 4 brings us back to the UNESCO – Programme Man and Biosphere, because it played a very special role for Geography. Looking back to the 1970s I must say that UNESCO had visionary and long-term thinking personalities to start 14 different programmes, covering the main ecosystems of the world. In this time period it was not easy, working in a small Geographical Institute, to create an efficient cooperation between natural and social sciences. We tried it with the following schematic representation of a regional economic ecological system in a well delineated region or in a so-called test area (MESSERLI & MESSERLI 1978). You see on the left side



Climate induced decline of

F Food production

W Water scarcity

Climate induced increase of

EE Extreme events

Fig. 3: Hotspots for Conflicts (Source: WBGU 2007: 4, altered and simplified by N. Buchmann, member of WBGU - German Advisory Council on Global Change 2008)

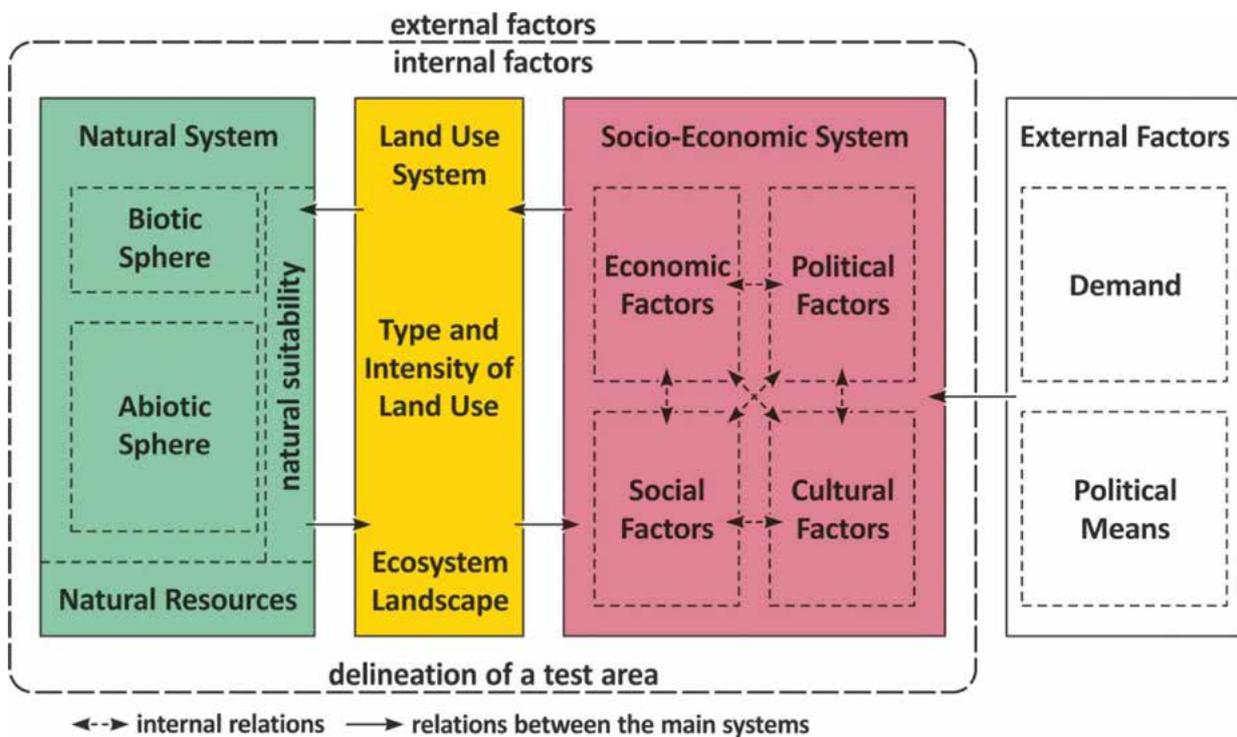


Fig. 4: Schematic representation of a regional economic-ecological system (Source: MESSERLI & MESSERLI 1978: 205)

the natural system with their natural resources and with their suitability and on the right side the socio-economic system with the economic, political, social and cultural factors or sub-systems and in the middle the Land Use System, the Ecosystem or the Landscape. Impacts from outside are the demand e.g. natural resources, marketable products, etc. and political interventions e.g. land use planning, environmental protection, etc. Either this community uses the natural resources in a sustainable way, then the people have a long-term income or even a profit, or they overuse or misuse the natural resources, then the damages produce high costs and endanger the livelihood of this community. The land use system is a highly sensitive indicator for changing natural and human driving forces. Who could have thought that this basic scheme from the 1970s would develop in the 1990s to a much more fundamental scheme (Fig. 5), which includes not only biodiversity, water, food and climate, but also health (pollution of water and air), urbanisation and migration. If we think on the big and expensive floods in New Orleans and Bangkok in the last years, then we realise the high significance of the interaction between physical and human driving forces on land use and land cover, especially if there is on a certain place an urban area with millions of people. Who could have thought that 20 years later, the Third Nobel Laureate Symposium in Stockholm, May 2011, just as a preparation for Rio 2012, formulated in their report the following message: 'Ecosystems and social systems are dynamic and inextricably linked'. Please, think who are these Nobel Price Laureates - most of them got their Nobel Price for basic research in physics, chemistry, medicine and economy - and they develop such a common priority formula for the future in order to define a research path for sustainability.

Now this development of a basic idea over 40 years provokes some questions: Geography is a discipline with a physical and a human part. Why were so few geographical institutes involved in the MAB – Programme? How was it possible that in the 1970s geographical institutes were separated in physical

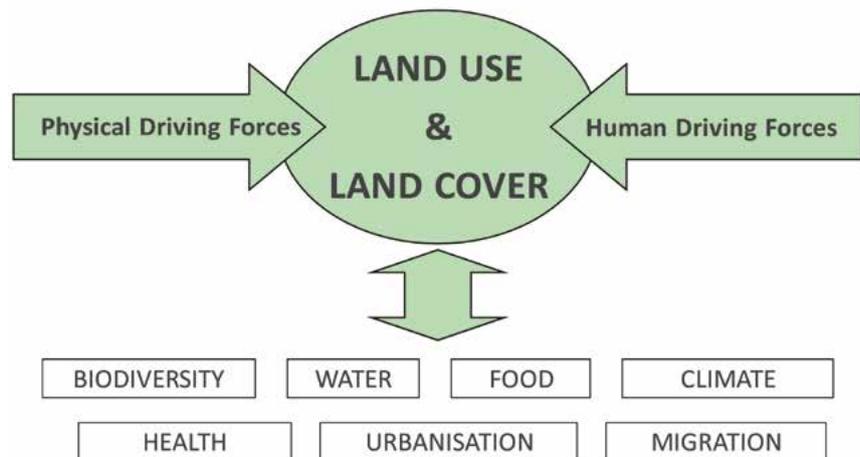


Fig. 5: Land Use Land Cover Change (Source: Simplified draft, basic ideas in: Global Land Project - GLP, 2005)

and human geography? We can't discuss this important topic more extensively, at least Professor Eckart Ehlers gave some fascinating explanations in the opening ceremony. All the same it is interesting to see, that IGU had 1968 a commission 'Man and Environment' with Gilbert White as president, even before the foundation of the UNESCO – MAB Programme. This corresponds again to our title: New-old challenges for Geography. To be very clear, we should not neglect the basic research in physical and in human geography, but we are living in the so-called geological period of the Anthropocene (Ehlers 2008) and one of the most important challenges is the cooperation of natural and human geographers in common projects, mostly with a focus on sustainability.

2.2. Ecosystem Services and Resource Use – Global Research Programmes

It is exciting to read in the OECD book (Organisation for Economic Co-operation and Development) 'Environmental Outlook to 2050' the following comment: 'Continued degradation and erosion of natural environmental capital are expected to 2050 and beyond, with the risk of irreversible changes that could endanger two centuries of rising living standards. The costs and consequences of inaction are significant, both in economic and human terms' (OECD 2012: 20). In this connection the terms 'ecosystem services' and even 'payment for ecosystem services' are becoming very urgent new topics. An im-

pressive example, reduced to some figures, is the publication of Robert COSTANZA (1997), 5 years after Rio 1992. He analysed with a big interdisciplinary team of 12 co-authors 17 ecosystems, covering the world, and calculated the value of these services for humanity in market prices. The result was in monetary value 33 trillion \$/year and the global gross national product in these years was only 18 trillion \$/year. Of course there are a lot of uncertainties in this calculation, described also by the authors, but all the same it shows very clearly the much higher value of the ecosystem services than all the human economic – technological activities. A more concrete example: The greater Himalaya is the water tower for more than 10 countries including China and India. All these countries depend on the water from the highlands for food production, urbanisation, industrialisation and growing population, but the mountain people, responsible for quantity and quality of the water resources, are living in severe poverty. They don't know anything about 'Ecosystem Services'. By the way, following the UN – population division, China and India will have about 3 billion people in 2050, this was 1965 the whole world population.

Therefore Geography must become a much more active partner in global and regional programmes on 'Ecosystem Services and Resource Use'. It was decided in the London science conference 'Planet under Pressure', end of March 2012, that the existing four global programmes (IGBP, IHDP, DIVERSITAS and WCRP) should be merged with the title 'Future Earth': A new global platform for sustainability research, launched in London 2012, beginning 2013 and ending after 10 years. The leading persons and institutions hope to attract several billion EUROS in research funding per year and this initiative should link global environmental change and fundamental human development questions. I am a little bit sceptical if such a complex mechanism can work successfully together, would it not be better to connect the existing programmes with new aims and ideas. All the same, I hope that Geography will play an active and innovative role in these new initiatives. I say it so accentuated, because as president of IGU I tried very hard to motivate the geographical community to cooperate in these global programmes. I was even asked by the director of ICSU, why there were not more geographers with their natural and human science education involved in global programmes? I still hear the arguments of geographers from dif-

ferent continents: We are overloaded with work, we have too many students, we have a responsibility for our surrounding region, we have to concentrate on a certain topic and in general: The global dimension was a little bit suspect! It was so difficult to explain that global processes have an increasing impact on the local and regional level and that a better knowledge on the regional and local level are fundamental for a more precise knowledge on the global level.

2.3. The significance of a science – policy dialogue: Rio 1992 and Rio 2012

The most important event about Global Change and Globalisation was certainly the so-called 'Earth Summit' in Rio de Janeiro 1992: The main results were the Agenda 21 with its 40 chapters, formulated in a quite concrete manner, and the accepted conventions on Climate Change and on Biological Diversity. Most interesting for us was the fact, that half an year before Rio 1992, ICSU invited to a well prepared scientific conference in Vienna 1991 with the title "An Agenda of Science for Environment and Development into the 21st Century (ICSU 1992). I could participate in Vienna and in Rio and I realised not only the significance of the scientific contribution, but also the interest of the political delegations in Rio on the scientific data and proposals from Vienna.

I apologize for using a very personal experience to show a successful science - policy dialogue about mountain research and development for the Rio conference 1992 and for a special mountain chapter in the Agenda 21. Thanks to such a good dialogue we could persuade the political authorities about the high significance of the natural and cultural resources in mountain regions: Water resources for a large portion of the world population, most sensitive indicators of climate change, treasures of biological and cultural diversity in mountain regions, recreation areas for an increasingly urbanised world population, etc. Science produced the necessary data, policy and diplomacy brought it up in the preparatory conferences for Rio and the result was a special mountain chapter in the Agenda 21. The effects were fantastic. I mention only three points: 2002 became the UN – International Year of Mountains, between 1998 and 2011 eight mountain resolutions were accepted by the UN – General Assembly, 2012 in the conference Rio + 20 the mountains received

three paragraphs in the final declaration 'The Future We Want'. Looking back I would say, that this success had positive feedbacks on policy and on science. Policy realised, especially in the developing world, that poor and marginalised mountain people are the stewards of very important natural resources and science realised, that the necessary knowledge about the natural and human conditions are missing in many parts of the world's mountains. If we want to understand the value of these resources, for instance mountain water for irrigation and food production in the surrounding lowlands, half of the worldwide biodiversity hotspots are in mountain regions, the worldwide retreat of glaciers, etc., then we need a better knowledge and a scientific strategy in order to understand from the local to the global level the highly diverse natural and human driving forces. The public and political awareness for mountain ecosystems and mountain people after Rio 1992 was an essential stimulus to science and policy.

For Rio+20 in 2012 we quote a short comment from the South Centre in Geneva, an Intergovernmental Organization of Developing Countries: 'Although there was negative media portrayal about the Summit in Rio 2012, it did have some achievements. At least the Rio principles of 1992 were reaffirmed, including common but differentiated responsibilities. There was an agreed outcome document, something that cannot be taken for granted, after the failure of the WTO to conclude its Doha agenda or the Copenhagen climate conference'. To close this chapter we add a sentence of the OECD Environmental Outlook to 2050: 'Without new policies, progress in reducing environmental pressure will continue to be overwhelmed by the sheer scale of growth' (OECD 2012). In this sense a courageous engagement in science – policy dialogues is a very important challenge for a future oriented Geography, may it be a dialogue with local authorities or an intervention at a national level, may it be a support of a regional initiative or a cooperation at a global level.

2.4. International Research in Geographical and Environmental Education

The physical sciences have perhaps too much dominated the problems of climate and global change: We need very urgently the human, social and eco-

nomics to understand the human driving forces and the impacts on nature and resources in order to prepare the ground for a new thinking about responsibility and sustainability. With the most significant front page of the last issue of the IGU-Commission on Geographical Education (Fig. 6) we may see that Geography, as a bridge builder between social and natural sciences, connecting 'Man and Biosphere in 1971' (UNESCO) or 40 years later 'People and Ecosystems in 2011' (Nobel Price Laureates), should have a special place in the different types of schools all over the world. In the memorandum of the Nobel Price Laureates 2011 I found the wonderful sentence: 'In view of the Earth Summit 2012, we call for serious action that goes beyond praising green growth but revives the spirit of 1992, recognizing that fundamental changes are needed to our governmental, economic and educational systems'. I thank the IGU-Commission on 'International Research in Geographical and Environmental Education' for publishing since 1991 these volumes. In such a critical moment of global change and globalisation, geographical and environmental education must become a higher priority in IGU and in the

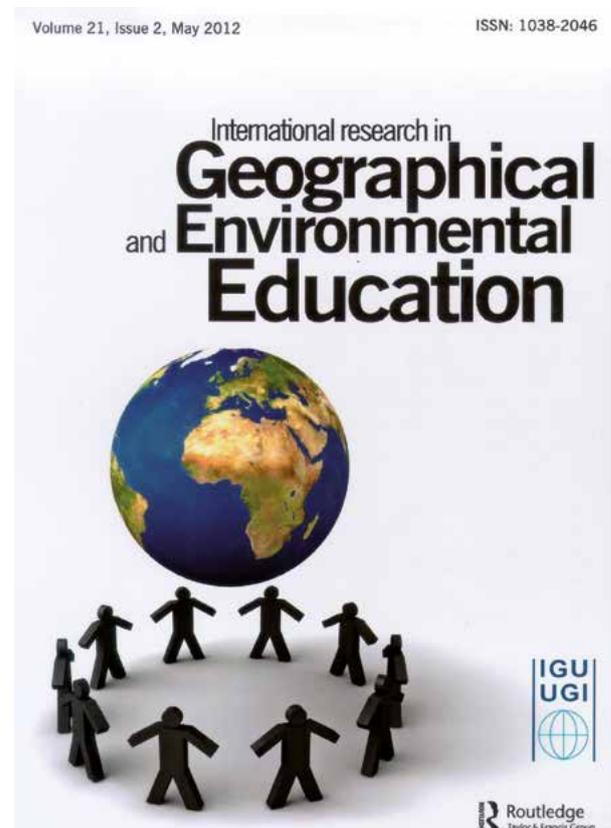


Fig. 6: IGU – Commission on Geographical Education: Vol. 21 (Source: IGU 2012)

schools all over the world. In this sense it would be highly interesting to include certain results of the 'International Year of Planet Earth' 2008 (Leadership Prof. E. De Mulder) and the conception of a new IGU initiative (Leadership Prof. Benno Werlen) for an UN International Year of Global Understanding (Fig. 7). This new initiative aims to bridge the awareness gap between local acts and global effects and to connect local actions and global challenges (WERLEN 2012).

Let's close this chapter with a picture of an old man, originally made by Leonardo da Vinci, presented by UNESCO in an exhibition and adapted to our year 2012. Today it is even more significant than about 30 years ago. Fig. 8: This man is 70, when he was 10 years old: 1952! His grandchildren are around 10, when they will be 70: 2072! How did the world look like some years after the Second World War in 1952, and how does the world with its climate and resources will look like in 2072? 120 years of difference between grandparents and grandchildren: Two different generations - two very different worlds! What a responsibility in the same family!

3. Do we need a Change of Global Change? Sustainability or Collapse?

The report of the last Nobel Laureate Symposium on Global Sustainability (2011) in Stockholm has three highly relevant chapters for our future:

1. Linking People and Ecosystems: In our globalised society, there are virtually no ecosystems that are not shaped by people and no people without the need for ecosystems and the services they provide. The problem is that too many of us seem to have disconnected ourselves from nature and forgotten that our economies and societies are fundamentally integrated with the planet and the life-supporting ecosystems that provide us with hospitable climate, clean water, food, fibres and numerous other goods and services. It is high time we reconnect and start accounting for and governing the capacity of natural capital to sustain development.
2. From Hunter – Gatherer to Planetary Stewards: Believe it or not, for most of human history we have existed as hunter-gatherers. Now, thanks to the dramatic fossil fuel-driven expansion since

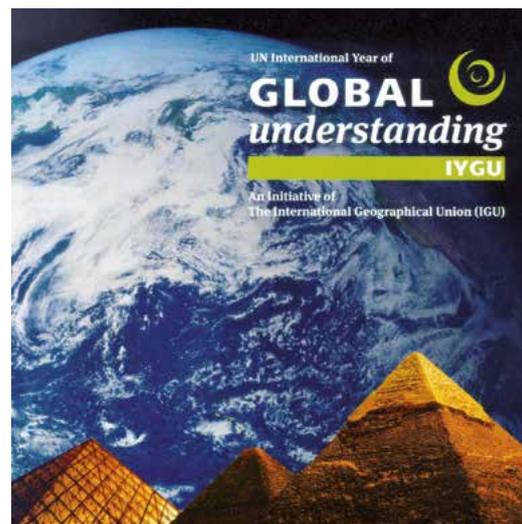


Fig. 7: UN International Year of Global Understanding. An Initiative of IGU (WERLEN 2012).

Two generations... two worlds...



**This Man is 70.
When he was 10,
1952...**

**These children are around 10.
When they will be 70,
2072...**

Fig. 8: UNESCO 1981: Exhibition for the 10th anniversary of the MAB – Programme, changed to the reference year 2012

the 1800s, our imprint on the global environment is so large that we risk triggering a number of abrupt or even irreversible global environmental changes. The big question is how we can become planetary stewards instead and strike a long-term balance between human well-being and sustainable use of Earth's ecosystems.

3. Social – ecological innovations for planetary opportunities: There are ample examples out there to demonstrate the tremendous capacity we humans have in finding innovative solutions to improve our lives. However, innovation is not always for the better. Aspects of innovation may be driving the world in the wrong direction, directly

opposed to a sustainable future. The challenges we face is to use this innovative capacity to re-connect ourselves with the biosphere (Chapter 1) and stay with the safe boundaries of the planet (Chapter 2) in order to safeguard human development in the long term. It is time to introduce innovations that are sensitive to the fundamental bonds between social and ecological systems.

Some additional remarks in the context of our presentation: The first chapter is a continuation of the Man and Biosphere Programme, which became well known 40 years ago through the first global conference on the 'Human Environment' in Stockholm 1972. The second chapter may show the history of Homo Sapiens with probably less than 100,000 years in Europe, most of this time period as hunter-gatherer. About 10,000 years ago is beginning a certain agriculture and only in the 20th century we are reaching a global dimension with a planet under pressure. The world population was about one billion at 1800, two billion at about 1925 and today more than 7 billion. We repeat Mc NEILL (2005) on

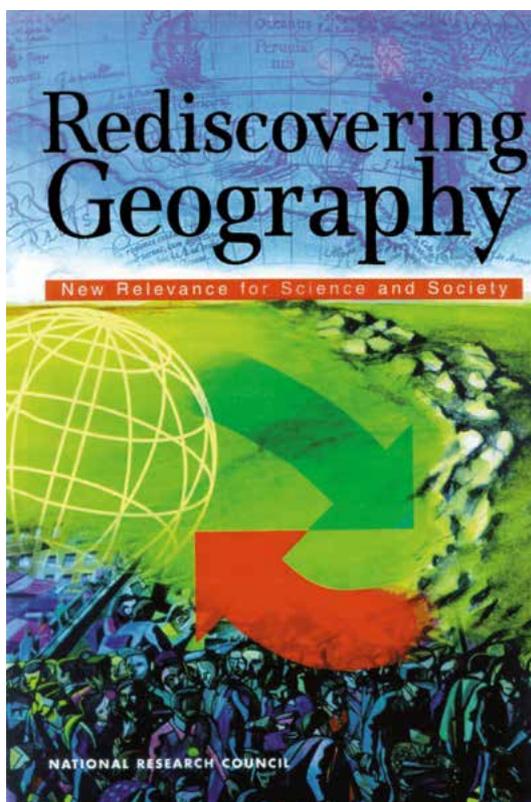


Fig. 9: *Rediscovering Geography, new Relevance for Science and Society* (US National Research Council 1995)

Figure 2: 'Nothing like this has ever happened in human history. The mere fact of such growth, and its unevenness among societies, made for profound disruption in both environment and society'. Finally, with the third point we need very urgently social-ecological innovations on the planetary dimension for 'Future Earth'. Here we repeat the OECD (2012) quotation: 'Urgent and holistic action is needed now to avoid the significant costs and consequences of inaction, both in economic and human terms' and we repeat the title of the MIT publication (CONSTANZA et al. 2007): Sustainability or Collapse! Are these three points not also fundamental challenges for the future of Geography in science and education, in basic and applied research?

Rediscovering Geography: New relevance for Science and Society (Fig. 9). This was a report of the US - National Research Council 1995, authored by a committee of the US - National Academy of Sciences. Again: New-Old Challenges for Geography! This appeal from 1995, just some years after Rio 1992 hits exactly the situation of today, just some months after Rio 2012: **Rediscovering Geography: New relevance for Science and Society!**

References

- BEDDINGTON, J. (2011): Royal Geographical Society, Newsletter Nr.1. - London.
- COSTANZA, R., D'ARGE, R. & DE GROOT, R. (1997): The value of the world's ecosystem services and natural capital. - *Nature*, 387: 253-260.
- COSTANZA, R., GRAUMLICH, L.J. & STEFFEN, W. (eds.) (2007): Sustainability or Collapse? An Integrated History and Future of People on Earth. Berlin-Dahlem Workshop Reports. - Berlin.
- EHLERS, E. (2008): Das Anthropozän. Die Erde im Zeitalter des Menschen. - Darmstadt.
- ICSU (1992): An Agenda of Science for Environment and Development into the 21st Century. - Cambridge.
- McNEILL, J. (2005): Modern Global Environmental History. A turbulent and dramatic scenario. Update of the IHDP, Bonn: 1-3.
- MEADOWS, D., MEADOWS, D., ZAHN, E. & MILLING, P. (1972): Die Grenzen des Wachstums. Bericht des Club of Rome zur Lage der Menschheit. - Stuttgart.
- MESSERLI, B. & MESSERLI, P. (1978): Wirtschaftliche

Entwicklung und ökologische Belastbarkeit im Berggebiet (MAB Schweiz). - Geographica Helvetica 4: 203–210.

Nobel Laureate Symposium on Global Sustainability 2011: Executive Summary of Scientific Background Reports. Stockholm, May 16 - 19. Royal Swedish Academy of Sciences - Stockholm.

OECD (2012): Environmental Outlook to 2050. The Consequences of Inaction. OECD – Publishing. - <http://dx.doi.org/10.1787/9789264122246-en>.

RANDERS, J. (2012): Eine globale Prognose für die nächsten 40 Jahre. Der neue Bericht des Club of Rome. - München (Deutsche Ausgabe).

UCAR (2007): Climate Change Simulation 1870 – 2100. University Corporation for Atmospheric Research. - In: Understanding Climate Change. Boulder, USA. - <https://www2.ucar.edu/news/understanding-climate-change-multimedia-gallery>.

US National Research Council (1995): Rediscovering Geography – New Relevance for Science and Society. Authored by a committee of the National Academy of Sciences. - http://books.nap.edu/catalog.php?record_id=4913#orgs.

WBGU (2007): World in Transition: Climate Change as a Security Risk. Summary for policy-makers. - Berlin.

WERLEN, B. (2012): IGU - International Year of Global Understanding (YGU). - Jena.

DISASTER RISK AND CRISES: CHALLENGES FOR FOOD AND NUTRITION SECURITY

Stephan Baas

Natural Resources Officer, Food and Agriculture Organisation of the United Nations - FAO

1. Introduction

Thank you Professor Braun for this very kind introduction. Ladies and Gentlemen, colleagues and friends, it's my pleasure to be here on behalf of the Natural Resources Department of FAO and provided with this opportunity to talk to you about food and nutrition security and some of the risks affecting food and nutrition security.

The access for all to sufficient, healthy and nutritious food is a basic human right. For most of us in this room, getting food means basically going to the supermarket or to the fridge. There is a tendency to forget that for many people in the world it is still very difficult to produce or access their daily food. In particular in Least Developed Countries poor people often do not get their daily meals. In the past decades agriculture and food and nutrition security had fallen behind other development priorities. Only recently, particularly emphasized at Rio+20 this year, food security has been brought back to the top of the international development agenda; and rightly so. We need food every day. It is our mandate and joined obligation to ensure food and nutrition for all, now and in the future.

Stable access to food for all at all times is indeed a big challenge with many risks attached, which we have to identify, analyze, understand and counteract. The 2008 food crisis showed in several countries how food insecurity can quickly turn into civil unrest. The increasing numbers of mega-disasters like recent floods in Pakistan or Thailand, the Fukushima cascading disasters and the long lasting droughts in Australia, the Horn of Africa, and this year in the Sahel and the U.S., are alerting. These disasters create severe suffering, damage and losses; and beyond these events themselves, impacts on food production and food prices are visible at national but also

at global level. And not to forget the hidden and often neglected small disasters which do not make it into the news and do not trigger any international emergency support. They threaten the livelihood security of millions of people every year, basically every day. The variety of risks and challenges to food and nutrition security is a huge topic, and impossible to cover all its complexities within 30 minutes. I want to focus this talk on some recent data and thoughts, which are crucial for our call for enhanced action and investments into food and nutrition security and risk management, and the realization of the basic right to food for all, now and in the future. I hope these thoughts will inspire you to carry on discussions in your sessions or in your research afterwards. Please do not expect too many solutions from me; many of the solutions we need, we do not yet have ready to hand; we have to develop and constantly update them in the future along the way we go.

My presentation applies a perspective of development planning. I will first review some important global trends we face when trying to achieve food and nutrition security for all. I will do that mainly from a natural resource management angle, and will call your attention on land and water systems at risk, as recently presented in FAO's report "The state of the world's land and water resources for food and agriculture" (SOLAW) (FAO 2011). Thereafter my talk will focus on some selected types of disasters and crises, which specifically effect food and nutrition security. I will introduce in brief what FAO recommends to address risks to food insecurity in developing countries, and in particular how to possibly reduce the exposure of smallholder farmers, herders and fisherfolk to the impacts of disaster and crises. I will conclude with some suggestions about key needs on the way forward towards risks reduction for food and nutrition security.

2. Food and Nutrition Security: underlying drivers of risk

Let me start with the biggest challenge ahead. The UN (2012) anticipates that by 2050 global population will have grown to 9.6 billion people. This of course induces the need for more production of food. Our estimates, taking the global population growth but also changing consumption patterns into consideration, indicate that to feed all these people we will need to produce 60% more food globally than we do today. And as part of that, a 100% increase has to happen in developing countries (relative to 2009 levels). That is indeed a huge undertaking, and we should not forget that this is not only about food production itself, it's also about ensuring healthy and nutritious food. But where do we stand now - what is our current reference point from which to start achieving the gains needed?

Global figures show that currently about 925 million (August 2012) people go to bed hungry - every day; in spite of the fact that in principle we produce enough food for all today. Beyond that about 2 billion people globally are affected by nutrition deficits and malnutrition. In some countries over 35% of the total population suffers from hunger or malnutrition. Not the most encouraging point of departure, unfortunately, for the demands ahead of us.

What risks will influence food and nutrition security? There are several global trends shaping food and nutrition security now and in the future. Population growth was already mentioned. Urbanization trends are another factor: already 50% of the global population lives in cities, in 2070 we expect that it rises up to 70% - with big implications for food production and consumption patterns. The ongoing globalization of trade is another global trend; and, as we all know, climate change puts another layer on top of all. Besides main global development trends we have to look at several location specific drivers of risk: these include, for example, (i) natural resources management and environmental processes,

and the way we use our lands; (ii) socio-economic framework conditions with wide spread poverty as a key issue in many developing countries, which are anyway the most food insecure, or (iii) weak institutions or governance, to name only three of them. All these factors together create contextual vulnerability. This vulnerability is underlying the situations when countries and people face shocks, disasters and crises. In the following slides will focus on key production factors, namely the natural resources base, on which agricultural production mainly depends. Using the example of two determinants, I will discuss the potentials for future food production: (i) the World's land surface and (ii) world water use in relation to agricultural production.

Crop production is the main source of global food production and also contributes intensively to livestock feeding. 12% or 1.5 billion ha of the global land surface is currently used for crop production. As compared to the land resources used for cropping at present, agriculture demands 70% of all fresh water resources at a global level. We can expect that in the context of the global trends - as flagged before - the competition about the access to natural resources is going to further increase, and that is not only for the purpose of agricultural production. Let us have a closer look first at the land: Are there potentials for future production increase?

Is there enough land available to enhance cropping areas? The next slide gives an indication of how much land is under use.

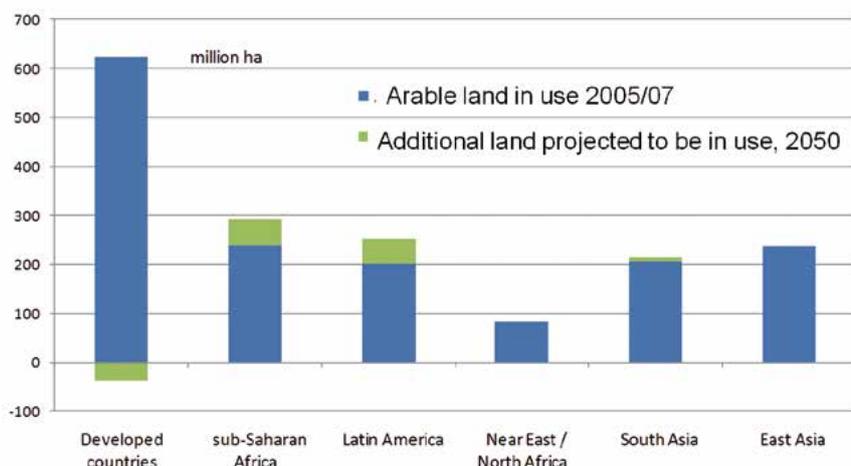


Fig. 1: Arable land availability (Source: adopted from FAOSTAT 2008 and FAO 2011)

The data goes back to 2005 to 2007. It compares arable land in use between developed countries and selected developing regions. The green color indicates where changes in land use for agricultural production are likely to happen by 2050 (FAO projected data, 2011). The projections range low: only 70 million ha (less than 5%) increase by 2050. This is for several reasons. First, there is not enough arable land available to expand, and second is that land quality differs. Most of the best land is already under use. An additional explanation for limited increase is that agriculture is not as attractive as it used to be; profit margins for smallholder farms are shrinking and many of them are moving away from agriculture, with impacts on land use patterns and changing production intensities on the currently used areas. In developed countries and some other countries like China or Vietnam, we even observe signs of overall decrease in land use for cropping; in some cases as result of unsustainable ways of land use, which has led to land degradation in an irreversible way.

Looking at the fresh water resources we note that the areas under irrigation have substantively increased during the last 40 years. If we look at the

figures between 1961 and 2009, we see that land expansion for agriculture production was only about 10 %, whereas in the same period irrigated area has more than doubled up to 301 mha. Irrigated land is more than twice as productive as rainfed cropland. In 2009 ca. 19% of the world's croplands were irrigated; those lands yield some 36% of the global harvest. The trend of rapidly expanding irrigation areas as observed during the last 20 years, however will slow down in the future. By 2050 irrigated areas are expected to increase up to 318 million ha only (SOLAW study, FAO 2011). Additionally irrigated areas will contribute to a limited degree only to the food production increase needed. It is thus crucial to further improve water access, management and water use efficiency in environmentally sustainable ways. Nevertheless, we must recognize that both available land and water resources impose limitations to future agricultural production increase.

With regard to water availability for agricultural production, which we consider the even bigger constraint as compared to land access, we have to bring in mind that already today one third of the world population lives under water scarcity. Water

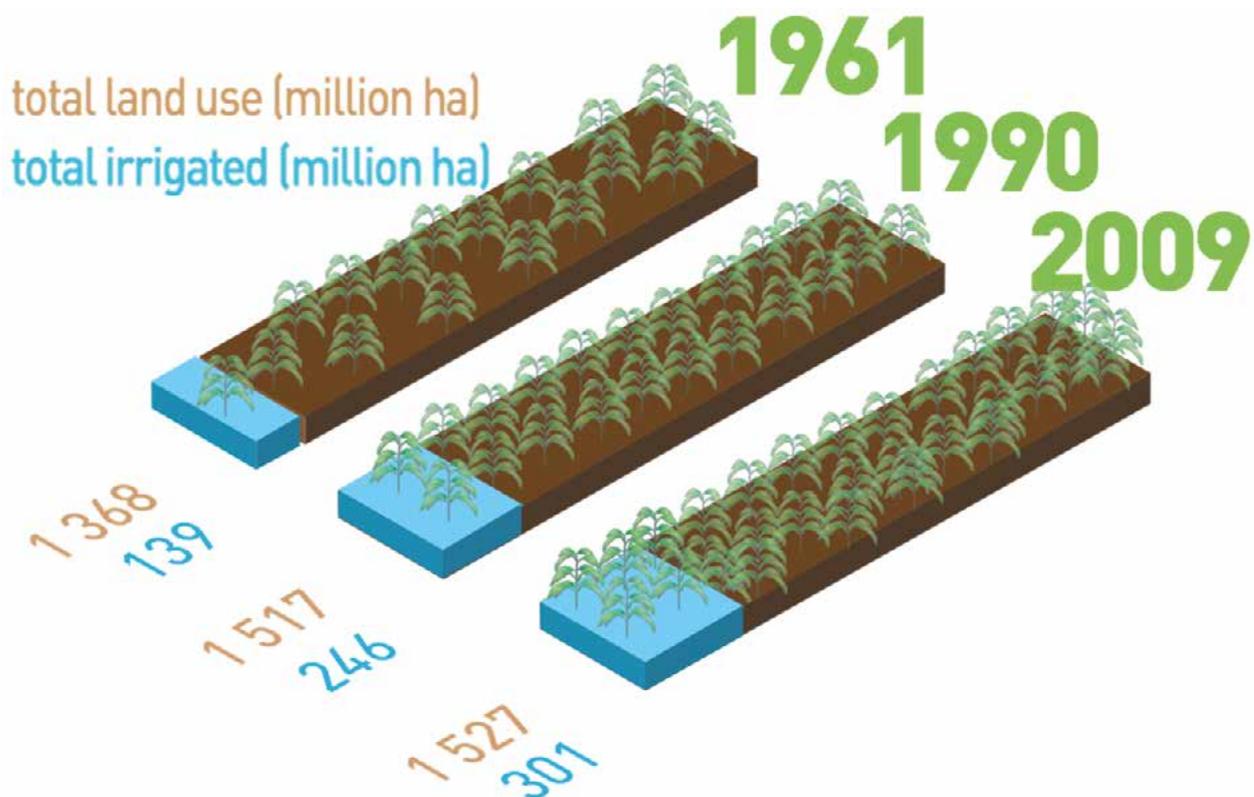


Fig. 2: Water use for irrigation (Source: FAO 2011)

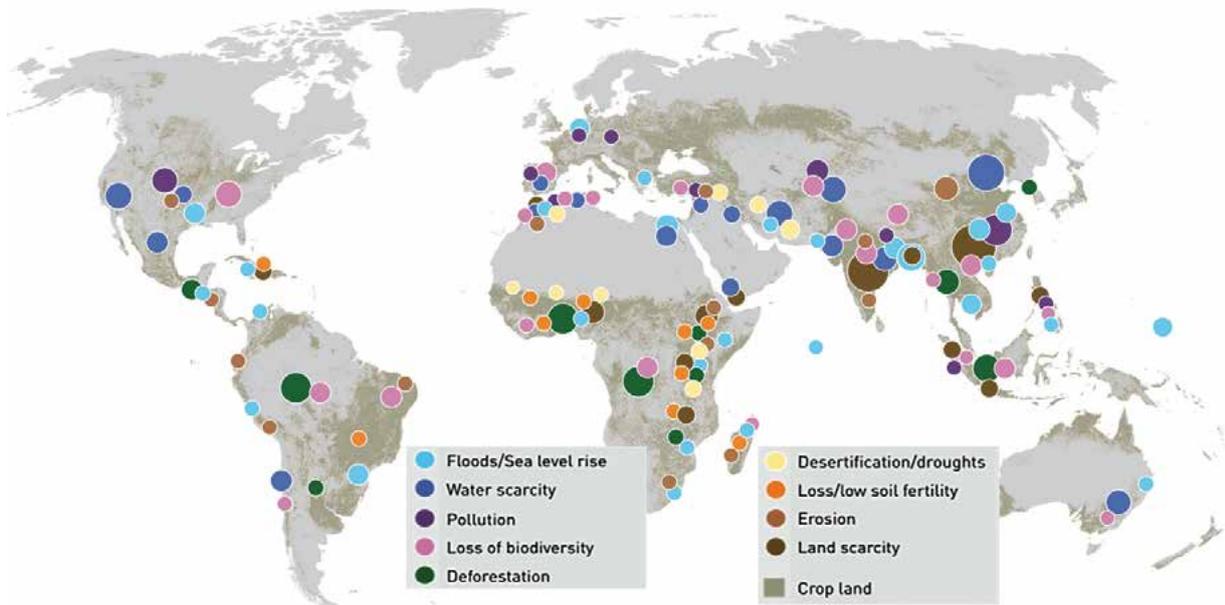


Fig. 3: Systems at Risk at a Glance (Source: FAO, SOLAW 2011)

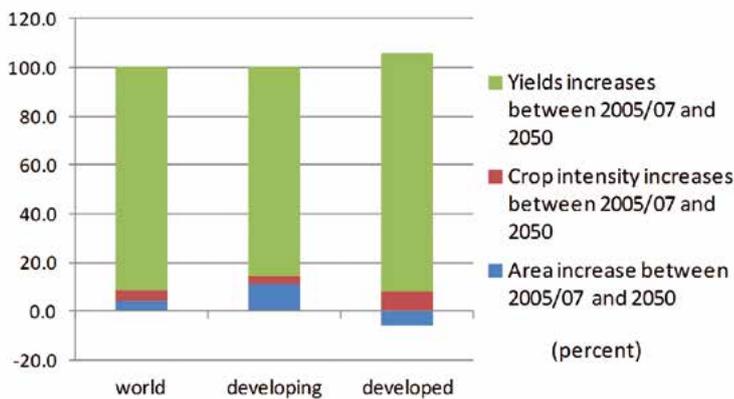


Fig. 4: Responding to increasing demand (Source: adopted from Bruinsma 2009)

scarcity is a relation between demand, availability and access to water in those countries. The study (SOLAW, FAO 2011) mentioned earlier has mapped out various risks to which different agricultural production systems are already exposed today; the size of circles on the map shows their severity and the geographical spread shows how widely they vary across continents and agro-climatic zones.

Blue circles represent water related risks, the brown ones are land related. Furthermore the map points out risks related to loss of biodiversity and or pollution. The study report presents many in-depth examples from arid zones, highlands with high population densities, small island states or forests areas.

Alerting in the context of food security is, that in the future these systems at risk may produce less food than now. For those of you who are interested to look at this study in more detail please refer to FAO website¹.

3. Potentials for enhancing future food production and access

The critical question when we look at the natural resource endowment and the existing systemic production risks is: how can we actually increase our production to meet increasing demands? What our economists say is that growth and higher productivity have to be achieved mainly through yield increases, which is indicated in the green bars of the next graphic. Yield increase means higher yields per crop. Alternatively crop intensification could be enhanced, meaning to increase the use intensity of the land like for example through reducing fellow periods or increasing times of irrigation. The scope to increase crop intensity however is small and as earlier discussed the scope for area expansion is also very limited. Additionally, yield increase means we need better cropping material, but it also implies, we need better fertilizer and more pesticides to protect the crops, which in turn again has a high risk of environmental impacts; there are immense challenges ahead.

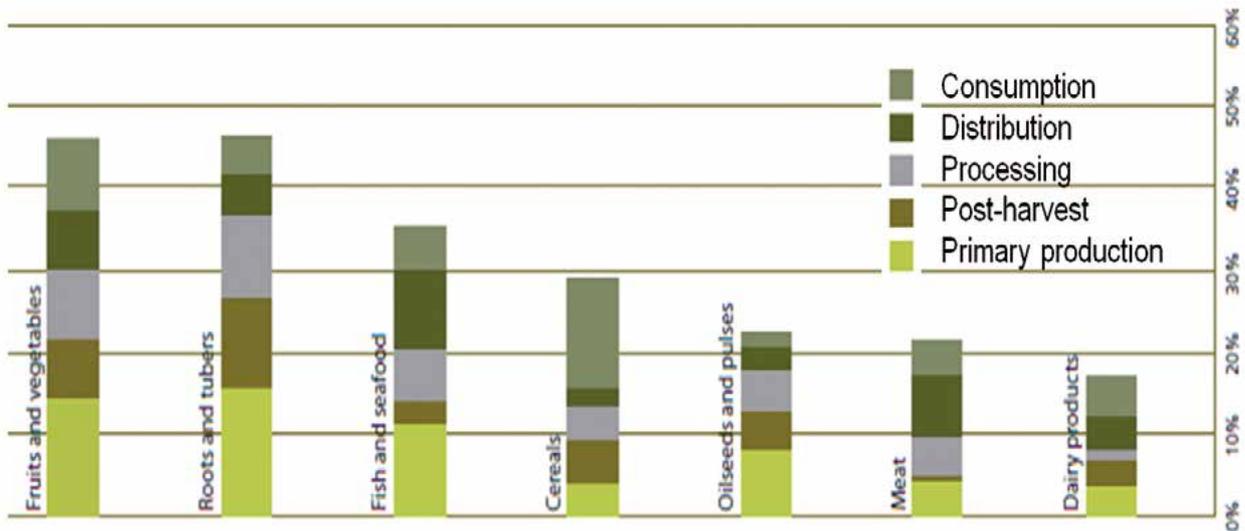


Fig. 5: Reducing food losses and waste (Source: FAO 2011)

But production is not the only path through which we can enhance food security in the future. Let us look at another opportunity. Compared to the physical limitations on land and water there is a big scope actually along the food supply chain to reduce food losses and thus enhance indirectly food availability. A recent large scale study on food losses and waste was launched by FAO in 2011 in cooperation with partners. It alerts that currently every year we lose 30% of the agricultural crop and the food produced along the supply chain.

This graphic shows different types of food item clusters like fruits and vegetables, root and tuber crops, meat, cereals, fish and seafood etc. It shows high dimensions of losses in primary production in some of these commodities, but also that very high amounts are lost in post-harvest processing, distribution and consumption. A generic pattern found behind the data is, that the losses in developed countries are predominantly in consumption and distribution, whereas the losses in developing countries are largely in post-harvest and primary production processes. If we manage to reduce these losses, it may create scope to get more of the production consumed as food in the future. This change of course also induces new challenges in face of potential food chain security risks, which may also increase.

4. Disasters and Crises: main threats for food and nutrition security

4.1 Natural Hazards

In addition to the constraints already mentioned, there is climate change on top of all, which is likely to affect production and the livelihoods of all of us in the near future. The predicted impacts on agriculture yields are dramatic, particularly in the tropics and subtropics located in developing countries. But there are not only losers in terms of agricultural production potential under climate change; there are also potential winners of changing climate conditions, particularly in the northern hemisphere. One impact of climate change already felt today in many parts of the world, as reported in the special report of the IPCC (2012) on risks of extreme events and disasters, is that also the likelihood of extreme events is increasing. This adds a further challenge to achieve the UN's goals on food and nutrition security for 2015 and more even 2050 and enhances exposure to extreme events and disaster risks .

Disasters and crises destroy livelihoods, reduce food production and increase hunger. They reverse development and poverty reduction gains. There is a clear link between shocks and hunger, which is the fragility of our current food production systems. There are about 2.5 billion smallholders worldwide who are particularly and regularly exposed to extreme events

most often to climate risks. On the other hand these figures indicate that there is scope and the need to take more proactive actions for reducing risks and impacts of disasters.

Natural disasters threaten food and nutrition security and food stability. Over the last 30 years the occurrence of natural disaster has constantly risen, except of 2011 where the number of recorded disasters slightly decreased. Particularly climate-, weather- and water related hazards, such as floods and droughts, are dramatically increasing. About 230 million people are affected annually. Recent figures from UNISDR (2013) calculate about 1.7 trillion US dollars of economic losses over the last eleven years; with a tendency of increase. In 2011 alone the economic losses caused by reported and documented natural disasters was 200 billion, which represented twice as much as the available overseas development assistance budget in the same year. More recently also several developed countries were hit heavily. The physical and economic loss of infrastructure etc. in developed countries is extremely high.

In absolute numbers 2.7 billion people were affected and 1.1 million died worldwide from natural disasters since the year 2000. In spite of these dramatic numbers, a good message is that through improved disaster risk reduction measures, the curve of lives lost is not further increasing. This is an indicator that we need to continue into the direction of proactive disaster risk reduction including prevention, mitigation and preparedness actions.

4.2 Food chain and socio-economic crises

Other threats to food and nutrition security are caused by food chain crises and transboundary pests and diseases. Transboundary threats are for examples avian influenza, locust infestations, dioxin and many others. They have a major impact on the food production and food chains. Just one example: the occurrence of avian influenza, which was very much in the press some years ago (in Asia since 2003 and reached Europe in 2005 and other regions in the following years). Since then it is not anymore

Highly Pathogenic Avian Influenza H5 confirmed outbreaks

19 January - 19 July 2012

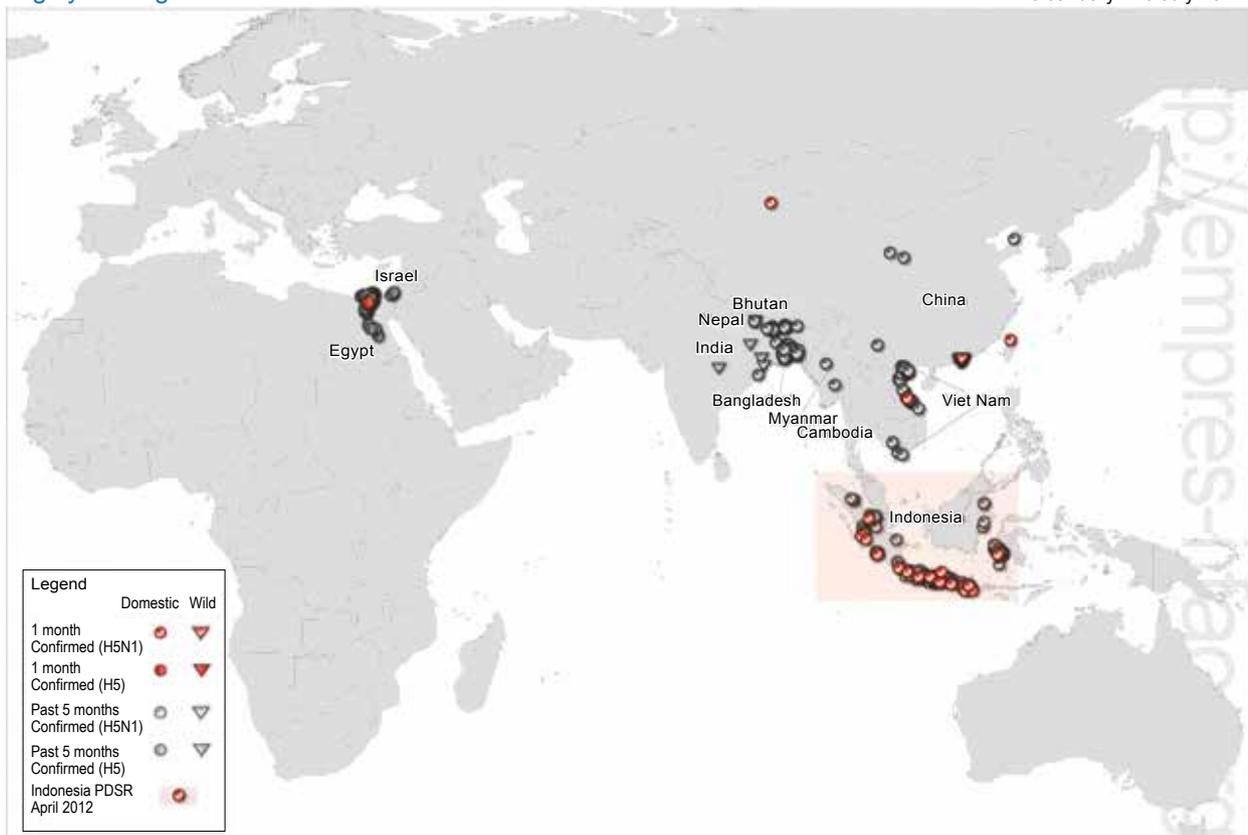


Fig. 6: Avian Influenza - 2012 Outbreaks (Source: FAO, January to July 2012)

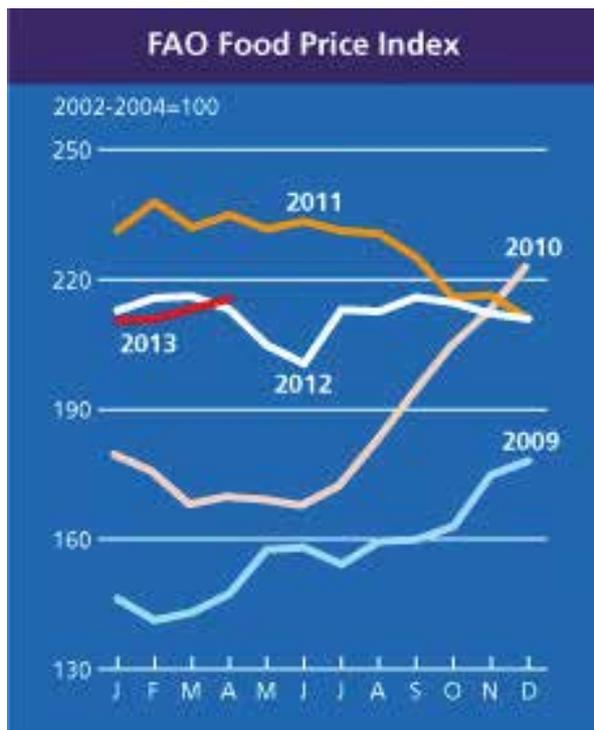


Fig. 7: FAO Food Price Index
(Source: FAO, August 2012)

present in the media and one may assume it is under control now. The map shows data from 2012

There are still outbreaks and it is very important to maintain systems of regular detection, prevention and quick action to avoid wider spread of this type of this highly contagious epidemic disease. A success story for the elimination of one risk caused by transboundary animal diseases was the eradication of the rinderpest, after 20 years in 2011.

Food price volatility is another threat for food security as drastically experienced in 2008. The 2008 food crisis, already mentioned earlier, has led to major distortions in many countries.

Protected crises are another severe and long lasting cause of food insecurity and high risk exposure of local people. Long-term assistance of agencies like FAO is often requested in protracted crises situations. From the food and nutrition security perspective a protected crisis is defined as a complex, prolonged and recurrent emergency for more than 7 years. Currently there are 22 protected crisis worldwide. In those countries FAO and other agencies play a major role in assisting at household and community levels through livelihood promotion pro-

grams, inputs supply for agriculture and food assistance to reduce chronic food insecurity and nutrition deficits. As part of the protracted crises situation people in these countries are often exposed/more vulnerable to the impacts multiple hazards. Typically there are weak institutions, limited services and no assistance to reduce risks and protect against crisis for food and nutrition security, and to ensure framework conditions and security that allow people to continue to produce food and ensure their livelihoods. The proportion of undernourished people is three times higher in countries with protracted crisis than in other developing countries.

5. Addressing disaster risk reduction for food and nutrition security

What can countries do to prevent disasters and crises or to reduce their impacts? In order to provide some guidance to countries FAO has developed a framework called Resilient Livelihoods: disaster risk reduction for food and nutrition security. In this framework, resilience is understood as the ability of a system and its parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including the preservation, restoration or improvement of basic structures and functions. Resilient livelihoods systems have the ability to (i) withstand a threat and related crises and to buffer their impacts, and (ii) adapt to a new livelihood pathways in the face of crises. The framework promotes the shift from emergency response oriented ways of working towards a proactive risk reducing approach. The focus on resilience comprises and links the whole range of interventions before, during and after a shocks (including preventive action, preparedness, response, recovery and rehabilitation measures), and bridges development and emergency humanitarian assistance. Working along the humanitarian-development continuum, the framework builds on the argument that proactive disaster risk reduction can avoid or mitigate the negative impacts of disasters on the economic growth patterns in affected countries. Investing in proactive disaster risk reduction is more cost efficient than response operations to compensate losses and repair damages.

The next graphic shows the four thematic pillars of FAO's framework programme on disaster risk re-

duction for food and nutrition security. The first is about the enabling institutional environment. This dimension is key to build operational and sustainable institutional structures for disaster risk reduction planning and implementation within the recurrently disaster exposed countries.

In this context FAO focuses particularly on the (1) institutional environment in agricultural forestry, fisheries, ministries and departments and assists them in shaping up as more active and capacitated partners for proactive risk management.

At the same we recommend to put high importance on (2) information management, and early warning systems including for natural hazards, transboundary pests and diseases, food and nutrition security, and also climate and weather reports; in short all kind of alerts and warnings, which are relevant for the farmers to plan, and be aware in time of extreme events expected to happen. The longer the lead times are, with which we can provide alerts and warnings, the better. The risk alerts and hazard warnings are fundamentally important to save lives and assets, and for people to be aware ready when needed to cope with a disaster.

FAO further promotes (3) measures to strengthen and diversify the production and livelihood systems of farmers herders and fisherfolk with risk reducing technologies in agriculture, natural resource management, fisheries and forestry; there are plenty of suitable technology known already. The challenge is that we have to enable people, including the poor and disadvantaged groups to get access to them, and share the relevant know how; but it's also about developing together with research institutes and farmers new risk reducing technologies and information systems in a variety of disciplines, including agronomy, geography, plant and animal breeding etc.

Finally there is the need for timely (4) preparedness to respond, for example through stock piling of food water and seeds at national, provincial, local and household levels, but also of fertilizers and farm inputs. Needs have to be anticipated through contingency and action plans in case of emergencies. People need to know exactly what they shall do in case the flood or thypoon comes, and how to protect their livestock; and also what to do if a drought

comes? Who does what? This is what contingency plans are needed for.

Equally important as the message that we have to address all these four pillar one by one, is that we have to also address them in an integrated way so that they mutually reinforce each other: at global, at national and at local level. If, for example, we only invest into good early warning tools, which indeed are very important, but forget to put institutions in place who create awareness at local level about the availability and value of the warning systems, and ensure that people take action upon the warnings, then they don't help much.

Disaster management systems worldwide are significantly improving, but they still focus too much on responsive actions and within those on fixing infrastructure, transport, housing electricity and communications. An overall priority is of course on saving lives; but more emphasis should be given at the same time to protecting and saving also the livelihood systems of vulnerable people applying longer-term perspectives for victims such as small scale agricultural producers. We need to act from the global to the local and back, and we need to integrate and work in an interdisciplinary way, including all disciplines which affect food and nutrition security; we must link the thematic pillars for DRR which I just mentioned.

A lot of advocacy is still needed, to get these systemic approaches in place. Knowledge management is fundamental, capacity development at all levels including in our own agency, to make this transition happen from reactive to proactive risk management. We must foster and build more strategic partnerships with research institutions, with extension services, civil society and the private sector.

A final word on the interface of disaster risk reduction and climate change: as disciplines they were coming from two different origins, as we know. But from the agricultural perspective, we recommend that they should be addressed in an integrated way, because if we go to the farmers they do not distinguish between the two. They feel and address both challenges it in a joined way. So we argue for merging the agendas to the degree possible while recognizing that at both ends of disaster risk reduction and climate change adaptation, there are issues, which the

other community of practice is not addressing. By tackling them together and as integrated aspects of development we cover wider grounds and make use of synergies.

6. Conclusions and some ways to look forward

Finally, let me share some thoughts about ways forward to further strengthen disaster risk reduction for food and nutrition security. First, agriculture production objectives and environmental objectives require to be addressed together in order to achieve sustainable solutions. We were not good enough in bringing these two disciplines together in the past. Second, we must continue to move from reactive crisis management towards more proactive risk reduction approaches; this implies that we should better link and integrate humanitarian and development assistance. We must invest much more into long-term approaches and establish funding mechanisms, which support the systemic understanding and management of vulnerabilities, risk and resilience building. These thematic aspects of strategic disaster risk reduction are still significantly underfunded. We also need to strengthen governance mechanisms towards more sustainable fair and transparent food systems at local, national, regional and global levels. And finally, we need to invest more on data generation, research, multidisciplinary analysis, knowledge management and extension service. These are lessons and the way forward on a kind of meta level. Finally we also need geography: we need geographical information systems, geospatial analysis and based on that sound planning for food and nutrition security now and in the future. And we need more geographers to contribute to our actions to achieve food and nutrition security and enhanced risk reduction. Thank you very much!

References

- BRUINSMA, J. (2009): The resource outlook to 2050: by how much do land, water use and crop yields need to increase by 2050? - Expert Meeting on How to Feed the World in 2050. - Rome, FAO and ESDD. - <ftp://ftp.fao.org/docrep/fao/012/ak542e/ak542e06.pdf>.
- FAO (2013): Resilient Livelihoods – Disaster Risk Reduction for Food and Nutrition Security Framework Programme. - Rome.
- FAO (2011): The state of the world's land and water resources for food and agriculture (SOLAW) – Managing systems at risk. Food and Agriculture Organization of the United Nations. - Rome, London.
- FAO (n.d.): Food Price Index. - <http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/>.
- FAOSTAT (2008): Agri-Environmental Indicators. - <http://faostat3.fao.org/home/index.html>.
- FIELD, C.B., BARROS, V., STOCKER, T.F., QIN, D., DOKKEN, D.J., EBI, K.L., MASTRANDREA, M.D., MACH, K.J., PLATTNER, G.-K., ALLEN, S.K., TIGNOR, M. & MIDGLEY, P.M. (eds.) (2012): Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. IPCC. - Cambridge, New York.
- The World Bank (2010): World Development Report 2010: Development and Climate Change. - Washington DC.
- United Nations (2012): World Population 2012. - http://www.un.org/en/development/desa/population/publications/pdf/trends/WPP2012_Wallchart.pdf.
- UNISDR (2013): Disaster Data and statistics. - http://www.preventionweb.net/files/31737_20130312_disaster20002012copy.pdf.

Endote

- 1 <http://www.fao.org/nr/solaw/en/>

DEADLY EMBRACE - WAR, DISTANCE AND INTIMACY

Derek Gregory

Geographer, University of British Columbia, Vancouver, Canada

One of the most dangerous conceits of the early twenty-first century is that waging war at a distance is a peculiarly contemporary phenomenon. Yet the capacity to conduct offensive military operations far from home has existed for centuries, most obviously under the tattered banners of colonialism and imperialism, and to understand what is novel about today's long-distance war we need a much surer understanding of its history. But we also need to map its changing geography, because the 'friction of distance' is not a crudely physical variable exhausted by the equations of spatial interaction. Instead, it is oiled by a series of techno-cultural and politico-economic processes that are embedded in the pursuit of military violence. To simplify my discussion I've chosen to focus on just three issues (there are of course many others): news, logistics and weapons. In each case I will identify a key moment in their modern formation – successively, the Franco-Prussian War, the First World War and the Second World War – and sketch out the volatile geographies that these have inscribed within later modern war.

Public information and military conflict

How do publics know about wars carried out far from home? This is the central question that preoccupies Mary Favret in her *War at a distance: romanticism and the making of modern wartime*. She focuses on what she insists were 'world wars' at the end of the eighteenth and beginning of the nineteenth centuries, wars that convulsed multiple theatres across the globe and which were in some substantial sense addressed to the world, and recovers the ways in which, as she puts it, 'distant violence became at once strange and familiar, intimate and remote, present and yet not really there.' That seemingly contradictory formulation, in which opposites revolve around one another, reflects FAVRET's conviction that modern 'war-time' was composed of a dialectic between what she calls 'eventfulness'

and 'eventlessness'. The more or less regular arrival of 'freshest advices' – often remarkably stale, given the distance over which the news had to travel – imposed a structuring, episodic temporality on knowledge of the wars, and yet readers were simultaneously aware that they also lived in the unsettling gap between what they knew had already happened perhaps months earlier – a battle won, a son survived – and what might have happened 'in the meantime' but of which they as yet knew nothing (FAVRET 2009).

This is an arresting insight, because it suggests that modern war-time is not a purely twentieth-century construction (DUDZIAK 2012). Favret has no truck with Virginia Woolf's identification of a gulf between the Napoleonic Wars and the Second World War. Writing in 1940, WOOLF (1940, 1975) had claimed that

'Wars were then remote, carried on by soldiers and sailors, not private people. The rumours of battle took a long time to reach England... Today we hear the gunfire in the Channel. We turn on the wireless; we hear an airman telling us how this very afternoon he shot down a raider... Scott never saw sailors drowning at Trafalgar; Jane Austen never heard the cannons roar at Waterloo.'

For that reason, WOOLF (1940,1975) thought, there was a silence in their writings. And yet FAVRET hears something in that silence: 'Precisely in these registers of the mundane and the unspectacular, registers that have mistakenly been read as signs of immunity – or worse, obliviousness – British romantic writers struggled to apprehend the effects of foreign war.'

As this suggests, FAVRET's interests direct her attention to literature – especially poetry – and in doing so she reminds us that the emergence of public spheres in eighteenth-century Europe involved more than spaces of rational articulation, which is why she constantly appeals to a landscape of affect. Yet the

response to distant violence was increasingly also a matter of report, comment and discussion, and it is within that register – in the formation of the ‘public sphere’ as Habermas understood the term – that we can calibrate the closing gap between eventfulness and eventlessness.

For this reason I’m drawn in my own work to the modern war correspondent, a figure usually traced back to the Crimean War (1853-1856) and to W.H. RUSSELL’s remarkable reports for the *Times*. By then the electric telegraph was being used to send terse dispatches to major European capitals, but the *Times* prized RUSSELL’s long-form letters precisely because they were calculated ‘to serve far more important purposes than those of momentary amusement.’ Despite that disparaging comparison, however, the rapidity of telegraphed news was already sounding alarm bells in the corridors of power, and news was increasingly about the moment (KELLER 2001). By the time of the Franco-Austrian War just three years later European armies were resigned to the presence of journalists on the battlefield and to news of their victories – or defeats – being wired to publics across the continent (MARWIL 2010). These were major developments, but it is the American Civil War (1861-65) that is usually described as the ‘first telegraph war’. This was, in part, because the telegraph played a key role in the conduct of military operations, but it was also because there was now a voracious public appetite for the immediacy of telegraphed news. So much so, in fact, that the enterprising Louis Prang sold maps and coloured pencils with newspapers so that readers could trace the daily, even hourly progress of the war.

The decisive innovation introduced by the telegraph was that it enabled information to move without a human agent to carry it. By this means the speed of transmission increased and so too did its geographical range. Too often we think of the public sphere (as HABERMAS did himself) as a national construct, but – for war as for much else – what mattered more and more was the emergence of a *transnational* public sphere. And it is for this reason that I think the most crucial episode was the Franco-Prussian War of 1870-71. According to the *Sydney Morning Herald* on 26 September 1870, ‘the rapid progress of events ... is one of the most striking phases of modern warfare.’ Indeed, a week later its editors confessed that they ‘had never realized more completely

the value of a telegraph than since the opening of this disastrous war.’ Once again newspapers published maps so that readers could follow events. But most of them showed the territory from the French border to Berlin – the direction in which the war was expected to unfold – so you can imagine the surprise and even shock when the war proceeded in exactly the opposite direction and Prussian troops finally laid siege to Paris. Readers around the world watched with bated breath.

Their ability to make sense of – and to trust in – what they saw was shaped by a turbulent geography of truth. The *Sydney Morning Herald* was deeply suspicious of all news coming through the United States, which it was convinced was coloured by a pro-Prussian bias, and preferred news that arrived through the ‘red line’, a composite threaded together by the telegraph wires from London via Suez to India and Galle and the London newspapers that accompanied the latest dispatches on the ships from Galle (though how to reconcile newsprint three months old with more recent telegraphic dispatches was another question). By now it was clear that the news business was now defined by its immediacy and commodified through its shock value; crowds gathered on the Sydney waterfront clamouring for the latest intelligence as soon as the mail-ship was due. It was equally clear that this immediacy was *mediated*. The imaginative geographies of distant wars were fashioned not only by first-hand reports and second-hand commentaries, but also by what sources were to be believed, which reports were to be discounted, and how the gaps between detailed ‘correspondence’ and telegraphed ‘flashes’ were interpolated.

The power of an immediacy increasingly if uneasily coupled with credibility was dramatically reinforced by the radio, which became a vital means of public information during the Second World War: as WOOLF (1940, 1975) said, listeners could now *hear* the sound of war, perhaps most startlingly for British audiences when the BBC broadcast Wynford Vaughan-Thomas’s recording of an air raid over Berlin on the night of 3 September 1943. At the same time the newsreel made it possible to see the war unfolding on the silver screen. This audio-visual immediacy installed a peculiar intimacy amongst those gathered round the wireless at home or sitting together in front of the flickering screen. In his remarkable autobiogra-

phy, *The world of yesterday*, completed just before his suicide in 1942, ZWEIG captured what I'm trying to get at:

'My father, my grandfather, what did they see? Each of them lived his life in uniformity. A single life from beginning to end, without ascent, without decline, without disturbance or danger, a life of slight anxieties, hardly noticeable transitions. In even rhythm, leisurely and quietly, the wave of time bore them from the cradle to the grave. They lived in the same country, in the same city, and nearly always in the same house. What took place out in the world only occurred in the newspapers and never knocked at their door. In their time some war happened somewhere but, measured by the dimensions of today, it was only a little war. It took place far beyond the border, one did not hear the cannon, and after six months it died down, forgotten, a dry page of history, and the old accustomed life began anew.' (ZWEIG 1943)

But now, he continued:

'There was no escape for our generation, no standing aside as in times past. Thanks to our new organization of simultaneity we were constantly drawn into our time. When bombs laid waste the houses of Shanghai, we knew of it in our rooms in Europe before the wounded were carried out of their homes. What occurred thousands of miles over the sea leaped bodily before our eyes in pictures. There was no protection, no security against being constantly made aware of things and being drawn into them.' (ZWEIG 1943)

This too was a partial and partisan process, and here too there was a geography of truth, an effect not only of the blue pencil of the censor but also of the positions available to reporters. When Pathé News showed the Blitz to British audiences, for example, its condemnation of what it represented as indiscriminate terrorism against innocent civilians was intensified by its ability to show the effects of bombing on the ground: the viewpoint was, naturally enough, that of those crouching beneath the bombs. But when the same newsreels covered the Allied bombing of German cities like Cologne or Hamburg, the reports were, of equal necessity, all from above: their viewpoint was shared with the bombers. 'The cargoes of our bombers shattered *military* objectives,'

one enthusiastic commentator crowed. 'Much damage of *military* importance was done ... No less than seven square miles of Hamburg were laid in ruins.' The difference was illusory, but it was not simply a product of patriotism or propaganda (though it was undoubtedly that): it was also a product of position, one a view from below and the other a view from above.

Similar questions – of immediacy, of truth, of point of view – reappeared during what for many was the first television war, Vietnam. But they were now given a new and even more unsettling twist. Vietnam has been called the 'living-room war', but the phrase was intended to be ironic: even as the war was 'brought home' on the nightly television news, many critics doubted that American audiences paid much attention to it or, if they did, saw it as little more than another diversion (ARLEN 1997). Information was yielding to – even being transformed into – entertainment. That concern has been aggravated by the rise of the Military-Industrial-Media-Entertainment network and more specifically by what HOSKINS & O'LOUGHLIN call 'diffused war', where 'media operations' have become a central part of military operations (DER DERIAN 2010, HOSKINS & O'LOUGHLIN 2010). To be sure, points of view have multiplied. Today's 'citizen journalists' – like the brave people on the streets of Homs or Damascus – can capture video on their cellphones and upload the images to YouTube with a rawness and a rapidity that we've never seen before, and since they are often shooting (sometimes in both senses) in places where professional journalists cannot venture, their videos are often re-broadcast on major news channels (usually with caveats about the footage being 'unverified'). But the military are not far behind. In the early months of the US-led invasion of Iraq, military blogs mushroomed with informal accounts of the occupation and the insurgency from the point of view of ordinary US soldiers – usually far from the viewpoint of the few Iraqi bloggers – and since then the US and other advanced militaries take great care to manage their media presence. Most have their own websites, and their version of events is regularly posted on Facebook, Twitter, Instagram and YouTube.

These developments reveal both a spectacular contraction of the gap between eventfulness and eventlessness – sometimes we seem to live in a perpetual present in which absence is virtually erased

and events around the world assume a more or less simultaneous presence – and an extraordinary convergence between the technologies used by modern news media and those used by advanced militaries to conduct their campaigns. This is surely new. I suspect that in the nineteenth century and for much of the twentieth publics had a keen appreciation of the difficulty – and the danger – of delivering the news, but as that sensibility has become dulled, as what Susan Sontag once famously defined as a ‘quintessential modern experience’, ‘being a spectator of calamities taking place in another country’, becomes a commonplace, we run the risk of becoming habituated to the display of military and paramilitary violence in other places (SONTAG 2003). The conventions of contemporary journalism still allow us to care about individual victims but often far less about the countless, nameless others.

Logistics and the business of war

In August 1870 the Montreal Gazette was convinced that the telegraph had transformed the military as well as the media, heralding a newly mobile form of war:

‘Modern science has brought each dependency of the Empire within swift reach of the controlling centre. The communications are ever open while the command of the sea remains... There converge in London lines of telegraphic intelligence ... [and] it needs but a faint tinkle from the mechanism to despatch a compelling armament to any whither it may be called... The old principle of maintaining permanent garrisons round the world suited very well an age anterior to that of steam and electricity. It has passed out of date with the stage coach and the lumbering sailing transport.’

But that confidence was premature and even misplaced. Information may well have flashed around the world, or at least parts of it, but the ‘despatch’ of ‘compelling armament’ – of troops, supplies and ammunition – remained a formidable challenge. Other observers, often closer to the front lines, were persuaded that it was the railway – what WOLMAR (2010) calls ‘the engine of war’ – that was delivering decisive change to the business of war. ‘We are so convinced of the advantage of having the initiative in war operations that we prefer the building of railways

to that of fortresses,’ Field Marshal Helmuth von Moltke had declared: ‘One more railway crossing the country means two days’ difference in gathering an army, and it advances operations just as much.’

The Franco-Prussian War was certainly a significant way-station in military logistics, but events did not work out quite as von Moltke had envisaged. The railways speeded the mobilization of Prussian troops but, as Wolmar explains,

‘The Germans had expected to fight the war on or around the border and had even prepared contingency plans to surrender much of the Rhineland, whereas in fact they found that, thanks to French incompetence, they were soon heading for the capital. The war, consequently, took place on French rather than German territory, much to the surprise of Moltke, upsetting his transportation plans, which had relied on using Prussia’s own railways. The distance between the front and the Prussian railheads soon became too great to allow for effective distribution, and supplies of food for both men and horses came from foraging and purchases of local produce.’ (WOLMAR 2010)

The most significant change in military logistics had to wait on the First World War. Before 1914, VAN CREVELD (2004) argues, ‘armies could only be fed as long as they kept moving, living off the countryside they traversed.’ This was precisely WOLMAR’s point in the passage I have just quoted; even as late as 1870 VAN CREVELD (2004) calculates that ammunition formed less than 1 per cent of all military supplies. But in the first months of the First World War, he continues, ‘the proportion of ammunition to other supplies was reversed’, and with it the calculus of supply: ‘It now became relatively easy to support an army while it was standing still, almost impossible to do so while it was moving forward fast.’ What brought this about was the accelerated industrialization of war.

‘The products of the machine – shells, bullets, fuel, sophisticated engineering materials – had finally superseded those of the field as the main items consumed by armies, with the result that warfare, this time shackled by immense networks of tangled umbilical cords, froze and turned into a process of mutual slaughter on a scale so vast as to stagger the imagination.’ (VAN CREVELD 2004)

VAN CREVELD confined himself to land war – he addressed neither war at sea nor war in the air – and most of his discussion is limited to war in Europe. But his point is still a sharp one. In order to move those vast quantities of artillery shells and bullets, the railway was vital: standard gauge lines to bring troops and supplies to the rear, and then networks of light railways laid rapidly up to the front to bring the shells to the guns. WOLMAR is emphatic that one of the reasons – and, I should add, only one of the reasons – that the First World War came to a grinding halt, with so many men ‘scratching away in the skirting boards of Belgium and France’, was precisely because day after day fresh troops could be supplied to the frontlines, and so too could the ammunition that killed them in such terrible numbers.

In some degree the agility anticipated by the *Montreal Gazette* has at last been realized by the contemporary reliance on special forces and drones to conduct remote operations – new versions of ‘small wars’ – but in VAN CREVELD’S view the logistical burden for regular armies and conventional military operations has not markedly eased. This is not to say that nothing has changed: advanced militaries depend even more than their twentieth-century forebears on oil in its various forms and supply has increasingly been outsourced to private contractors. But BUHAUG & GLEDITSCH still insist that ‘the main factor to limit the military reach of armed force is not the range of the artillery or the combat radius of attack planes. The largest obstacles to remote military operations relates to transportation and logistics’ (BUHAUG & GLEDITSCH 2006).

The war in Afghanistan provides a vivid illustration. For most of the war supplies for NATO forces reached Afghanistan through the Pakistan ‘Ground Lines of Communication’.¹ Shipments would arrive in Karachi, and were then trucked to two main border crossings, the Chaman gate in Baluchistan, leading west to Kandahar, and the Torkham Gate at the Khyber Pass, the shortest direct route to Bagram and Kabul. The overland supply chain was 2,000 km long, and as vulnerable as it was extended. By 2008 insurgent attacks on the convoys had intensified, and relations between the US and Pakistan were often fractious and at best ambiguous: Islamabad frequently closed the border in response to U.S. incursions and air strikes as the war spilled over from Afghanistan. The increasing precarity of

the supply chain coincided with Obama’s surge of US troops from 2009, and the Pentagon knew that it needed to increase capacity and reduce its reliance on the Pakistan Ground Lines of Communication. It put in place an alternative, even longer and correspondingly more expensive Northern Distribution Network running across Europe and Central Asia. The new route involved all sorts of compromises, most notably with governments in Uzbekistan and Kazakhstan, so that Obama’s supposed ‘good war’, the war of necessity in Afghanistan, has involved a series of accommodations with regimes whose human rights records rival those of the Taliban. In both cases the external supply chains have been shaped by geopolitics.

Once the convoys reach Afghanistan, a different set of problems arises. Most supplies moves by road, but the supply chain has been privatized so that the movement of these convoys is not in the hands of the U.S. Army but is the preserve of local contractors organized until recently through a contract known as Host Nation Trucking. This multi-million dollar contract provided trucking for over 70 per cent of the total goods and material distributed to U.S. troops in the field, around 6,000 to 8,000 truck missions every month. Security for the convoys was also privatized, and a congressional report in 2010 found that within Afghanistan ‘security for the U.S. supply chain is principally provided by warlords’.² These regional and local brokers owe their position within a volatile and violent power-geometry to their ability to manage security within their territory; as the report acknowledged, ‘the business of warlordism’ is thus ‘to seek rents from those who would occupy [or transit] that space’ and the brokers charge a premium for the right of passage. There is also credible evidence that security contractors stage attacks on competitors’ convoys in order to increase demand for their own services and that part of the protection payments exacted by the brokers work their way through a clandestine series of channels to the Taliban and other militant groups. In sum, the report concluded that ‘protection payments for safe passage are a significant potential source of funding for the Taliban. Within the HNT contractor community many believe that the highway-warlords who provide security in term, make protection payments to insurgents to coordinate safe passage.’ A subsequent US Army Task Force confirmed these findings and described the system as ‘reverse money laundering’.

The previous paragraphs are little more than caricatures of a complex and evolving situation, but they bring into view a new political economy of war, encased in a neoliberal armature and entangled with the profit-seeking logics of the ‘new wars’. Yet they also reveal another, older political economy in which the friction of distance persists even in the liquid world of late modernity. Contrary to Thomas Friedman’s fantasies, the world is not flat – even for the US military. In a revealing essay on contemporary logistics Deborah Cowen has shown how the United States has gradually extended its ‘zone of security’ outwards, not least through placing border agents around the world in places like Port Qasim in Pakistan so that the US border becomes the last not the first line of defence through which *inbound* flows of commodities must pass (COWEN 2012). Affirming the close connection between military and commercial logistics, the US Defense Logistics Agency envisages a similar supply chain for its *outbound* flows that aims to provide ‘uninterrupted support to the warfighter’ (‘full spectrum global support’) and a ‘seamless flow of materiel to all authorized users.’ And yet, as I have shown, the friction of distance has constantly confounded the extended supply chains for the war in Afghanistan. This is no simple metric (‘the coefficient of distance’) or physical effect (though the difficult terrain undoubtedly plays a part). Rather, the business of supplying war still produces volatile spaces in which – and through which – the geopolitical and the geo-economic remain locked in a deadly embrace.

Weapons and killing at a distance

The issue of killing at a distance is not a new one, as Goliath discovered to his cost, but the invention (and more or less continuous innovation) of firepower radically transformed the battlefield. According to MÉGRET, ‘with the increasing reach of weapons, fewer and fewer men were necessary to hold a mile-long battlefield – an estimated 20,000 between 1700 and 1850 at a time of smooth-bore guns, to 12,000 by 1870, to as little as 1,500 by 1917 with the introduction of the magazine fed-rifle’ (MÉGRET 2012). When KERN argued that the First World War was ‘conducted at unprecedented long range’, however, it was not the rifle that he had in mind, the machine-gun or even the artillery battery: he was thinking of the global scale of the conflict (KERN 1983). But muni-

tions had transformed the geography of the killing zones themselves, and the most consequential for my present purposes was the incorporation of air power into the arsenal of modern war. Many early commentators were convinced that the primary role of military aircraft would be for reconnaissance – and they did play a vital role in ground assaults and artillery ranging – but in the last years of the war Zeppelins and giant Gotha bombers attacked Paris and London, and British bombers carried out air raids on German towns on the frontier. Compared to the carnage of the trenches and the devastation caused by shelling, this amounted to little; yet what these attacks did, unquestionably, was dramatically, desperately to rewrite the geography of war. Military violence was no longer confined to a battlefield, and civilians far from the front were exposed to death and injury in ever greater numbers. As DOUHET wrote after the war:

‘By virtue of this new weapon, the repercussions of war are no longer limited by the farthest artillery range of guns, but can be felt directly for hundreds and hundreds of miles... The battlefield will be limited only by the boundaries of the nations at war, and all of their citizens will become combatants, since all of them will be exposed to the aerial offensives of the enemy. There will be no distinction any longer between soldiers and civilians.’

(DOUHET 1942)

I don’t need to remind anyone in this splendid city that it was during the Second World War that air power – and the principle of indistinction – was pushed to its destructive limit. Bombing’s execution depended on a doubled logic of abstraction and sociality. It was abstract in the sense that cities were transformed from places in which hundreds of thousands of people lived into targets: mathematical co-ordinates on a navigation chart, crude outlines on a skeletal map, spectral traces on a dimmed screen. It was also abstract in the sense that large numbers of people were involved in planning and carrying out each raid, and this technical division of labour allowed for a dispersion, even a deferral of responsibility so that most of those involved were removed from the violence that was the culmination of the kill-chain.

But bombing is also social, and this too enables those involved to overcome the resistance to killing. Every technical division of labour is also a social di-

vision of labour, and each group involved in the kill-chain developed a camaraderie and esprit de corps, with a strong sense of mutual responsibility. STEINBECK captured that to perfection in his account of the training of a bomber crew, *Bombs Away!*, written for the US Army Air Force in 1942. While he knew very well that flight crews had to master what he called ‘the mathematics of destruction’, his focus was on the creation of the ‘bomber team’ and its instinctive and carefully cultivated sociality.³

These considerations continued to animate bombing after the war, and even today militaries still rely on conventional strike aircraft to conduct bombing raids. By the end of the war, however, some senior American officers were already dreaming of even longer-range missions that would be flown from the continental United States and guided by remote control – on VJ Day General Arnold predicted that ‘the next war may be fought by airplanes with no men in them at all’ – and the seeds of today’s Predator and Reaper strikes over Afghanistan, Pakistan and elsewhere were sown during the Vietnam War.⁴ For all the continuities, however, these remote operations have transformed abstraction and sociality.

To most bomber crews during the Second World War the target was at once a remote objective and an imminent danger. The danger was visceral – the searchlight batteries sweeping the sky, the juddering explosions of anti-aircraft fire, and the prowling enemy fighters – but the crews were often remarkably detached from the field of fire they created thousands of feet below them. One pilot from RAF Bomber Command recalled, ‘It’s one good thing about being in an aeroplane at war: you never touch the enemy. You never see the whites of their eyes... You drop a 4,000 pound cookie [high explosive bomb] and kill a thousand people, but you never see one of them.’ Or another, describing area bombing by night: ‘Those sparkling lights on the velvet background, they weren’t people to me, just the target. It’s the distance and blindness which enabled you to do these things’ (GREGORY 2011). The same was true in Vietnam. One journalist reported that a B-52 strike was a ‘chillingly spectacular event’ for those on the ground, but for the aircrew, ‘sitting in their air-conditioned compartments more than five miles above the jungle’, it was little more than ‘a familiar technical exercise.’ They ‘knew virtually nothing about their targets, and showed no curiosity.’ One of them

explained that ‘we’re so far away’ that ‘it’s a highly impersonal war for us’.⁵

In contrast, the missions undertaken by Predators and Reapers have almost all been in uncontested air space – the exception is Libya – which removes the threat of ground-to-air missiles or fighter intercepts, and in any case they are flown by pilots who are out of harm’s way at air bases in the continental United States (though Launch and Recovery crews are stationed in theatre to maintain the aircraft and handle take-offs and landings). Conversely, the imaginative geography of the target is now far more refined, and in one (highly conditional) sense even intimate. The strikes conducted from or facilitated by these remote platforms are not against areas of cities or target boxes in the rainforest but against small groups or individual human beings.⁶ The capacity to be so precise – to contract the Circular Error Probable from miles to metres – is in part the product of new weapons and targeting systems, but in part the product of the near real-time, high-resolution full-motion video feeds captured by the sensors on these platforms. Yet this is not war reduced to a videogame, as so many critics allege. Late modern war plainly requires many of the skills developed through playing video-games, including hand-eye coordination, multi-tasking and spatial acuity, but those involved in these operations insist that they do not mistake the one for the other. In any case, videogames are not exercises in detachment: they are profoundly immersive, and those flying these missions repeatedly say that they are not 7,500 miles from their targets but eighteen inches away – the distance from eye to screen. Moreover, unlike conventional strike aircraft that fly in and out of the target zone at high speed, these remote platforms ‘dwell’ over the target for hours at a time, needing only a change of crew in the Ground Control Station, and after a strike they are required to remain on station to carry out a bomb damage assessment that is often an inventory of body parts, so those involved see in graphic detail the consequences of their actions (GREGORY 2011b).

When bomber crews set out from the East of England in the Second World War none of those on the base – from the ground crew up to the Station Commander – knew anything about the success or otherwise of the mission unless and until the aircraft returned and the crews were de-briefed. Today Predators and Reapers are ‘unmanned’ but they are

embedded in an extensive network of pilots, sensor operators, mission controllers, military lawyers and senior commanders. Some of them are in the continental United States, some at US Central Command's Combined Air Operations Center in Qatar, but all of them have access to the video feeds via Ku-band satellite and fibre optic cable, and most of them are in real-time contact via radio and online messaging. In this way, the envelope of sociality – of shared responsibility – is enlarged far beyond that envisaged by STEINBECK (1942).

Taken together, these transformations in abstraction and sociality produce a new geography of the killing space. When one Predator pilot in Iraq, describing his familiarity with the visual field on his screen, said that he 'knew people down there' he was referring to American troops: 'Each day through my cameras I came to recognize the faces and figures of our soldiers and marines'. Similarly, one commander insisted that 'there is no detachment. Those employing the system are very involved at a personal level in combat.' And he continued: 'You hear the AK 47 going off, the intensity of the voice on the radio calling for help, you are looking at him, eighteen inches away from him re, trying everything in your capacity to get that person out of trouble.' You can see, I hope, how this new, late modern audio-visual field contains – in fact *produces* – its own geography (and, more technically, interpellates its subjects). 'These guys are up above firing at the enemy, they love that, they feel like they are protecting our people, they build this virtual relationship with the guys on the ground, and the guys on the ground sometimes seek out the pilots by e-mails after a successful strike to say thank you.' In other words, the time-space compression of network war is highly selective. Its high-resolution imagery is embedded in a scopic regime that makes 'our' space seem familiar, even in 'their' space, which space remains obdurately Other (GREGORY 2012).

As with news and logistics, here too distance is not a physical absolute; it is a techno-cultural artefact. I also think it a mistake to turn it into a moral absolute: if you think it's wrong to kill people who are 7,500 miles away, over what distance do you think it acceptable? 5,000 miles? 500? 50? In any case Predators and Reapers are not the only means of killing at a distance. Militaries still have an incomprehensibly vast stock of long-range missiles, and the US Air Force is experimenting with its Prompt Global

Strike that threatens to put a missile anywhere on earth in less than an hour. Cyberwarfare presents still newer possibilities and an ever expanding horizon of danger, given the dual-use capability of so many computer systems and the acute dependence of the physical spaces of modern life on the animations of codespace (GREGORY 2011c).

The near and far

Even as we contemplate the expanding horror-horizon of long-range war, we ought not to lose sight of the close-at-hand. Even our most advanced forms of warfare continue to be close in. In HENNESSEY'S view,

'Modern conflicts are not de-localized, inhumane and digital. If we learnt anything from Iraq and Afghanistan it has been that no war can be fought at a distance. The close combat with the Taliban in the green zone of Helmand or the Mahdi army through the rubble-strewn streets of Basra was as unpleasantly human and personal as war can be.'

(HENNESSEY 2010)

On same calculations 94 per cent of all American combat deaths in Afghanistan have occurred within one mile of the enemy, and David Bell claims more generally that 'since 1975 the United States, with the exception of two short campaigns against the army of Saddam Hussein, has largely fought against irregular, insurgent forces, and actual combat has mostly taken place at much closer range than it did for the average infantryman of either world war.' (BELL 2012)

Maybe so; in any event it is a sensibility to the interdigitation of the far and the near that we need to encourage. Blogging from a war-torn and occupied Baghdad, a courageous young Iraqi woman appealed to her audience around the world:

*'Don't the Americans realize that "abroad" is a country full of people - men, women, children who are dying hourly? "Abroad" is a home for millions of us. It's the place we were raised and the place we hope to raise our children - your field of war and terror.'*⁶

And I believe that one of the existential challenges for human geography in the global North is to capture and to convey the relationship between the distance

of 'our' wars and the security of our everyday lives. Something of what I mean can be seen in Martha Rosler's *Bringing the war home*, originally composed during Vietnam and re-worked during the Iraq war, in which she used a series of photo-montages to re-stage military violence in the American domestic interior. In my view a genuinely human geography must explore in something more than the usual deadening cadence of academic prose those multiple connections between here and there. For as John France warned, 'distant wars in distant places have a habit of creeping up on us' (FRANCE 2011). Indeed they do; not only by threatening our physical safety (though they may well do that) but also by allowing us to take their violence for granted, shutting our eyes and ears to the cries of their victims, and thereby diminishing ourselves. When we choose to ignore the connective imperative between here and there, between us and them, our geographies become something less than human.

References

- ARLEN, M. (1997): *The living room war*. - New York.
- BELL, D. (2012): 'In defense of drones: a historical argument'. - *New Republic*, 27 January 2012.
- BUHAUG, H. & GLEDITSCH, N.P. (2006): 'The death of distance? The globalization of armed conflict'. - In: KAHLER, M. & WALTER, B. (eds.): *Territoriality and Conflict in an Era of Globalization*. - Cambridge: 187-216.
- COWEN, D. (2012): 'The geography of logistics: market authority and the security of supply chains'. - *Annals of the Association of American Geographers*, 100: 1-21.
- DER DERIAN, J. (2010): *Virtuous war: mapping the Military-Industrial-Media-Entertainment network*. - London, New York.
- DOUHET, G. (1942): *Il domino dell'aria*, trans. as *The command of the air*. - Rome.
- DUDZIAK, Cf. M. (2012): *War Time: an idea, its history and its consequences*. - New York.
- FAVRET, M. (2009): *War at a distance: the making of modern wartime*. - Princeton, NJ.
- FRANCE, J. (2011): *Perilous Glory: the rise of Western military power*. - New Haven, CT: 16.
- GREGORY, D. (2011): "'Doors into nowhere": Dead cities and the natural history of destruction'. - In: MEUSBURGER, P., HEFFERNAN, M. & WUNDER, E. (eds.): *Cultural memories*. Dordrecht u.a.: 249-283.
- GREGORY, D. (2011b): 'From a view to a kill: drones and late modern war'. - *Theory, culture and society*, 28: 188-215.
- GREGORY, D. (2011c): 'The everywhere war'. - *Geographical Journal*, 177: 238-50.
- GREGORY, D. (2012): 'Dis/Ordering the Orient: scopic regimes and modern war'. - In: BARKAWI, T. & STANSKI, K. (eds): *Orientalism at war*. London: 151-175.
- HABERMAS, J. (1962): *The structural transformation of the public sphere* (trans. Burger, T. & Lawrence, F. 1989). - Cambridge.
- HENNESSEY, P. (2010): 'Are video games or films better at depicting war?'. - *Observer*, 19 September 2010.
- HOSKINS, A. & O'LOUGHLIN, B. (2010): *War and Media: the emergence of diffused war*. - Cambridge.
- KELLER, U. (2001): *The ultimate spectacle: a visual history of the Crimean War*. - London.
- KERN, S. (1983): *The culture of time and space 1880-1918*. - Cambridge, MA.
- MARWIL, J. (2010): *Visiting modern war in Risorgimento Italy*. - London.
- MÉGRET, F. (2012): 'War and the vanishing battlefield', - *Loyola University Chicago International Law Review*, 9 (1). - http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1986548.
- ROSLER, M. (2008): *Bringing The War Home (1967-1972) & Bringing The War Home: House Beautiful (2004)*. - <http://theexposureproject.blogspot.ca/2008/11/martha-roslers-bringing-war-home-1967.html>
- SONTAG, S. (2003): *Regarding the pain of others*. - London, New York.
- STEINBECK, J. (1942): *Bombs away*. - New York.
- VAN CREVELD, M. (2004): *Supplying war: logistics from Wallenstein to Patton*. - Cambridge.
- WOLMAR, Ch. (2010): *Engines of war: how wars were won and lost on the railways*. - London.
- WOOLF, V. (1940): *The Leaning Tower*. - Brighton.
- WOOLF, V. (1975): *The Moment and Other Essays*. San Diego, New York: 130-131.
- ZWEIG, S. (1943): *The world of yesterday*. - New York.

Endnotes

- ¹ The following discussion summarises Derek Gregory, 'Supplying war in Afghanistan: the frictions of distance', at <http://www.opendemocracy.net/derek-gregory/supplying-war-in-afghanistan-frictions-of-distance>, 11 June 2012. The reverse process – withdrawing military equipment from

Afghanistan – is proving to be no less complicated or dangerous: see my ‘Retrograde logistics’, at <http://geographicalimagination.com/2013/04/01/retrograde-logistics>, 1 April 2013.

² Warlord, Inc. Extortion and corruption along the U.S. supply chain in Afghanistan, Report of the Majority Staff, Subcommittee on Security and Foreign Affairs, Committee on oversight and government reform, US House of Representatives, June 2010.

³ See my ‘Of bombs and men’, at <http://geographicalimagination.com/2013/01/30/of-bombs-and-men>.

⁴ See Derek Gregory, ‘Lines of descent’, in Peter Adey, Mark Whitehead and Alison Williams (eds) *From above: the politics and practice of the view from the skies* (Hurst/Oxford University Press): 41-69.

⁵ ‘Doors into nowhere’; ‘Lines of descent’.

⁶ Predators and Reapers are not firebombing whole cities or vast tracts of rainforest, but I don’t think that Dresden or Vietnam should be the moral standard against which we judge ourselves.

⁷ Riverbend, Baghdad Burning, 1 July 2005.

The logo features a large circle divided horizontally. The top half is white and contains two green triangles pointing upwards. The bottom half is green and contains the text 'IGC' in blue, 'COLOGNE 2012' in white, and 'DOWN TO EARTH' in white below it.

IGC

COLOGNE 2012
DOWN TO EARTH

2

- 2.1 From the Idea via the Bid to the Final Conception
- 2.2 IGC 2012: Facts and Figures
- 2.3 The Social Activities Programme in Detail
- 2.4 Geography and School at IGC 2012
- 2.5 Evaluation of the IGC 2012
- 2.6 Organisers' View
- 2.7 Financial Report
- 2.8 Thank you

REPORT

Local Organising Committee of the IGC 2012

This second part of the conference documentation provides an overview of the organisational aspects related to the International Geographical Congress. We will first describe how the scientific programme was conceptualised. By going back to the bidding process in Glasgow 2004 and the preparation of the application, we will show how the concept of the IGC 2012 emerged over more than a decade from 2000 until 2012. We will then describe the actual steps of the preparation, focusing on organisational aspects. This section is followed by a chapter in which we present some characteristics of the IGC 2012 participants, provide an overview of the programme and describe the attendance of different parts of the programme. After that, we will focus on some aspects of the programme in more detail. First, we will briefly

portray the social activities programme that accompanied the scientific programme and provided spaces for networking and exchange outside the session rooms. The following section focuses on geography and school describing the international geographical Olympiad, the school outreach programme and the symposium held on geography and its didactics. After that, we will present some results from the participants' evaluation followed by a financial statement. We then close our report with words of thanks. In the appendix, there is to be found the congress newspapers and a list of all presentations and posters that were accepted at the IGC 2012. The DVD enclosed in the appendix contains a documentary film of the IGC 2012 and PDF versions of the circulars, the book of abstracts and the programme book.



2.1



From the Idea via the Bid
to the Final Conception

FROM THE IDEA VIA THE BID TO THE FINAL CONCEPTION

Holger Kretschmer

The concept of the IGC 2012 combined traditional elements such as the sessions of the IGC commissions and task forces with innovative elements such as sessions on four key topics in order to focus the congress content on current research topics.

For more than 135 years, the IGC has been the central platform for scientific exchange between geographers from all over the world. As the main congress of the International Geographical Union, the meetings of the individual commissions and task forces are at the centre of the congress. The core of this exchange consists of broad thematic discussions as well as the development, expansion and maintenance of international networks within geography. The IGC is thus the central starting point for the scientific repositioning and reorientation of the IGU.

For the first time ever, the congress in Cologne went beyond this traditional role. With the concept “Down to Earth” and the four related key topics, the congress established its own thematic emphasis. For each major thematic complex, the specialist sessions were augmented through a keynote speech by two prominent personalities from the world of science, politics or business.

The four major thematic complexes were:

- Global change and globalisation
- Society and environment
- Risks and conflicts
- Urbanisation and demographic change

New target groups

Besides the thematic focus, the IGC in Cologne attempted to find new target groups. With special discounts, funds and events for young scientists, the Local Organising Committee (LOC) made the IGC

2012 the “youngest” IGC ever. With a symposium for teachers held in German, the LOC anchored the IGC 2012 within the local and regional geographic community.

The motto “Down to Earth”

The “Down to Earth” concept not only reflected the contents of the congress, but also symbolised a return to a simpler congress culture. The registration fees could thus be kept low, meaning that students and young scientists from all over the world had an opportunity to participate. In order to achieve this aim, the congress took place in the university buildings, simultaneously establishing a close connection to science and research.

Organisational Structure

Local Organising Committee

As the main congress of the International Geographical Union, the IGC was formally hosted by the IGU and the German Geographic Society (Deutsche Gesellschaft für Geographie, DGfG). The local organisation of the congress was conducted by the Department of Geography at the University of Cologne. To prepare the International Geographical Congress 2012, a Local Organising Committee (LOC) was created. It was established at an early stage of the planning process and grew throughout it. Prof. Dr. Frauke Kraas and Prof. Dr. Dietrich Soye chaired the committee, which also consisted of Dr. Carsten Butsch, Ursula Dörken, Dr. Holger Kretschmer, Konstantin Ntageretzis, Dr. Valerie Viehoff, Wolfgang Schmiedecken and Dr. Dorothea Wiktorin. The Committee was responsible for planning, organising and carrying out the congress.

Support from the University and the Department of Geography

While the LOC supervised the overall organisation of the congress, several groups and institutions supported it during the organisational process, such as the scientific committee, administrative and technical staff of the University of Cologne, the staff of the Department of Geography and more than 200 student volunteers. The Department of Geography in particular supported the organisational process with technical equipment and hundreds of working hours provided by the staff members. In the six months before and during the congress, the support by the Department was particularly outstanding. Special teams were formed to implement the plans of the committee. These reflected the main working areas of the organisation and included catering, conference office/registration desk, exhibition, field trips, finances, graphics, maps and layout, iGeo, keynote speaker, liaison with the IGU; poster sessions, press & media, preparation of the venue, social events, Symposium Geography and School, school programme, technical equipment, Young Researchers' Forum, volunteer programme, website & online registration.

Development of Scientific Programme

The sessions and presentations were selected in a two-step application process in order to guarantee a selection of sessions at the cutting edge of current research. The first step began with an open call for sessions within the frame of the four key topics published on the IGC 2012 website in June 2010. By the deadline of 1 April 2011, more than 200 proposals had been submitted. The review and final selection of sessions was carried out by the Scientific Committee at a meeting in Cologne in May 2011. Part of the second step was an open call for papers and posters regarding specific sessions. Abstracts were handed in via the online paper submission system before the closing deadline of 15 December 2011. As a result of several requests, the LOC extended the deadline, meaning that the call was eventually open from 1 July 2011 until 31 January 2012. The final review was the responsibility of the sessions chairs. However, the Scientific Committee developed the review guidelines and supervised the review process. Each session contained 4–5 individual presentations. A list with two substitute presenta-

Development of Scientific Programme – Key Topics	
Summer 2006	Definition of Key Topics
Summer 2009	1st Open Workshop on Key Topics
Autumn 2009	Nomination of Scientific Committee
Spring 2010	2nd Open Workshop on Key Topics
Summer 2010	Call for Sessions
Spring 2011	Review by Scientific Committee
Summer 2011	Session-based Call for Papers
Spring 2012	Review by Session Chairs

Tab. 1: Development of Scientific Programme

tions was made for every session in order to minimise “no-shows” during the congress (Tab. 1).

The work of the International Geographical Congress 2012 (IGC 2012) began many years ago, long before the congress came into existence. It began before the call for papers in summer 2011, before the call for session proposals in autumn 2010 and before the 2004 decision to hold the congress in Cologne. The real work of IGC 2012 started in 2000 with the idea of holding the first IGC in Germany in more than 110 years. In order to realise this idea, the Cologne-based Local Organising Committee developed a preliminary plan and then presented a detailed application to the International Geographical Union during several meetings, among them with the Executive Committee, namely in Helsinki, Washington and Moscow. At the 2004 IGC in Glasgow, it was after a secret voting process announced that Cologne had won out against Beijing and Santiago de Chile for the 2012 spot. Over the next eight years, organisers carried out preparations, from developing a motto and determining the concentration to final planning. The preparations culminated in late August 2012, when what was the largest IGC to date took place at the University of Cologne.

The following section describes the path from the idea to the preparation of an application for the bidding process to the final conception of IGC 2012 and presents its key conclusions. We have attempted to represent events chronologically as much as possible, though some planning stages extended over longer stretches while others took place simultaneously. Some important milestones in the course of preparation had considerable influence on the shape of the congress. These milestones were often closely tied to specific places, which are well suited to serve as anchor points along the way.

An Idea is Born – Cologne / Bonn 2000

In 2000, what had long seemed impossible – an international geographical conference on German soil – became conceivable. The Germany of the 1930s and 1940s burnt itself firmly into world history, but ten years after the opening of the Brandenburg Gate and the reunification of the two German states, the memory of a warmongering nation gave way to a new image, that of a reliable member of the global community. The transformation set the stage for an IGC in Germany.

The Decision – Glasgow 2004

The Cologne LOC submitted a bid to host the IGC 2012 at the IGC 2004 in Glasgow (Fig. 1 & 2). The basic idea of the proposal was this: create an affordable IGC open to all researchers. “The guiding principles for an International Geographical Congress in Cologne,” the proposal stated, “are back-to-basics and no-frills approaches in a traditional university setting.” The conference was conceived to be “cost-efficient, academic, focused on young talent, co-operative, boundary-spanning, interdisciplinary, visionary”.

For instance, the proposal called for a 30% reduction of the participant fee of the IGCs held in Seoul (2000) and Glasgow, as well as discounts for young researchers. Another unique selling point of the proposal was the idea that the IGC should be held at a large university: “Most of the conference activities will take place at the main campus of the University of Cologne. It is located in the ‘inner greenbelt,’ an urban park area adjacent to the inner city of Cologne. The three main buildings to be used for the conference offer a large variety of modern lecture and seminar rooms with capacities between 20 and 2000, cafeterias, public telephones and internet terminals, cash dispensers, etc.”.

The proposal had the backing of both local and international institutions. The bid was submitted by the Department of Geography at the University of Cologne, supported by the Seminar for Geography and its Didactics and the Department of Economic and Social Geography (both also located at the University of Cologne). Moreover, the concept was approved by the leading Germany’s geographical institutes, professional associations, the German

geographical societies and other important scientific organisations, such as the German Research Foundation. About the exact reasons as to why Cologne was chosen by the national delegates to host the IGC in 2012 one can only speculate. However, it is certain that the proposal of the Cologne Local Organising Committee convinced the assembly of IGU member states in Glasgow.

Promoting the Conference – Tunis 2008

At the IGC 2008 in Tunis, the organisers took the opportunity to inform IGU members about preparations for Cologne (Fig. 3 & 4). Using an information booth to establish contact with participants of the Tunis conference, the Cologne LOC informed people about the planning process and provided facts about Cologne and the surrounding region. By 2008, the event’s conception had incorporated several new facets. Besides the conference motto “Down to Earth”, the organisers had identified four key topics that would structure and focus the congress. These key topics were the outcome of a consultation process with geographers at various German universities. The idea was to supplement the traditional sessions of the commissions and task forces with a new element to make the IGC more attractive for new groups. The key topic idea was modelled on the biannual conference of the German Geographical Society (Deutscher Geographentag), which has been combining theme-focused sessions with working group meetings for years.

Another important piece of news revealed in Tunis was the IGC 2012 logo. Its distinctive green and blue colour scheme was created to give the congress an instantly recognisable “face” early on. Both the information booth and the information flyers displayed the new logo.

IGC 2008 was just the beginning of a series of informational events for IGC 2012. Over the next four years, the LOC was present at a variety of congresses to report on the latest state of planning. The LOC set up booths in accompanying exhibitions and promoted the event with a lecture series. In the four years before IGC 2012, the LOC travelled to 28 geography-related conferences (Tab. 2, Fig. 3-12).

CITY/COUNTRY	DATE	CONFERENCE	LOC REPRESENTATIVES
Tunis/Tunisia	12.-15.08.2008	International Geographical Congress/IGC	Frauke Kraas, Wolfgang Schmiedecken, Dietrich Soyez
Vienna/Austria	19.-23.09.2009	Deutsche Gesellschaft für Geographie/DGfG, German geographers biennial meeting	Carsten Butsch, Frauke Kraas, Holger Kretschmer, Wolfgang Schmiedecken, Dietrich Soyez
St. Dié-des-Vosges/ France	30.09.2.10. 2009	Festival international de géographie/FIG	Dietrich Soyez, Valerie Viehoff
Washington DC/USA	14.-18.04.2010	Association of American Geographers/AAG Annual Meeting 2010	Tabea Bork, Carsten Butsch, Dietrich Soyez
Tel Aviv/Israel	12.-16.05.2010	IGU Regional Conference	Frauke Kraas, Dietrich Soyez
St. Dié-des-Vosges/ France	6.-9.10.2010	Festival international de géographie/FIG	Valerie Viehoff
Chandigarh/India	18.-21.11.2010	National Association of Geographers in India/Annual Meeting	Carsten Butsch
Seattle	10.-16.04.2011	Association of American Geographers/AAG Annual Meeting	Dietrich Soyez
Sherbrooke/Canada	10.-12.05.2011	79th Congrès de l'Association francophone pour le Savoir/Acfas, Colloque 433: "Qu'advient-t-il de la géographie"	Dietrich Soyez
Roskilde/Denmark	23.-26.05.2011	4th Nordic Geographers Meeting (S, P)	Dietrich Soyez
Urumqi/P.R. China	23.-25.07.2011	Geographical Society of China/GSC Annual Meeting 2011	Dietrich Soyez
RGS with IGB London/UK	31.08. – 2.09.2011	Royal Geographical Society/RGS with IGB	Valerie Viehoff
St. Dié-des-Vosges/ France	7.-10 .10.2011	Festival international de géographie/FIG	Valerie Viehoff, Dietrich Soyez
Santiago de Chile/Chile	14.-18.11.2011	IGU Regional Conference	Frauke Kraas, Dietrich Soyez
Tokyo/Japan	26.-29.03.2012	Association of Japanese Geographers/AJG Annual Meeting, with an embedded workshop on the preparations of the IGU Regional Conference Kyoto 2013	Dietrich Soyez
Yogyakarta, Indonesia	01.-08.10.2006	Decentralisation – Advantages or Disadvantages	Frauke Kraas
Metro Manila and Cagayan de Oro, Philippines	18.-01.04.2007	Challenges of Urbanisation, Urban Driving Forces I	Frauke Kraas
Phnom Penh and Siem Reap, Cambodia	18.-31.10.2007	Challenges of Urbanisation, Urban Driving Forces II	Frauke Kraas
Bangkok and Chiang Mai, Thailand	17.-29.02.2008	Challenges of Urbanisation: Urban Coherence I	Frauke Kraas
Hanoi, Vietnam	10.-20.12.2008	Challenges of Urbanisation: Urban Coherence II	Frauke Kraas
Siem Reap and Battambang	11.-21.10.2011	Urban Heritage Management in Secondary Towns and Cities: Regulatory Frameworks, Community Participation and Financial Challenges	Frauke Kraas
Kuala Lumpur and Penang, Malaysia	01.-11.03.2009	Challenges of Urbanisation - "The role of civil society in urban development"	Frauke Kraas
Cologne and Berlin, Germany	22.8.-01.09.2009	Challenges of Urbanisation - The Role of Civil Society in Urban Development	Frauke Kraas
Delhi, India	31.10.-7.11.2009	Urbanisation and Global Change in India: Environments, Health, Resources, Infrastructure and Governance (EHRIG)	Frauke Kraas
Luang Prabang, Laos	03.-10.07.2010	Challenges of Urban Heritage and Governance in Southeast Asia	Frauke Kraas
Hanoi, Vietnam	01.-03.12.2010	Socio-economically Sustainable Urban Development	Frauke Kraas
Jakarta, Yogyakarta & Solo/Indonesia	23.-31.10.2010	Urban Public Space and Governance	Frauke Kraas
Cebu and Cagayan de Oro/Philippines	27.03.-06.04.2011	Regional Urban Networks: Urban Environmental and Risk Management in Southeast Asia	Frauke Kraas
Nay Pyi Taw and Yangon	29.09.-08.10.2011	Urban Regional Networks: Sustainable Urban Future	Frauke Kraas

Tab. 2: Conferences during which the concept of the IGC 2012 was presented



Fig. 1: Glasgow 2004



Fig. 2: F. Kraas and D. Soyez in Glasgow 2004



Fig. 3: Tunis 2008



Fig. 4: Tunis 2008



Fig. 5: Vienna 2009



Fig. 6: Washington DC 2010



Fig. 7: Tel Aviv 2010



Fig. 8: Tel Aviv 2010



Fig. 9: Chandigarh 2010



Fig. 10: Seattle 2011



Fig. 11: Urumqi 2011



Fig. 12: Tokyo 2012

Cologne 2009 and 2010

To ensure that the agenda of IGC 2012 and its key topics reflected the current state of scientific research, open workshops took place in June 2009 and January 2010 (Fig. 14-15).

2009

More than 60 geographers from the German-speaking countries followed the invitation to the 2009 workshop (Fig. 14 & 15). They discussed key topics and worked on spelling out their content by naming the relevant issues that should be included and identifying sub-topics that should be excluded. The meeting resulted in an assortment of proposed sub-themes demarcating each key topic's framework (Tab. 3).

2010

The 2010 workshop convened by the DGfG and the LOC also took place in Cologne (Fig. 16). After an intentionally broad-based and open discussion of the first workshop, the goal of the second workshop was to elaborate on the four agenda items and eliminate unintended overlaps while improving continuity. Based on the results of the first workshop, the members of the scientific committee drafted four calls for session proposals. These drafts were developed in small groups and then rewritten as part of specific calls for sessions.

Scientific Committee

The scientific committee was actively involved in shaping the congress agenda and supported the organisation committee by helping to identify a research focus and ensure the quality of the content (Fig. 17-19). In addition to preparing the second workshop, the scientific committee played an important role in drafting the call for session proposals. It also reviewed the proposed session topics and established norms and standards for reviewing submitted papers and posters.

The 26-member committee consisted of eight German-speaking researchers and 16 researchers from outside Germany, as well as the two chairs Frauke Kraas and Dietrich Soyez (Tab. 4). Additionally, the scientific committee was supported by Carsten

Global Change and Globalisation
Critical Regional Hotspots of Global Change and Globalisation
Global Crisis, Global & Regional Governance
Resource Management under Global Change
In the Shadows of Globalisation
Human Health & the Environment
Innovativeness for Globalisation
SOCIETY AND ENVIRONMENT
Society and Environment in Time and Space
Society and Environment in Application
Society and Environment – Methodological Aspects
Society and Environment – Focus on Water
RISKS AND CONFLICTS
Key Topics – United by Risk
Risks and Conflicts – Theories, Methods and Real-Life Cases
URBANISATION AND DEMOGRAPHIC CHANGE
New Forms of Urbanity
Resources, Risks and GC
Urban Governance
New Dimensions: Shrinking Cities
Sustainable Urban Development
Gender
Social Coherence

Tab. 3: Subthemes of the key topic's framework

Butsch, Holger Kretschmer and Valerie Viehoff, who coordinated the work of the committee with planning activities in Cologne and supported the committee.

Final Conception

It took more than six years of work before the concept for IGC 2012 was largely complete. By the time the call for session proposals and key topics were presented to the Executive Committee of the IGU in the winter of 2010 and the call for papers and posters was publicly announced in summer 2011, the conference agenda was for the most part set.

IGC 2012 was divided up into two thematic parts. The purpose of the first was to showcase the variety of the field of geography. As in past IGCs, this task – the backbone of IGC 2012 – was carried out by the Commissions and Tasks Forces of the IGU. The second part represented something new for the IGC. Its purpose was to focus on the discipline's most burning topics. To this end, a second strand of the IGC 2012 programme was formed by

GLOBAL CHANGE AND GLOBALISATION		RISKS AND CONFLICTS	
Professor Huib Ernste	Radboud University Nijmegen, Netherlands	Professor Helmut Brückner	University of Cologne, Germany
Professor Hans Gebhardt	Heidelberg University, Germany	Professor Derek Gregory	University of British Columbia, Vancouver, Canada
Professor Rüdiger Glaser	University of Freiburg, Germany	Professor Detlef Müller-Mahn	University of Bayreuth, Germany
Professor Xiubin Li	Chinese Academy of Sciences, Beijing, China	Professor Jean Radvanyi	Institut national des langues et civilisations orientales (INALCO), Paris, France
Professor Nigel Tapper	Monash University, Melbourne, Australia	Professor Johann Stötter	University of Innsbruck, Austria
Professor Hervé Thiery	Cidade Universitária, Rio de Janeiro, Brazil	Professor Ben Wisner	Oberlin College, United States
SOCIETY AND ENVIRONMENT		URBANISATION AND DEMOGRAPHIC CHANGE	
Professor Raquib Ahmed	University of Rajshahi, Bangladesh	Professor Surinder Aggarwal	University of Delhi, India
Professor Hans-Rudolf Bork	University of Kiel, Germany	Professor Taoufik Agoumy	Mohammed V-Agdal University, Rabat, Morocco
Professor Boris Braun	University of Cologne, Germany	Professor Martin Coy	University of Innsbruck, Austria
Professor Patrick Nunn	The University of the South Pacific, Suva, Fiji	Professor Zaiga Krisjane	University of Latvia, Riga, Latvia
Professor Christian Schulz	University of Luxembourg, Luxembourg	Professor Boon Thong Lee	Nilai University College, Kuala Lumpur, Malaysia
Professor Yvette Veyret	Paris West University Nanterre, France	Professor Günter Thieme	University of Cologne, Germany

Tab. 4: Members of the scientific committee

CONCEPT

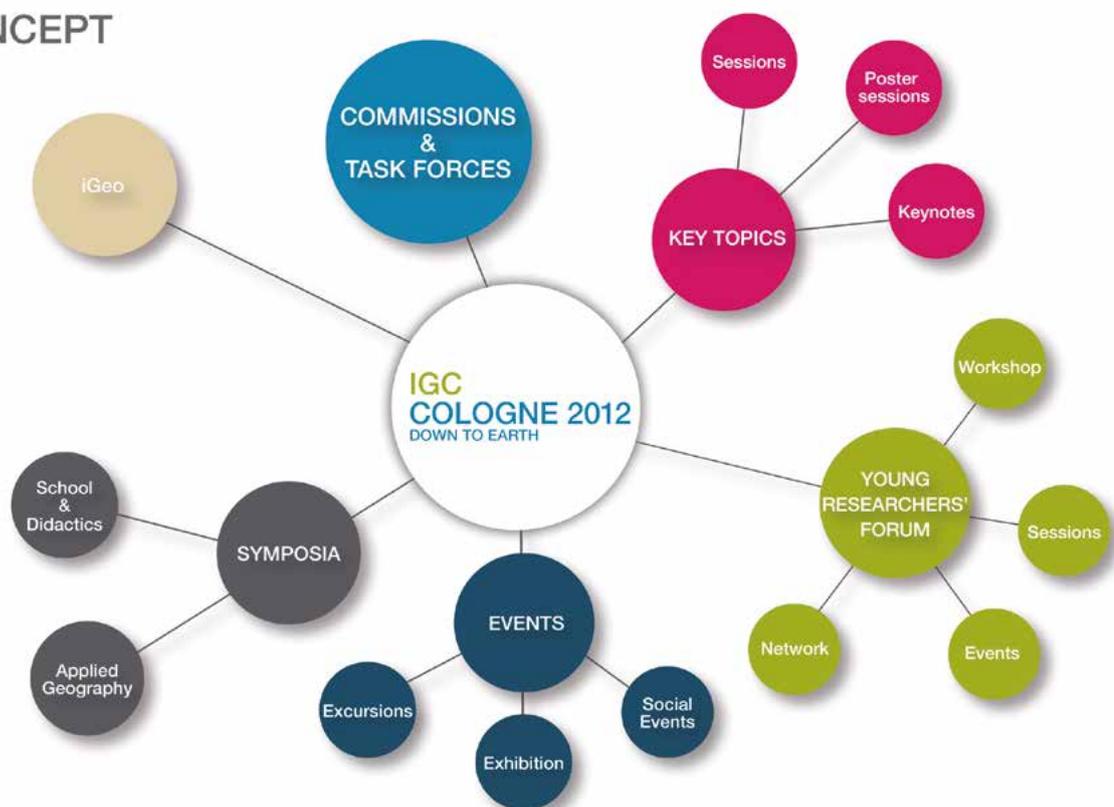


Fig. 13: Concept of the IGC 2012

C12.01	Applied Geography	C12.22	Islands
C12.02	Arid Lands, Humankind, and Environment	C12.23	Karst
C12.03	Biogeography and Biodiversity	C12.24	Land Degradation and Desertification
C12.04	Climatology	C12.25	Landscape Analysis and Landscape Planning
C12.05	Coastal Systems	C12.26	Land Use and Land Cover Change
C12.06	Cold Region Environments	C12.27	Latin American Studies
C12.07	Cultural Approach in Geography	C12.28	Local and Regional Development
C12.08	Dynamics of Economic Spaces	C12.29	Marginalisation, Globalisation, and Regional and Local Responses
C12.09	Environment Evolution	C12.30	Mediterranean Basin
C12.10	Gender and Geography	C12.31	Modelling Geographical Systems
C12.11	Geographical Education	C12.32	Mountain Response to Global Change
C12.12	Geographical Information Science	C12.33	Political Geography
C12.13	Geography of Governance	C12.34	Population Geography
C12.14	Geography of the Global Information Society	C12.35	Sustainability of Rural Systems
C12.15	Geography of Tourism, Leisure, and Global Change	C12.36	Toponymy (Jointly with the International Cartographic Association)
C12.16	Geoparks	C12.37	Transformation Processes in Megacities
C12.17	Global Change and Human Mobility	C12.38	Transport and Geography
C12.18	Hazard and Risk	C12.39	Urban Commission: Urban Challenges in a Complex World
C12.19	Health and Environment	C12.40	Water Sustainability
C12.20	History of Geography		
C12.21	Indigenous Knowledges and Peoples' Rights		

Tab. 5: Commissions of the IGU

the four key topics. The topics were selected prior to the preparation of the bid for hosting the IGC 2012 using an open, participatory process that drew on as many geographers as possible. The topics emerged from a broad academic consensus about what constitutes today's most important research areas in geography (Fig. 13).

Commissions & Task Forces

The work of the IGU mostly takes place in commissions and task forces. These bodies not only represent a broad spectrum of the discipline, but also serve as work groups that study current research questions. The commissions and task forces are an essential part of the IGU and are crucial for advancing geographical research. They made up the core of IGC 2012, managing the content of more than half of all sessions.

In addition to serving as a venue to present the work of the IGU, the IGC serves as a testing ground for commission agenda. By encouraging internal discussions and exchange between thematically linked commissions, IGC provides an opportunity for com-

mission members to adjust their research focus or set a new course. At the same time, the congress is a breeding ground for new commissions and task forces and offers perspectives on new possible topics for the IGU.

The IGU general assembly, which convenes at IGC, selects which commissions to create. Each commission has a term of four years. The decision of the general assembly to create a commission in a given area indicates the significance of the area for the field of geography. The commissions met at the IGC 2012 and their mandate was either extended for four years or they were approved as new commissions for a period of four years (Tab. 5).

Key Topics

Further sessions at IGC 2012 were arranged around the four key topics: "Global Change & Globalisation", "Society & Environment", "Risks & Conflicts" and "Urbanisation and Demographic Change". It was the first IGC in which a LOC set agenda items outside the commission's topics. Each topic had its own keynote speeches, sessions and poster presentations (Tab. 6 and 2.2, Fig. 9-17).



Fig. 14: Workshop Cologne 2009



Fig. 15: Workshop Cologne 2009



Fig. 16: Workshop 2010



Fig. 17: Scientific Committee



Fig. 18: Scientific Committee

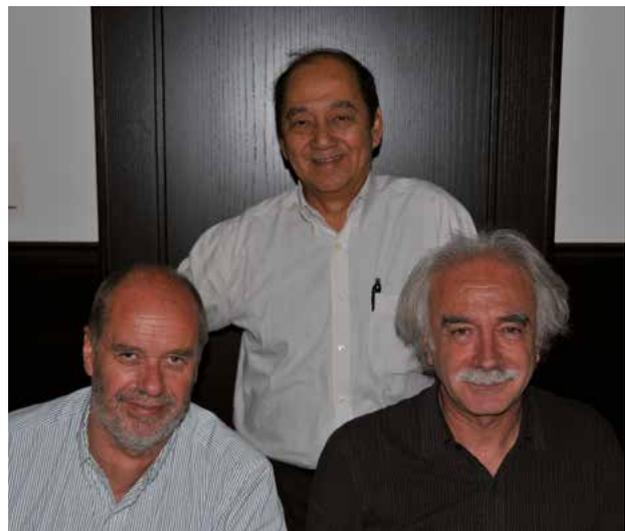


Fig. 19: Members of the Scientific Committee (N. Tapper, Boon Thong Lee, J. Radvanyi)

MONDAY, 27 AUGUST 2012 – SOCIETY AND ENVIRONMENT
Klaus Töpfer (Former Federal Minister of Environmental Affairs and Former Director of UNEP) <i>“On the Way to the Anthropocene: Consequences for Scientific Research, Societal Understanding and Political Responsibility”</i>
Anne Buttimer (Geographer, Former IGU President, University College Dublin, Dublin, Ireland) <i>“Diverse Perspectives on Society and Environment: Retrospect and Prospect”</i>
TUESDAY, 28 AUGUST 2012 – URBANISATION AND DEMOGRAPHIC CHANGE
Martin Lees (Former Secretary General, Club of Rome) <i>“Demographic Change and Urbanisation within the Boundaries of a Fragile Planet”</i>
Surinder Aggarwal (Geographer, University of Delhi, New Delhi, India) <i>“Emerging Global Urban Order and Challenges for Harmonious Urban Development”</i>
WEDNESDAY, 29 AUGUST 2012 – GLOBAL CHANGE AND GLOBALISATION
Eduardo de Mulder (Initiator and Executive Director of the UN International Year of Planet Earth) <i>“Global Planetary Change and Human Globalization”</i>
Bruno Messerli (Geographer, University of Bern, Bern, Switzerland) <i>“Global Change and Globalisation – Challenges for Geography”</i>
THURSDAY, 30 AUGUST 2012 – RISKS AND CONFLICTS
Stephan Baas (Natural Resources Officer in the Climate, Energy and Tenure Division, FAO Rome) <i>“Risk and Conflicts”</i>
Derek Gregory (Geographer, University of British Columbia, Vancouver, Canada) <i>“Deadly Embrace: War, Distance and Intimacy”</i>

Tab. 6: Keynote lectures at the IGC 2012

Keynote lectures

The function of the keynote lectures was to convey a sense of the global importance of each of the key topics and the state of geographical research. The lectures placed the topics in a larger context and highlighted their connections to the discipline of geography in general.

Two keynote lectures were devoted to each of the conference’s four topics. In the first, a prominent personality from politics, economics or academics (other than geography) discussed the topic’s general significance. In the second lecture, an internationally renowned geographer provided an overview of current research. The keynote talks above were held (Tab. 6, Fig. 20-27).



Fig. 20: Keynote speaker: Klaus Töpfer



Fig. 21: Keynote speaker: Anne Buttimer



Fig. 22: Keynote speaker: Martin Lees



Fig. 23: Keynote speaker: Surinder Aggarwal



Fig. 24: Keynote speaker: Eduardo de Mulder



Fig. 25: Keynote speaker: Bruno Messerli

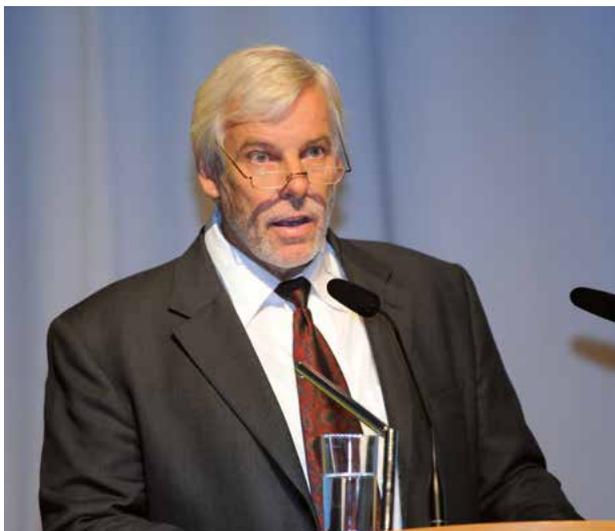


Fig. 26: Keynote speaker: Stephan Baas



Fig. 27: Keynote speaker: Derek Gregory

Sessions

In addition to keynote speeches, the conference featured sessions covering the key topics. The content of the sessions was determined by a two-stage process – an open call for session proposals (1 July 2010 to 31 March 2011) and a call for papers and posters (1 July 2011 to 8 January 2012) for each of the 144 approved sessions. While the call for sessions was managed and reviewed by the scientific committee, the final selection of papers during the call for papers was reviewed by the session chairs as experts in the session topics. In order to ensure an equal review process, the results were proofed by the scientific committee. The review process itself was carried out via the web-based congress management system “CONVERIA”.

Posters

The LOC placed emphasis on increasing the attention given to posters. In distinction to past IGCs, IGC 2012 contained two 90-minute sessions, and kept parallel, competing events to a minimum. Posters were submitted at the same time as papers for oral presentation during the joint call for papers and posters. To boost the event and spotlight the work of researchers in the poster sessions, prizes were awarded for best poster in each category and a relaxed discussion atmosphere with drinks and snacks was prepared.

Young Researchers' Forum

The LOC also wished to create an innovative programme specially tailored to students, Ph.D. candidates and post-docs. The result was the Young Researchers' Forum. The forum included workshops, sessions, a poster competition and an activities programme. The workshops were particularly popular:

- Managing a Ph.D. Thesis (whole day)
- Project Management (whole day)
- Publishing in English: Why, Where and How?
- Academic Writing for Young Researchers
- Funding Opportunities in Germany

- Funding Opportunities in the EU
- Strategic Decisions: The Path to Professorship
- Careers in Science

School and Geography Symposium

Another part of IGC 2012 was a German-language symposium entitled “Wege zu einem kompetenzorientierten Geographieunterricht” (“Paths to skills-based geography instruction”), which gave geography instructors at the high school and university levels a forum for discussion. Each session – systematic thinking, methods, spatial orientation, communication – featured one presentation on the fundamentals of skills-based instruction and two examples from practice. The practical examples were presented by instructors who shared their ideas and experience with a wider audience. A detailed description of the symposium and the schools programme can be found in part 2.4.

iGeo

The 9th International Geography Olympiad (iGeo) was held in Cologne prior to the 32nd IGC from 21-26 August. The event was jointly organised by the Department of Geography, University of Cologne, and the German Geographical Society (Deutsche Gesellschaft für Geographie, DGfG) under the auspices of the IGU and overseen by the IGU Olympiad task force. A detailed description of the iGeo can be found in part 2.4. For more information on the International Geography Olympiad, see also the homepage www.geoolympiad.org.

Events

The IGC 2012 activities programme gave conference participants the opportunity to meet outside the academic setting. The programme included an opening ceremony at Cologne Philharmonic Hall, a closing ceremony in the University of Cologne's main auditorium, a reception with the mayor and a congress dinner (Tab. 7). A detailed description of the social activities programme can be found in part 2.3.

OPENING CEREMONY AT THE KÖLNER PHILHARMONIE
(Cologne Philharmonic Hall)

Date: 26.08.2012

Start: 3:00 pm

Location: Cologne Philharmonic Hall

RECEPTION WITH THE MAYOR OF COLOGNE

Date: 27.08.2012

Start: 8:00 pm

Location: Old City Hall

CONGRESS DINNER

Date: 28.08.2012

Doors Open: 7:30 pm

Start: 8:00 pm

Location: Gilde im Zims

Price: 60.00 €

Tab. 7: Events of the social activities programme



2.2

IGC 2012: Facts and Figures

IGC 2012: FACTS AND FIGURES

Carsten Butsch

Participant Statistics

The original plans for IGC 2012 assumed that between 1,200 and 2,000 people would attend the conference. In reality, 3,007 individuals from 84 countries registered for at least one day. Of these, there were 2,554 full participants (those who attended the whole conference and paid the full conference fee), 400 school students and 50 journalists. If the 195 volunteers who helped organise the conference are also taken into account, then all in all 3,199 people were in attendance, making IGC 2012 the largest geography congress ever. By the July 15 deadline, 2,864 academics from 89 countries had registered and paid. Table 1 shows the number of registrations arranged according to the type of fee paid. The table does not include school students and journalists, but it does contain the 310 people who registered in advance but who did not attend. Of these 310 people, 115 came from Germany. Regrettably, registrants from five nations – Afghanistan, Congo, Georgia, Morocco and Pakistan – could not make it to Cologne, leaving the conference without representatives from these countries.

The regional distribution of academics in attendance attests to the global interest in IGC 2012. The large share of participants from Germany (1,052 persons/41%) was to be expected, but the other 59% contained some real surprises. There were 109

participants from Austria, but there were also 109 participants from Japan. China, which will host the congress in 2016, had 98 participants. 93 participants came from France, 85 from Russia and 84 from the United Kingdom. From the United States, for which the AAG congress usually serves as the focus of geographical exchange, 72 of the 88 registered participants were in attendance. An additional comment is necessary in this case: quite some time in advance, colleagues from the United States signalled to us that the planned dates for the IGC Cologne might constitute a serious barrier for potential US attendees, as there would be a collision with the start of the academic year in many of the country's institutions for higher education. While being aware of these potential problems, the LOC was in no position to take into consideration these problems, as local constraints with regard to the availability of the required capacities at the University of Cologne did not leave any other options. The conference also saw good attendance levels from Germany's neighbours, with 52 visitors from Poland, 50 from Switzerland, 39 from the Netherlands and 21 from Belgium. There was a large presence from India (43 participants) and 50 academics from Australasia: 17 from New Zealand and 33 from Australia.

Representatives from Central and South America were fewer in number, with 30 from Brazil, 18 from Chile and 13 from Mexico, and limited numbers from

	ACCOMPANYING PERSON	FREE (UNIVERSITY STAFF)	PARTICIPANT	PHD STUDENT	STUDENT	TOTAL
Full Ticket	71	41	1308	438	247	2105
Two-Day-Ticket	3	0	106	30	20	159
Day-Ticket	21	35	249	68	30	403
Symposium	0	0	197	0	0	197
Total	95	76	1860	536	297	2864

Tab. 1: Registered participants according to type of fee paid



Fig. 1: Registrations for the IGC 2012 (Worldmapper map by B. Hennig: territories are resized according to number of registrations by country)



Fig. 2: Participants at the IGC 2012 without Germany (Worldmapper map by B. Hennig: territories are resized according to number of participants by country)

the remaining countries of the region. For instance, there were only two participants from Columbia and Ecuador. A relatively small number of participants came from Africa, the majority of them from South Africa. Travel restrictions (obtaining visas, for example) and travel costs certainly played a major part in the low numbers (although the Executive Committee of the IGU Solidarity Fund attempted to eliminate some of these obstacles by offering travel grants). For in-

stance, none of the eight registrants from the Congo participated in the congress. Even though IGC 2012 was very well attended on the whole, the IGU should consider intensifying their efforts to persuade - and enable - academics from developing and newly industrialising countries to attend, especially those from South America, Africa and Southeast Asia. It is worth highlighting in this context, however, that the increasing dominance of the English language as

the lingua franca of international academia must be regarded as an additional barrier for many potentially interested geographic communities, in particular in Central and South America as well as in large parts of Africa, where Romance languages are used as native or first foreign languages. This is particularly distressing considering that the French language is the second official language of the IGU. In Cologne, particular efforts were undertaken to create a special space for Francophone communities and their sessions, but unfortunately attendance was lower than

had been hoped for. IGU's Executive Committee has recently intensified its initiatives to include more of these communities, for example the Africa Session during the IGC Cologne (as well as IGU travel grants) and a specific Africa Initiative showing initial positive results. Much more has to be done, however.

The IGU Solidarity Fund facilitated transportation to IGC 2012 by offering almost 50 travel grants. The prerequisite for such a grant – application forms could be downloaded from the IGC and IGU homepages – was active participation either in the form of a presentation or a poster. Altogether, 164 applications were submitted to the IGU Secretary-General and Treasurer (all but one of the applicants were under the age of 40), and 56 travel stipends were granted in varying amounts; 47 of these were accepted (i.e. participants collected their grant in Cologne in cash) while the others went unused. Of these, 26 applicants received long-distance grants of € 800. 21 participants, travelling from countries in Europe, each received grants totalling € 400. An overview of recipient nationality is shown below in Table 2.

COUNTRY OF ORIGIN	NUMBER OF STIPENDS
Albania	1
Algeria	1
Argentina	1
Armenia	2
Bolivia	1
Brazil	3
Bulgaria	1
China-Beijing	3
Costa Rica	1
France	1
Germany	1
Ghana	3
India	4
Israel	1
Italy	1
Ivory Coast	1
Republic of Korea	1
Latvia	1
Lebanon	1
Mauritius	1
Mexico	2
Nigeria	2
Russia	6
South Africa	1
China-Taipei	1
Turkey	1
UK	1
Ukraine	3
USA	1

Tab. 2: Grants offered by the IGU and the Local Organising Committee

Conference Programme

The IGC 2012 conference programme consisted of two main pillars: (1) the sessions of the IGU commissions and task forces and (2) the sessions of the conference's four key topics. For both of them, the session topics were selected in a two-stage process. By the announcement of the call for papers (1 July 2011), 22 commissions and task forces had offered 65 sessions. For the four key topics, there was a call for session proposals that ran from 1 July 2010 to 1 April 2011. A total of 188 proposals were submitted for the four key topics. In its meeting in May 2011, the International Scientific Committee selected from this group 139 sessions – 32 sessions for “Global Change & Globalisation”, 36 sessions for “Society & Environment”, 36 sessions for “Risks & Conflicts” and 35 sessions for “Urbanisation & Demographic Change”. The call for papers was posted jointly for the commission sessions and the key topics on 1 July 2011. The deadline for paper submissions was 8 January 2012. The session leaders were responsible for reviewing the submitted papers. Posters for the four key topics could be submitted starting 1 July.

For the sessions of the commissions and tasks forces, a total of 1,356 paper proposals were submitted. They were afforded enough session time such that no paper accepted by the session chair(s) after review had to be rejected. 228 sessions were scheduled for the commissions and tasks forces. In addition to these, time slots were reserved for business meetings, professional association meetings and the like.

For the second pillar, the key topics, a different procedure was applied. On the basis of the number of submitted papers (1,159 altogether), the session times for the individual sessions were calculated in advance. Some sessions received many submissions, while others received few or even none. The session with the most proposals received 32. A total of 21 sessions were cancelled because they re-

ceived fewer than 4 proposals (4 papers equalled a timeslot of 90 minutes). Sessions having received nine or more papers were given a second timeslot. Sessions that received 15 or more papers were given a third timeslot. Those that received 21 or more papers received a fourth and sessions with 27 or more papers (three in total) a fifth timeslot. This ensured a competitive process that completely filled available timeslots. Therefore, even papers accepted in principle had to be put on waiting lists, later filling slots in case of any cancellations. A total of 159 sessions for all key topics were eventually scheduled for the conference.

When setting the conference programme, consistent efforts were made to group the sessions appropriately. For instance, the sessions of the commissions and task forces mostly took place in the new

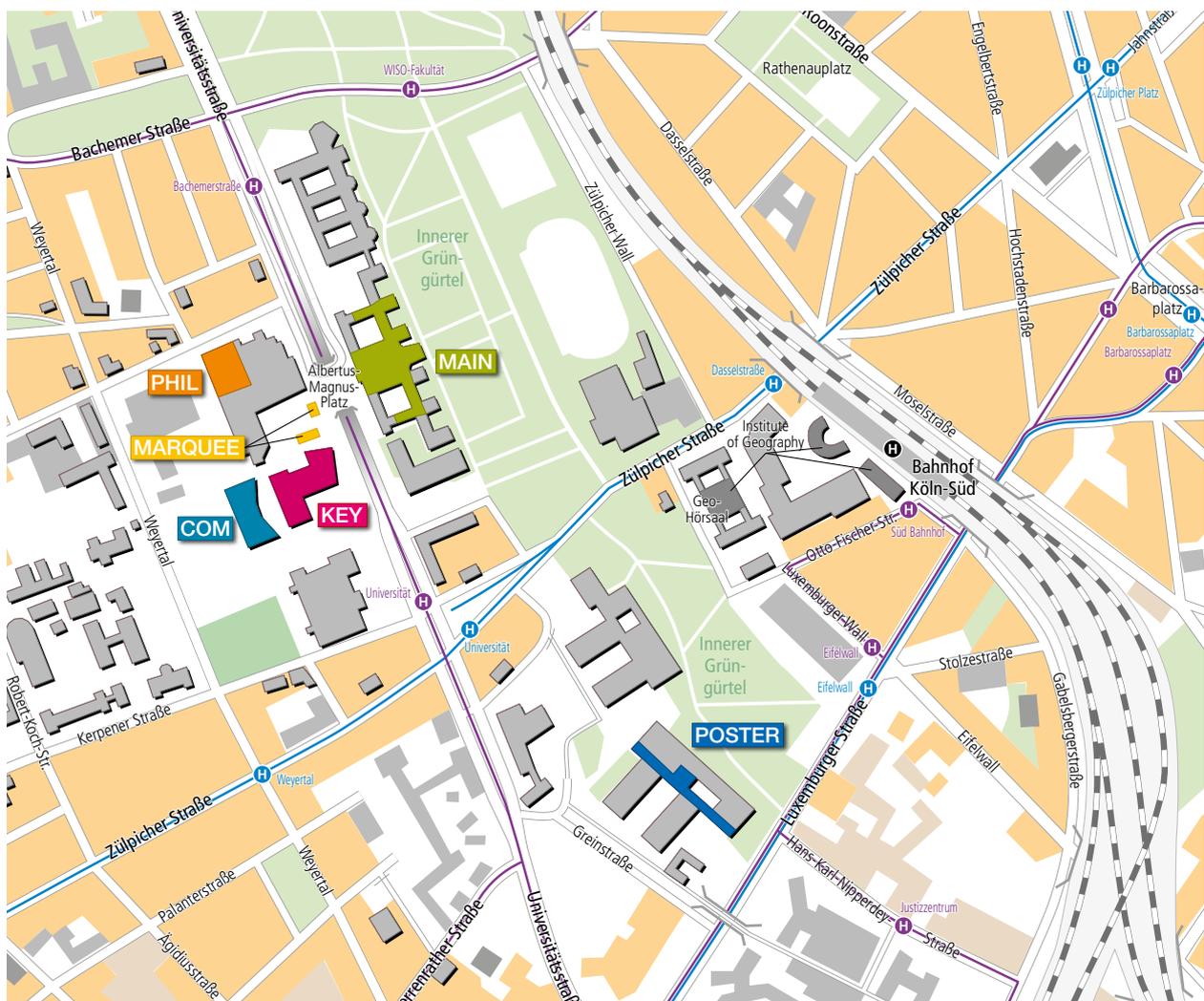


Fig. 3: IGC venue with its six sites (abbreviations and colours as in the programme)



Fig. 4: Impressions from the IGC 2012 campus

seminar building (“COM”), while the sessions from the four key topics mostly took place in the auditorium building (“KEY”). The keynote lectures took place in the auditorium of the main building (“MAIN”), where the sessions of the symposium on geography and school were also held. Here and in the Philosophikum (“PHIL”), sessions of the commissions and task forces and on the key topics took place as well. The poster sessions took place in the foyer of the institute of Chemistry (“POSTER”). The foyer was some distance from the other locations of the venue,



Fig. 5: Impressions from the IGC 2012 campus

but offered an excellent locality for poster presentation (Fig. 3). The complete conference programme of IGC 2012 is presented in condensed form below (Fig. 12-20). Figure 4 and 5 give an impression of the IGC 2012 Campus.

Two student volunteers attended each session. Their tasks were to provide technical support, check that audience attendees were duly identifiable by the congress badge and ensure that the maximum allowable capacity of the given space was not exceeded. The LOC had assigned rooms based on the number of papers submitted per session. The volunteers made a short protocol for each session, noting the number of participants in the session, how many participants were turned down at the door on account of maximum occupancy and whether any presentations were cancelled (and if so, how many). The volunteers filled out forms for 436 sessions, which could then be analysed. The results of this analysis are briefly described below.

The average number of session participants was 31. The session with the most participants was “Geographies of Violence”, with 170 people. The distribution of session participants is shown in Figure 6:

At 35 sessions – 8% of the total – participants were turned away because the number of visitors exceeded maximum occupancy. Average occupancy was 41% of the available seats. The number of visitors on each of the four days fluctuated significantly, and the utilisation varied accordingly. Figure 7 shows the number of visitors in the sessions according to time

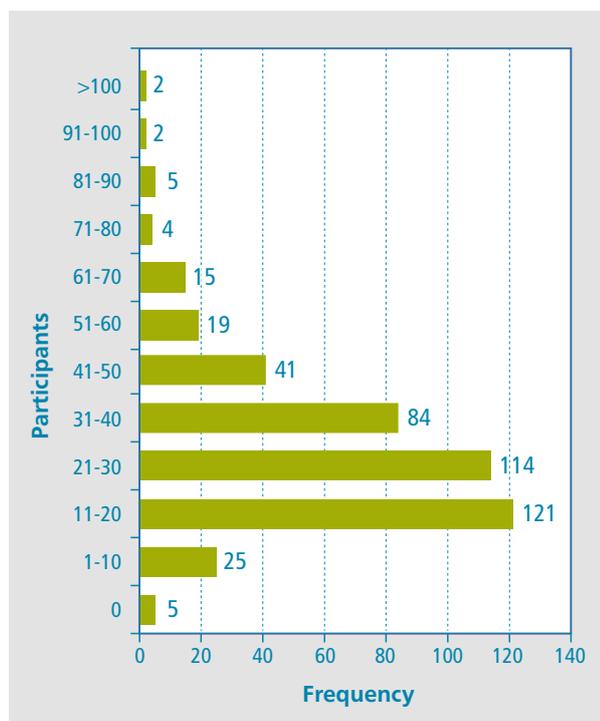


Fig. 6: Number of sessions by attendance

of day (the cumulative sum of all four days) and the average utilisation of the session spaces according to time of day. The second morning session and the first afternoon session had the highest attendance levels.

At past IGCs, organisers and participants had complained about the number of scheduled papers that were cancelled (the actual number of cancellations was never quantified). In response, the LOC asked session chairs who were unable to take every paper accepted in principle for their session to create a waiting list. If a scheduled speaker had not registered by 26 June, the session chairs deleted the name from the programme and selected an appropriate paper from the waiting list. This strategy seems to have been successful – only 11.9% of the presentations eventually had to be cancelled. Moreover, most of the affected sessions had only one cancellation (Fig. 8), meaning that session leaders could compensate for the missing talks with longer discussions. Very few sessions had to be cancelled completely.

Another success for IGC 2012 was the poster session strategy. A total of 223 posters were submitted, distributed among the four key topics as follows: Global Change & Globalisation, 55; Risks & Conflicts, 32; Society & Environment, 89; Urbanisation & Demographic Change, 57. The posters were exhibited at two sessions, and authors were asked to be present. In order to encourage visitors to attend the poster sessions, times were set for early evening and coupons for two free drinks were handed out at the registration desk, along with the conference badge. The poster sessions drew a crowd of almost 450, and many took advantage of the chance to talk with poster authors (Fig. 10 & 11). After the sessions, members of the scientific committee gave out first, second, and third prizes for the best posters in each key topic (Tab. 3 and Fig. 9).

Geographical associations also awarded several prizes at the conference. The IGU awarded the IGU Planet and Humanity Medal to Lester Brown. The Medal was inaugurated in 1996 to commemorate the 125th anniversary of the First International

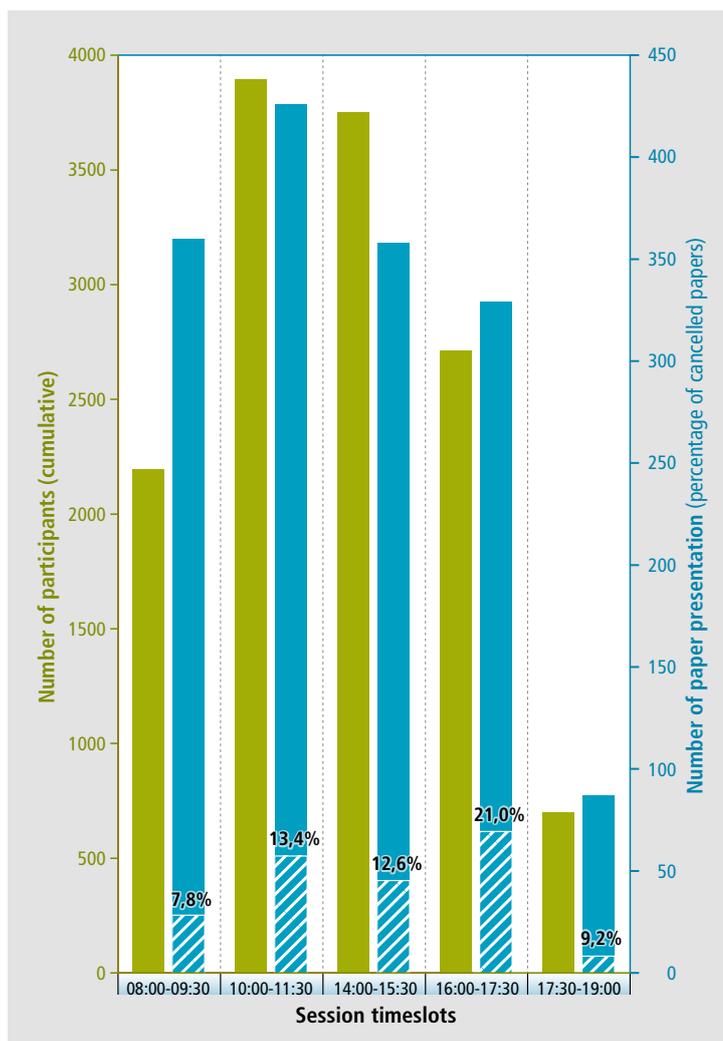


Fig. 7: Number of participants, number of presented papers and percentage of cancelled papers by time of the day

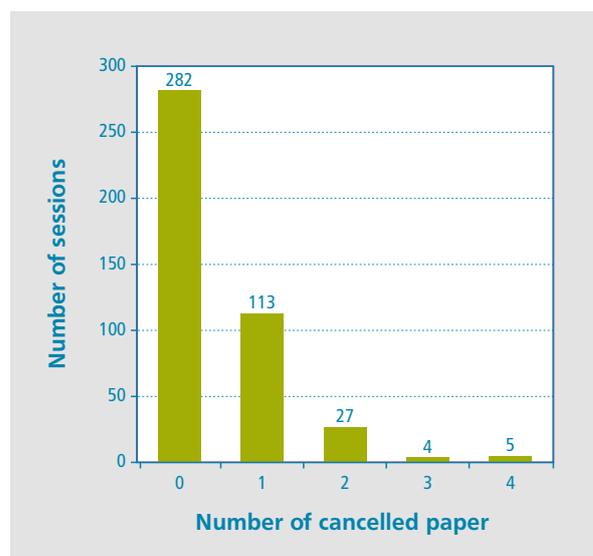


Fig. 8: Number of cancelled papers

Geographical Congress, held in Antwerp in 1871, recognising the merits of individuals who have made outstanding contributions to solving human and environmental problems. The Media Prize of German Geography was awarded to Michael Stang for his audio feature on water scarcity in China. The prize is awarded every two years to journalists who stimulate public interest for subjects in geography particularly relevant to society. The Frithjof Voss Foundation presented the International Science Award of German Geography to Derek Gregory. Awarded once every four years, it honours the lifetime achievements of foreign scientists whose merit lies in their applied research and contribution towards building links between international geography and German-speak-

ing geography. The prizes for best Ph.D. dissertation in human geography and physical geography of the Association of Geographers at German Universities were awarded to Tobias Sauter (physical geography) for his thesis on modelling spatio-temporal structures and Julia Verne (human geography) for her thesis on translocal Swahili trading connections. The prize for best Ph.D. dissertation in geography education of the German Academic Association for Geography and its Didactics was awarded to Stefan Applis, who studied in his dissertation the value orientation in the context of global learning.

GLOBALISATION & GLOBAL CHANGE
1st place: Gilles Rixhon
2nd place: Lada Phadungkiati
3rd place: Stefan Polanski
URBANISATION & DEMOGRAPHIC CHANGE
1st place: Elzbieta Bilaska-Wodecka
2nd place: Javier Nuñez Villalba
3rd place: Julia Scharting
RISKS & CONFLICTS
1st place: Estuning Mei
2nd place: Adrian Gozavu
SOCIETY & ENVIRONMENT
1st place: Oana Ionus
2nd place: Juliane Dame
3rd place: Katrin Mörer

Tab. 3: Poster awards



Fig. 9: Honoring G. Rixhon, 1st place poster competition "Globalisation & Global Change"



Fig. 10: Impression of poster session



Fig. 11: Lively discussion during the poster session

All following times are given in the European format, i.e. 8:00 am is shown as 8:00 and 2:00 pm is shown as 14:00.

SUNDAY 26th August 2012

COM 01	COM 02	COM 03	COM 04	COM 06	COM 07	COM 08	COM 09	
9:00 YRF 07-01 Strategic decisions: the path to a university career		C08.11-04 Examples of Best Practice in Geography Education and Teacher Preparation 1	C08.11-10 Spatial Thinking I	C08.11-14 State of the Art in Geography Education 1	C08.11-01 Education for Sustainable Development & Global Learning I	YRF 01-01 Managing a PhD thesis	YRF 02-01 Project management	8:00-9:30
	9:30-10:00 Coffee Break							10:00-11:30
12:00 YRF 08-01 Careers in science	SPS 04-01 EUGEO - 'State of Geography in Europe' 1	C08.11-05 Examples of Best Practice in Geography Education and Teacher Preparation 2	C08.11-11 Spatial Thinking II	C08.11-15 State of the Art in Geography Education 2	C08.11-02 Education for Sustainable Development & Global Learning 1			11:30-13:00
	SPS 04-02 EUGEO - 'State of Geography in Europe' 2	C08.11-06 Examples of Best Practice in Geography Education and Teacher Preparation 3	C08.11-12 Standards, Concepts and Experience 1	C08.11-08 Innovative Learning - New & Traditional Media	C08.11-03 Education for Sustainable Development & Global Learning 2			14:00-15:30
13:00-14:00 Lunch								
		C08.11-07 Higher Education	C08.11-13 Standards, Concepts and Experience 2	C08.11-09 Preconceptions in Geography and Geography Education				14:00-15:30
15:00-17:30 Opening Ceremony at Kölner Philharmonie/Cologne Philharmonic Hall								
		C08.11-B Business Meeting - Commission on Geographical Education						17:30-19:00
		SPS 08-01 HGD Mitgliederversammlung						19:00-20:30
COM 10	KEY 05	KEY 01						8:00-9:30
9:00 YRF 03-01 "Publishing in English: Why, where, and how"	9:00 YRF 05-01 Funding opportunities in Germany		9:30-10:00 Coffee Break					10:00-11:30
		SPS 07-01 DGfG Präsidium						11:30-13:00
12:00 YRF 04-01 "Academic writing for young researchers": "The skill of writing is to create a context in which other people can think." Edwin Schlossberg	12:00 YRF 06-01 The European Union's Funding Schemes for Research and Innovation	SPS 21-01 HGD Vorstandssitzung	13:00-14:00 Lunch					14:00-15:30
								15:00-17:30 Opening Ceremony at Kölner Philharmonie/Cologne Philharmonic Hall
								17:30-19:00
								19:00-20:30

Fig. 12: Program overview sunday 26th August 2012

MONDAY 27 th August 2012								
	MAIN 01	MAIN 02	MAIN 03	MAIN 04	MAIN 05	MAIN 06	MAIN 07	MAIN 08
8:00-9:30	C08.01-02 Sessions on Applied Geography topics 1	C08.25-B1 Business Meeting - Commission on Land Use and Land Cover Change 1	C08.22-01 Human/Nature-Interaction on Small Islands - an integrative geography perspective 1		C08.33-06 Urban social transformations: contested social spaces 1			C08.15-01 Global Change and Tourism: Socio-Cultural Issues
9:30-10:00 Coffee Break								
10:00-11:30	C08.01-03 Sessions on Applied Geography topics 2	C08.25-01 Session on Land Use and Land Cover Change - Global Change 1	C08.22-02 Human/Nature-Interaction on Small Islands - an integrative geography perspective 2	C08.37-01 Session on Geoparks	C08.33-07 Urban social transformations: contested social spaces 2	C08.06-01 Contextualising climate change: methodological, institutional and regional responses	C08.36-01 Global Change Session	C08.15-04 Tourism Development and Management
11:45-13:00 Keynotes: „Society and Environment“								
13:00-14:00 Lunch								
14:00-15:30	C08.01-01 Launch of the Appl. Geography Com.'s 3rd edited book - Appl.Geography and Spatial Analysis	C08.25-02 Session on Land Use and Land Cover Change - Global Change 2	C08.22-03 Human/Nature-Interaction on Small Islands - an integrative geography perspective 3	C08.33-01 Recent urban developments in China	C08.35-01 Large scale transport infrastructure and regional and urban impacts 1			
15:30-16:00 Coffee Break								
16:00-17:30	C08.01-B Business Meeting - Commission on Applied Geography	C08.25-03 Session on Land Use and Land Cover Change 3	C08.33-03 More complex urban systems 1		C08.35-02 Large scale transport infrastructure and regional and urban impacts 2			
17:30-19:00			C08.33-04 More complex urban systems 2					
	COM 01	COM 02	COM 03	COM 04	COM 06	COM 07	COM 08	COM 09
8:00-9:30		C08.30-01 Conflicts over natural resources		T08.02-01 Governance and informality	C08.19-01 Access to Care 1	C08.02-01 Human-Nature Interaction in Arid Lands and their Margins 1	C08.14-01 Global Information Society: Mobility, Society and Network Connectivity 1	C08.04-01 Applied Climatology in the 21st Century
9:30-10:00 Coffee Break								
10:00-11:30	SPS 09-01 IGU project: 'Sustainable cities: results from a Chinese pilot project and the way forward'	C08.30-02 Environmental Geopolitics and Climate Change	C08.07-01b Cultural Approaches in Social and Geographical Theory 2	T08.02-02 Securing resources	C08.19-02 Access to Care 2	C08.02-02 Human-Nature Interaction in Arid Lands and their Margins 2	C08.14-02 Global Information Society: ICT, Knowledge & Media 2	C08.04-02 Climate change and variability in different spatial and temporal scales 1
11:45-13:00 Keynotes: „Society and Environment“								
13:00-14:00 Lunch								
14:00-15:30	GA 01-01 General Assembly 1	C08.30-03 Conceptual approaches and theoretical debates within PG: the relationship of representation and practice	C08.07-02 Cultural approaches to Sacred Spaces in the global era 1	C08.05-01 Coastal Systems - Beaches and dunes	C08.19-03 Access to Care 3	C08.02-03 Human-Nature Interaction in Arid Lands and their Margins 3	C08.14-03 Global Information Society: Urban and Regional Development 3	C08.04-03 Climate change and variability in different spatial and temporal scales 2
15:30-16:00 Coffee Break								
16:00-17:30	SPS 10-01 The IGU-Initiative for an International Year of Global Understanding (YIGU)	C08.30-04 The (Geo-)Politics of Identity: Case studies on different scales	C08.07-03 Cultural approaches to Sacred Spaces in the global era 2	C08.05-10 Coastal Systems - Rocky coasts 1	C08.19-05 Ground truths: Advancing children's geographies through including children as researchers 1	C08.02-04 Human-Nature Interaction in Arid Lands and their Margins 4	C08.14-04 Information and communication technologies for development and human well-being 1	C08.04-04 Climate change and variability in different spatial and temporal scales 3
17:30-19:00	18:00-19:30 SPS 11-01 VGDH Vorstandssitzung	C08.30-05 Conflicts and Revolutions in the Near and Middle East		C08.05-11 Coastal Systems - Rocky coasts 2	C08.19-B Business Meeting - Commission on Health and Environment	C08.02-05 Human-Nature Interaction in Arid Lands and their Margins 5	C08.14-05 Information and communication technologies for development and human well-being 2	C08.04-05 Climate change and variability in different spatial and temporal scales 4

Fig. 13: Program overview monday 27th August 2012

MONDAY 27th August 2012

MAIN 09	MAIN 10	MAIN 11	MAIN 12	MAIN 13	PHIL 01	PHIL 02	PHIL 03	
	C08.20-01 Society and Environment: conceptions and representations of nature(s) in the history of geography						C10.38-01 Place names as markers and ingredients of space-related identity	8:00-9:30
9:30-10:00 Coffee Break								
C08.05-B Business Meeting - Commission on Coastal Systems	C08.20-02 Society and Environment: conceptions and representations of nature(s) in the history of geography	SPS 12-01 Applied Geography in the 21 st Century: Practice Relevancy of Geography in Politics, Economy and Society	C08.07-04 Cultures and sustainability	Opening of the symposium 'Geography and School' (cf. page 43)	UDC 03-01 Do borders make regions learn?	RC 01-01 Anxiety, biosecurity and conflicts	C10.38-02 Place names as markers and ingredients of space-related identity	10:00-11:30
11:45-13:00 Keynotes: „Society and Environment“		12:00-13:00 SPS 12-02 Geographers and their Job Markets		KEYNOTES	11:45-13:00 Keynotes: „Society and Environment“			
13:00-14:00 Lunch				SPS 02-01 Intern. School of Applied Geography St.-Diédes-Vosges: When leadership needs maps!	13:00-14:00 Lunch			
	C08.20-03 Society and Environment: conceptions and representations of nature(s) in the history of geography	SPS 12-03 Geography and Requirements of International Cooperation	C08.06-B Business Meeting - Cold Region Environments		UDC 05-01 Health and sustainability in the cities of the future	RC 03-01 Coasts at risk by extreme events I	C10.38-03 Place names as markers and ingredients of space-related identity	14:00-15:30
15:30-16:00 Coffee Break								
	C08.20-04 Society and Environment: conceptions and representations of nature(s).....				UDC 06-01 How European towns deal with peripheralization	RC 04-01 Conflicts evolving from (re)constructing regions and borders based on hist. geogr.	C10.38-04 Place names as markers and ingredients of space-related identity	16:00-17:30
	C08.20-05 Society and Environment: conceptions and representations of nature(s) in the history of geography	SPS 12-04 „From Study to Job“ – Practical Tips from DVAG for Geographers entering a Career			UDC 16-01 Neighborhood governance under conditions of globalization - An international perspective	RC 04-02 Conflicts evolving from (re)constructing regions and borders based on historic geographies	C10.38-B Business Meeting - Commission on IGU/ ICA Commission/ Working Group on Toponymy	17:30-19:00
COM 10	KEY 01	KEY 02	KEY 03	KEY 06	KEY 07	KEY 08		
C08.34-01 GIS in water research (Hydro GIS)	UDC 26-01 The Mobility of Human Capital and Knowledge	GCG 13-01 Global change, criticality and tipping points: globalised trends, disasters and resilience						8:00-9:30
9:30-10:00 Coffee Break								
C08.34-02 Hydrological Process and Watershed Management in Arid Regions	GCG 02-01 Bridging the gap? Scope and limitations of practice-oriented development studies	SE 13-01 Integrative approaches to water resource management in times of global change 1	SE 02-01 Border Water Scarcity	UDC 34-01 Urban utopias and heterotopias: Theorizing, analyzing, and evaluating urban spaces 1	GCG 01-01 Analyzing climate change and its impacts via method combinations 1	RC 05-01 Development-induced displacement: Addressing conflict and impoverishment		10:00-11:30
11:45-13:00 Keynotes: „Society and Environment“								
13:00-14:00 Lunch								
C08.34-03 Water and mining (Water pollution)	SE 23-01 Transition of energy systems and green industry development: The geographies of the German 'Energiewende' 1	SE 13-02 Integrative approaches to water resource management in times of global change 2	GCG 05-01 Critical junctures of globalization ? Re-spacing globalized living conditions in contexts of rupture	UDC 34-02 Urban utopias and heterotopias: Theorizing, analyzing, and evaluating urban spaces 2	GCG 01-02 Analyzing climate change and its impacts via method combinations 2	RC 12-01 Local Responses to Natural Disasters 1		14:00-15:30
15:30-16:00 Coffee Break								
C08.34-04 Water in urban environments 1	SE 23-02 Transition of energy systems and green industry development: The geographies of renewable energy production 2	SE 12-01 Green economies: a business, society and policy approach 1	GCG 15-01 Globalization and the re-making of rural place 1	UDC 34-03 Urban utopias and heterotopias: Theorizing, analyzing, and evaluating urban spaces 3	GCG 01-03 Analyzing climate change and its impacts via method combinations 3	RC 12-02 Local Responses to Natural Disasters 2		16:00-17:30
C08.34-05 Water in urban environments 2	SE 23-03 Transition of energy systems and green industry development: Regional and country perspectives 3	SE 12-02 Green economies: a business, society and policy approach 2	GCG 15-02 Globalization and the re-making of rural place 2	UDC 34-04 Urban utopias and heterotopias: Theorizing, analyzing, and evaluating urban spaces 4		RC 12-03 Local Responses to Natural Disasters 3		17:30-19:00

Fig. 14: Program overview monday 27th August 2012

TUESDAY 28th August 2012

	MAIN 01	MAIN 02	MAIN 03	MAIN 04	MAIN 05	MAIN 06	MAIN 07	MAIN 08
8:00-9:30	C08.35-03 Large scale transport infrastructure and regional and urban impacts 3	C08.25-06 Session on Land Use and Land Cover Change - Society and Environment 1	GCG 12-01 Geography, complexity, and information dynamics: addressing real-world challenges of the new millennium	RC 07-01 Emerging riskscapes and the spatial dimension of risk	UDC 22-01 Spatial justice in cities in the South: what can spatializing information tools contribute to urban governance networks? 1	C08.33-05 More complex urban systems 3	C08.17-01 Global climate change and human mobility in coastal areas: the SECOA Project 1	C08.15-02 Sustainable Tourism 1
9:30-10:00 Coffee Break								
10:00-11:30	C08.35-04 Large scale transport infrastructure and regional and urban impacts 4	C08.25-07 Session on Land Use and Land Cover Change - Society and Environment 2	GCG 18-01 Management Geography - Embedding COPs in changing global urban networks	RC 18-01 Risk governance in Southeast Asian cities	UDC 22-02 Spatial justice in cities in the South: what can spatializing information tools contribute to urban governance networks? 2	C08.33-B Business Meeting - Urban Commission: Emerging Urban Transformations	C08.17-02 Global climate change and human mobility in coastal areas: the SECOA Project 2	C08.15-03 Sustainable Tourism 2
11:45-13:00 Keynotes: „Urbanisation and Demographic Change“								
13:00-14:00 Lunch								
14:00-15:30	C08.35-05 Large scale transport infrastructure and regional and urban impacts 5	C08.25-08 Session on Land Use and Land Cover Change - Society and Environment 3	GCG 14-01 Global complexity: From theoretical thought to geographical evidence	RC 06-01 Early warning systems for natural hazards - technical challenges and social demands	UDC 21-01 Spatial analysis and modeling of the human-environment interface of urban areas 1			
15:30-16:00 Coffee Break								
16:00-17:30	C08.35-06 Port hinterlands and urban logistics	C08.25-04 Session on Land Use and Land Cover Change - Risk and Conflicts 1	GCG 17-01 Labour geography: Workers interventions in the global economy	RC 17-01 Resettlement and relocation as a hazard prevention strategy	UDC 21-02 Spatial analysis and modeling of the human-environment interface of urban areas 2	UDC 17-01 Neoliberal urban transformation processes in the Arab World	C08.17-03 Global climate change and human mobility in coastal areas: the SECOA Project 3	C08.15-05 Sustainability Related with Second homes
17:30-19:00		C08.25-05 Session on Land Use and Land Cover Change - Risk and Conflicts 2				18:00-19:30 SPS 11-02 VGDH Mitgliederversammlung	C08.17-04 Global climate change and human mobility in coastal areas 4	C08.15-B Business Meeting - Geography of Tourism, Leisure, and Global Change
	COM 01	COM 02	COM 03	COM 04	COM 06	COM 07	COM 08	COM 09
8:00-9:30		C08.30-06 Political Geographies of the European Union	C08.03-01 Climate Change and Land Use Effects on Species, Communities and Ecosystems: Indian Subcontinent and the Himalayas 1	C08.05-02 Coastal Systems - Coastal erosion and management 1	C08.08-01 Emerging Economic Spaces in Globalizing Worlds	C08.14-B Business Meeting - Geography of the Global Information Society	C08.04-06 Climate change and variability in different spatial and temporal scales 5	C08.04-09 Potential Impacts of Climate Variability and Change on Agriculture: Historical Variations 1
9:30-10:00 Coffee Break								
10:00-11:30	SPS 13-01 Facets of Contested Geographies: Negotiating <i>lieux de mémoire</i> in Transnational Contexts	C08.30-07 Quantitative-statistical Case Studies in Political Geography	C08.03-02 Climate Change and Land Use Effects on Species, Communities and Ecosystems: Indian Subcontinent and the Himalayas 2	C08.05-03 Coastal Systems - Coastal erosion and management 2	C08.08-02 Universities, Clusters, and Industry Emergence	C08.19-07 Health Geography and Public Health 1	C08.04-07 Climate change and variability in different spatial and temporal scales 6	C08.04-10 Potential Impacts of Climate Variability and Change on Agric.: Climate Projections and Assessment Strategies 2
11:45-13:00 Keynotes: „Urbanisation and Demographic Change“								
13:00-14:00 Lunch								
14:00-15:30	GA 01-02 General Assembly 2	C08.30-B Business Meeting - Commission on Political Geography	C08.07-01a Cultural Approaches in Social and Geographical Theory 1	C08.05-04 Coastal Systems - Coastal erosion and management 3	C08.08-03 Resource-based Economies	C08.19-08 Health Geography and Public Health 2	C08.04-13 Urban climates 1	C08.04-11 Potential Impacts of Climate Variability and Change on Agric.: Changes in Productivity 3
15:30-16:00 Coffee Break								
16:00-17:30	C08.03-B Business Meeting of the Commission on Biogeography and Biodiversity	SPS 14-01 Guide to Getting Published - supported by EMERALD Group Publishing Ltd.	C08.07-09 Multilocality: symbolic and material constructions of space in societies of mobile individuals 1	C08.05-05 Coastal Systems - Coastal erosion and management 4	C08.08-04 Emerging Economic Spaces in Europe	C08.19-09 Health Geography, Vulnerability and Global Risk	C08.04-14 Urban climates 2	C08.04-12 Potential Impacts of Climate Variability and Change on Agriculture: Economic Considerations 4
17:30-19:00			C08.07-08 Multilocality: symbolic and material constructions of space in societies of mobile individuals 2			C08.19-04 Global Health and Disease Surveillance		

Fig. 15: Program overview tuesday 28th August 2012

TUESDAY 28th August 2012

MAIN 09	MAIN 10	MAIN 11	MAIN 12	MAIN 13	PHIL 01	PHIL 02	PHIL 03	
C08.13-01 Governance - key theoretical and methodological issues, main research directions 1	UDC 13-01 Migration trends of the baby boomer generation.	SE 16-01 Palaeoenvironmental reconstruction along the corridors of modern human dispersal from Africa to Europe	C08.31-01 Demographic divide 1: Coping with local challenges of population decline and ageing		SE 15-01 Man and environmental change: progress in geoarchaeological applications			8:00-9:30
9:30-10:00 Coffee Break								
C08.13-02 Governance - key theoretical and methodological issues, main research directions 2	UDC 14-01 Multi-local living arrangements on national, inter- and transnational levels: a new old phenomenon?	SE 17-01 Plants, play and place: Green Environments as a contribution to children's healthy development	C08.31-02 Demographic divide 2: Migration and population change on regional level	10:00-12:00 Symposium 'Geography and School': International online-discussion of German, Indian and American students (cf. page 43)	SE 04-01 Capturing imagined invisibility: How to analyze social representations of climate change?	C08.20-B Business Meeting - History of Geography	RC 15-02 Joint Session „Placemaking and guerilla strategies in contested public spaces“ & „The fight against disenfranchisement: emerging cultures of protest in the city“	10:00-11:30
11:45-13:00 Keynotes: „Urbanisation and Demographic Change“				KEYNOTES	11:45-13:00 Keynotes: „UDC“			
13:00-14:00 Lunch								
	UDC 15-01 Natururbanisation: Urbanisation in nature and environment conflicts 1	SE 19-01 Senses of identity and belonging in coastal regions in transition	C08.31-03 Demographic divide 3: Population decline in post-socialist countries		SE 05-01 Climate change - indications, dynamics and regional perspectives	UDC 19-01 Re-ordering the city - Neoliberalization, travelling policies and local context 1		14:00-15:30
15:30-16:00 Coffee Break								
C08.13-03 Governance - key theoretical and methodological issues, main research directions 3	UDC 15-02 Natururbanisation: Urbanisation in nature and environment conflicts 2	SE 20-01 Soil erosion and terrestrial carbon cycling	C08.31-04 Demographic divide 4: Differences in fertility and mortality		SE 06-01 Contextualising gender and climate change	UDC 19-02 Re-ordering the city - Neoliberalization, travelling policies and local context 2	EC Special Meeting	16:00-17:30
								17:30-19:00
COM 10	KEY 01	KEY 02	KEY 03	KEY 06	KEY 07	KEY 08	POSTER	
C08.20-06 Society and Environment: conceptions and representations of nature(s) in the history of geography 6	RC 02-01 Broadening the IPCC focus: extreme events, vulnerability to multiple stresses and adaptation options 1	GCG 03-01 Central Asian ecosystems under water scarcity 1	RC 21-01 Urban dynamics and environmental conflicts 1	UDC 09-01 Managing changes in cultural heritage cities of South-East Asia	SE 01-01 Analysis of linked social-ecological systems 1	UDC 07-01 International migration and 'glocal' spaces of vulnerability 1		8:00-9:30
9:30-10:00 Coffee Break								
C08.34-06 Climate change impacts on large scale areas 1	RC 02-02 Broadening the IPCC focus: extreme events, vulnerability to multiple stresses and adaptation options 2	GCG 03-02 Central Asian ecosystems under water scarcity 2	RC 21-02 Urban dynamics and environmental conflicts 2		SE 01-02 Analysis of linked social-ecological systems 2	UDC 07-02 International migration and 'glocal' spaces of vulnerability 2		10:00-11:30
11:45-13:00 Keynotes: „Urbanisation and Demographic Change“								
13:00-14:00 Lunch								
C08.34-07 Climate change impacts on mesoscale regions 2	RC 10-01 Geographies of violence 1	GCG 04-01 Climate change mitigation from global to local 1	RC 13-01 Natural resources and risk management in developing countries - Networking for sustainability		SE 01-03 Analysis of linked social-ecological systems 3	UDC 02-01 Conviviality and/or confrontation? Ethnic, cultural and political diversity in public space 1		14:00-15:30
15:30-16:00 Coffee Break								
	RC 10-02 Geographies of violence 2	GCG 04-02 Climate change mitigation from global to local 2	RC 13-02 Natural resources and risk management in developing countries - Networking for sustainability		SE 01-04 Analysis of linked social-ecological systems 4	UDC 02-02 Conviviality and/or confrontation? Ethnic, cultural and political diversity in public space 2		16:00-17:30
							Postersession Global Change and Globalisation / Urbanisation & Demographic Change	17:30-19:00
						19:00-20:00 SPS 16-01 Westermann-Forum		

Fig. 16: Program overview tuesday 28th August 2012

WEDNESDAY 29th August 2012

	MAIN 01	MAIN 02	MAIN 03	MAIN 04	MAIN 05	MAIN 06	MAIN 07	MAIN 08
8:00-9:30	C08.24-03 Land Degradation and Geomorphology: Monitoring, Assessment, and Theory Development 1	C08.25-09 Session on Land Use and Land Cover Change - Urbanisation and demographic change 1	C08.28-01 Geocomputations and Applications	C08.18-01 Earthquake and Tsunami special session	RC 09-01 Free flow or better stay at home? Changing practices in the management of international mobility	C08.15-06 Tourism Sustainability with GIS and zoning systems	C08.17-05 Global climate change, economic crisis and human mobility 1	C08.10-01 Gender and Geography 1: Everyday, home and mobility
9:30-10:00 Coffee Break								
10:00-11:30	C08.24-04 Land Degradation and Geomorphology: Monitoring, Assessment, and Theory Development 2	C08.25-10 Session on Land Use and Land Cover Change - Urbanisation and demographic change 2	C08.28-02 Modeling Human and Physical Processes 1	C08.18-02 Hazard and risk for future mitigation 1	C08.09-01 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 1	C08.15-07 Tourism and Global Environmental Change: Climate Change Issues	C08.17-06 Global climate change, economic crisis and human mobility 2	C08.10-02 Gender and Geography 2: Work and Society
11:45-13:00 Keynotes: „Global Change and Globalisation“								
13:00-14:00 Lunch			C08.28-B Business Meeting - Modeling Geographical Systems	13:00-14:00 Lunch				
14:00-15:30	C08.24-05 Land Degradation and Geomorphology: Monitoring, Assessment, and Theory Development 3	C08.25-11 Session on Land Use and Land Cover Change - Urbanisation and demographic change 3	C08.28-03 Modeling Human and Physical Processes 2	C08.18-03 Hazard and risk for future mitigation 2	C08.09-02 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 2	C08.15-08 Tourism and Regional Development 1	C08.17-07 Global climate change, economic crisis and human mobility 3	C08.10-03 Gender and Geography 3: Migration and transnationalism
15:30-16:00 Coffee Break								
16:00-17:30		C08.25-B2 Business Meeting - Commission on Land Use and Land Cover Change 2	C08.28-04 Spatial Data Mining and Knowledge Discovery	C08.18-04 Hazard and risk for future mitigation - Poster session	C08.09-03 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 3	C08.15-09 Tourism and Regional Development 2	C08.17-08 Global climate change, economic crisis and human mobility 4	C08.10-04 Gender and Geography 4: Planning and development
17:30-19:00			C08.28-05 Spatial statistics and Applications			C08.15-10 Tourism and Regional Development 3		

	COM 01	COM 02	COM 03	COM 04	COM 06	COM 07	COM 08	COM 09
8:00-9:30	SPS 05-01 General Assembly of Commonwealth Geographers 1	C08.29-01 Environmental history and climate change in the high mountain ecosystems of Monsoon Asia during the Late Holocene	C08.07-10 Spatialities of Art: between policy and politics 1	C08.05-06 Coastal Systems - Coastal monitoring 1	C08.08-05 Emerging Economic Spaces in Asia	C08.32-01 Sustainability of Rural Systems in Global Economic and Environmental Issues	T08.02-B Business Meeting - MegaCity TaskForce	
9:30-10:00 Coffee Break								
10:00-11:30	SPS 05-01 General Assembly of Commonwealth Geographers 2	C08.29-02 From Himalayan Dilemma to Climate Change Dilemma? Challenges for high mountain development 1	C08.07-11 Spatialities of Art: between policy and politics 2	C08.05-07 Coastal Systems - Coastal monitoring 2	C08.08-06 Emerging Economic Spaces Europe	C08.32-02 Consumer markets, quality products, aggregated value and rural sustainability	SPS 17-01 Applied Environmental Economic Geography and Sustainable Development and Planning	C08.04-15 Weather and Climate Extremes 1
11:45-13:00 Keynotes: „Global Change and Globalisation“								
13:00-14:00 Lunch								
14:00-15:30	GA 01-03 General Assembly 3	C08.29-03 From Himalayan Dilemma to Climate Change Dilemma? Challenges for high mountain development 2	C08.07-12 The Uses of Art in Public Space 1	C08.05-08 Coastal Systems - Coastal monitoring 3	C08.08-07 Economic Geographies of Entrepreneurship	C08.32-03 Multi-functionality and socio-economic opportunity in the countryside 1	MRP-01 Recent developments of geography of energy	C08.04-16 Weather and Climate Extremes 2
15:30-16:00 Coffee Break								
16:00-17:30	IGU project: 'Geographical Journals: a world overview 2012'	C08.29-04 Mountain Ecosystem Response to Global Change 1	C08.07-13 The Uses of Art in Public Space 2	C08.05-09 Coastal Systems - Coastal monitoring 4	C08.08-08 Global Value/Commodity Chains and Economic Governance	C08.32-04 Multi-functionality and socio-economic opportunity in the countryside 2	MRP-02 Towards a democratic Maghreb-Mashreq? Vers un Maghreb-Mashreq démocratique?	C08.04-B Business Meeting - Commission on Climatology
17:30-19:00	C08.09-B Business Meeting - Commission on Environment Evolution	C08.29-05 Mountain Ecosystem Response to Global Change 2					MRP-B Business Meeting - Mediterranean Renaissance Program	

Fig. 17: Program overview wednesday 29th August 2012

WEDNESDAY 29th August 2012

MAIN 09	MAIN 10	MAIN 11	MAIN 12	MAIN 13	PHIL 01	PHIL 02	PHIL 03	
C08.13-04 Governing development in regions, cities and rural communities 1		GCG 22-01 Spatial network science and complex systems ? Methods, data, and application	C08.31-07 Producing migration and 'representing' the migrant 1	SPS 03-01 Geographica Helvetica	RC 19-01 Spatial landslide analysis and its implementation in spatial planning 1	UDC 31-01 Uneven geography of power: The production of 'dominant spaces' in urban environments 1	C08.23-01 Human impacts and environmental changes in karst	8:00-9:30
9:30-10:00 Coffee Break								
C08.13-05 Governing development in regions, cities and rural communities 2	C08.27-01 Interpretations of Marginality 1	C08.26-01 Regional Development: Planning and Disparities	C08.31-08 Producing migration and 'representing' the migrant 2	SPS 01-01 CNFG La valorisation d'un savoir géographique dans l'espace francophone	RC 19-02 Spatial landslide analysis and its implementation in spatial planning 2	UDC 31-02 Uneven geography of power: The production of 'dominant spaces' in urban environments 2	C08.23-02 Management and conservation of karst landscapes 1	10:00-11:30
11:45-13:00 Keynotes: „Global Change and Globalisation“				KEYNOTES	11:45-13:00 Keynotes: „Global Change and Globalisation“			
13:00-14:00 Lunch								
C08.13-06 Governing development in regions, cities and rural communities 3	C08.27-02 Interpretations of Marginality 2	C08.26-02 Local Development in the Rural Space 1	C08.31-09 Producing migration and 'representing' the migrant 3	SPS 06-01 Quelles sont les sources informationnelles dans l'espace francophone pour traiter du risque?	RC 08-01 Flood risks under conditions of global change: Dealing with uncertainties and dynamics of flood risk in urban areas 1	UDC 01-01 (Mega)urban health in South Asia	C08.23-03 Management and conservation of karst landscapes 2	14:00-15:30
15:30-16:00 Coffee Break								
C08.13-07 Governing development in regions, cities and rural communities 4	C08.27-03 Marginality in a Globalizing World	C08.26-03 Local Development in the Rural Space 2	C08.31-10 Producing migration and 'representing' the migrant 4	SPS 01-02 - CNFG Action publique et territoires urbains dans l'espace francophone	RC 08-02 Flood risks under conditions of global change: Dealing with uncertainties and dynamics of flood risk in urban areas 2	UDC 25-01 The 'migration & development-hype' and its implications for geographical research	C08.23-B Business Meeting - Commission on Karst	16:00-17:30
C08.13-08 Governing development in regions, cities and rural communities 5								17:30-19:00
COM 10	KEY 01	KEY 02	KEY 03	KEY 06	KEY 07	KEY 08	POSTER	
C08.19-B Business Meeting - Commission on Health and Environment	SE 18-01 Protected areas and tourism planning - preparing for global challenges 1	GCG 07-01 Digital Earth: an opportunity for spatial citizenship 1	GCG 09-01 Financialisation, marketisation and the environment: Towards 'alternative' economic geographies of finance? 1	UDC 04-01 Global winners and local losers? Comparing Regeneration Policies in Shrinking Cities in America and Europe 1	UDC 23-01 Strategic urban planning for sustainable development: Methods and experiences 1	SE 21-0 Sustaining ecosystem services in cultural landscapes: Analysis and management options 1		8:00-9:30
9:30-10:00 Coffee Break								
C08.34-09 Water resources and management, hydrological budget and hydraulic emergencies 1	SE 18-02 Protected areas and tourism planning - preparing for global challenges 2	GCG 07-02 Digital Earth: an opportunity for spatial citizenship 2	GCG 09-02 Financialisation, marketisation and the environment: Towards 'alternative' economic geographies of finance? 2	UDC 04-02 Global winners and local losers? Regeneration Strategies in the Absence of Growth in Asia and Europe 2	UDC 23-02 Strategic urban planning for sustainable development: Methods and experiences 2	SE 21-02 Sustaining ecosystem services in cultural landscapes: Analysis and management options 2		10:00-11:30
11:45-13:00 Keynotes: „Global Change and Globalisation“								
13:00-14:00 Lunch								
C08.34-10 Water resources and management, hydrological budget and hydraulic emergencies 2	SE 23-01 Urban landscape and nature 1	GCG 08-01 Ecosystem services: its epistemology and relation to geography 1	GCG 06-01 Current shifts in globalizing logistic networks, importance of distance and spatial implications	UDC 04-03 Global winners and local losers? Dealing with Demographic Shrinkage in Europe 3	UDC 23-03 Strategic urban planning for sustainable development: Methods and experiences 3	SE 10-01 Global challenges & local responses: The mitigation of climate change by travel behaviour change 1		14:00-15:30
15:30-16:00 Coffee Break								
C08.34-11 Water resources and management, hydrological budget and hydraulic emergencies 3	SE 23-02 Urban landscape and nature 2	GCG 08-02 Ecosystem services: its epistemology and relation to geography 2	GCG 10-01 Focal points of the past - Historic-geographical Dimensions of globalization	UDC 33-01 Urban poverty ? Conceptions of everyday life under persistent conditions of inequality	UDC 23-04 Strategic urban planning for sustainable development: Methods and experiences 4	SE 10-02 Global challenges & local responses: The mitigation of climate change by travel behaviour change 2		16:00-17:30
							Poster Session Risks & Conflicts / Society & Environment	17:30-19:00

Fig. 18: Program overview wednesday 29th August 2012

THURSDAY 30th August 2012

	MAIN 01	MAIN 02	MAIN 03	MAIN 04	MAIN 05	MAIN 06	MAIN 07	MAIN 08
8:00-9:30	GCG 20-01 Morphodynamic response to episodic disturbances of coastal systems	C08.24-01 Land Degradation and Desertification in the context of Global Environmental Change: Management, Vulnerability, and Policy 1	GCG 19-01 Mapping the emergence of change: future European perspectives	C08.18-05 Vulnerability and Resilience 1	C08.15-11 Tourism Mobilities and Urban Space	C08.27-04 Regional and Local Responses to Marginality 1		C08.10-05 Gender and Geography 5: Panel Discussion - International practices in gender geography: bridges and barriers
9:30-10:00 Coffee Break								
10:00-11:30	C08.13-09 Innovations in public sector - public administration reforms, public sector reorganizations, local finance and progress in planning	C08.24-B Business Meeting - Commission on Land Degradation and Desertification	GCG 21-01 Post-development and postcolonial studies: Research on inequalities as a challenge for Geographical Development Studies (GDS)?	C08.18-06 Vulnerability and Resilience 2	C08.15-12 Transforming Tourism Geographies in the Global South	C08.27-05 Regional and Local Responses to Marginality 2		C08.10-B Business Meeting - Commission on Gender and Geography
11:45-13:00 Keynotes: „Risks and Conflicts“								
13:00-14:00 Lunch								
14:00-15:30				C08.18-B Business Meeting - Commission on Hazard and Risk		C08.27-B Business Meeting - Commission on Marginalization, Globalization, and Regional and Local Responses		
16:00-18:00 Closing Ceremony								

	COM 01	COM 02	COM 03	COM 04	COM 06	COM 07	COM 08	COM 09
8:00-9:30	UDC 29-01 Towards a process-based understanding of spatiality: new perspectives on dissolving the rural-urban divide 1		C08.07-05 Cultural identities 1: the globalizing East Asia	C08.05-12 Coastal Systems - Sea-level rise and impacts 1	SE 11-01 Globalisation of trade and production and (ecological) sustainability	UDC 27-01 The Socio-spatial reconfiguration in Gulf Arab cities	C08.09-04 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 4	C08.32-05 Rural-urban interaction and competition for land and resources 1
9:30-10:00 Coffee Break								
10:00-11:30	UDC 29-02 Towards a process-based understanding of spatiality: new perspectives on dissolving the rural-urban divide 2	GCG 24-01 The Land of Indigenous Traditional Knowledge	C08.07-06 Cultural identities 2: historical places in East Asia	C08.05-13 Coastal Systems - Sea-level rise and impacts 2	SE 13-01 Integrated water resource management and land use change in South America	UDC 32-01 Urban informality as post-socialist routine?	C08.09-05 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 5	C08.32-06 Rural-urban interaction and competition for land and resources 2
11:45-13:00 Keynotes: „Risks and Conflicts“								
13:00-14:00 Lunch								
14:00-15:30	GA 01-04 General Assembly 4	GCG 26-01 Vector-borne diseases and climate warming	C08.07-07 Cultural identities 3: the urban and rural places of East Asia	C08.05-14 Coastal Systems - Sea-level rise and impacts 3	SE 14-01 Localising climate change in a development context: Adaptation to what?	UDC 30-01 Un pont sur le fossé? Le rôle des villes moyennes comme intermédiaire entre déprise rurale et mégapoles.	C08.09-06 Human-Environment Interactions and Evolution in the Late Pleistocene and Holocene 6	C08.32-07 Social networks, scales of connectivity and governance
16:00-18:00 Closing Ceremony								

Fig. 19: Program overview thursday 30th August 2012

THURSDAY 30th August 2012

MAIN 09	MAIN 10	MAIN 11	MAIN 12	MAIN 13	PHIL 01	PHIL 02	PHIL 03	
UDC 24-01 Sustainable urban environments for the future 1: Modeling of sustainable urban environment	C08.29-06 Mountain Environment and Rural Livelihoods in the Tropical Andes: Local Responses to Global Change	C08.26-04 Local Development in the Urban Space	C08.31-05 Population geography in a post-census world 1		GCG 16-01 Knowledge, networks and innovation in China's development	RC 14-01 New cartographies of risk and conflicts	RC 11-01 Indigeneity, state power and struggles over space	8:00-9:30
9:30-10:00 Coffee Break								
UDC 24-02 Sustainable urban environments for the future 2: Urban ecosystem services: processes, pattern and planning	C08.29-07 Vegetation response to climate change in tropical mountain ecosystems and consequences for biodiversity and land-use options	C08.26-05 Assessment of Local Development Projects and Initiatives	C08.31-06 Population geography in a post-census world 2	GCG 25-01 Urban climate and air pollution in a changing climate	GCG 23-01 The emergence of China's regional economies in the global economy: a new perspective on upgrading and innovation in global-local networks	RC 15-01 Placemaking and guerilla strategies in contested public spaces	SE 03-01 Can we manage human-nature interactions?	10:00-11:30
11:45-13:00 Keynotes: „Risks and Conflicts“				KEYNOTES	11:45-13:00 Keynotes: „Risks and Conflicts“			
13:00-14:00 Lunch								
UDC 24-03 Sustainable urban environments for the future 3: Sustainable urban environment in different urban cultures	C08.29-B Business Meeting - Mountain Response to Global Change	C08.26-B Business Meeting - Commission on Local Development	C08.31 Business Meeting - Commission on Population Geography		GCG 11-01 geo@web. Geography production and its lifeworld consequences in the era of the web 2.0	RC 16-01 Power struggles - energy systems governance and conflict		14:00-15:30
16:00-18:00 Closing Ceremony								

COM 10	KEY 01	KEY 02	KEY 03	KEY 06	KEY 07	KEY 08	
SE 09-01 Geomorphic systems under pressure - anthropogenic forces in a changing environment	UDC 08-01 Learning beyond borders: Exploring the spatialities of student mobility 1	UDC 12-01 Megacity research for government action	SE 07-01 Crossing boundaries in human-environment-system research: Exploring transdisciplinary approaches 1	UDC 10-01 Mega events, globalization and urban development 1	UDC 20-01 Revolution or transformation? The rise of supermarkets and malls in developing countries and their urban and social impact 1	SE 22-01 The social construction of cultural landscapes: New concepts of ?landscape? in social sciences, cultural studies and geography 1	8:00-9:30
9:30-10:00 Coffee Break							
RC 20-01 The fight against disenfranchisement: Emerging cultures of protest in the city	UDC 08-02 Learning beyond borders: Exploring the spatialities of student mobility 2	UDC 12-02 Middle East-North Africa (mega-) urbanization processes (MENA region)	SE 07-02 Crossing boundaries in human-environment-system research: Exploring transdisciplinary approaches 2	UDC 10-02 Mega events, globalization and urban development 2	UDC 20-02 Revolution or transformation? The rise of supermarkets and malls in developing countries and their urban and social impact 2	SE 22-02 The social construction of cultural landscapes: New concepts of ?landscape? in social sciences, cultural studies and geography 2	10:00-11:30
11:45-13:00 Keynotes: „Risks and Conflicts“							
13:00-14:00 Lunch							
SPS 18-01 Business Meeting - Freundeskreis der Frithjof Voss Stiftung	UDC 18-01 Old and new mobilities in Asia: challenges for geographical development research		SE 08-02 Geographic Information Systems, society and education	UDC 11-01 Megacities: Informal dynamics of global change	UDC 28-01 Towards a new centrality of world society: Future faces and functions of urban centres in the 21st Century		14:00-15:30
16:00-18:00 Closing Ceremony							

Fig. 20: Program overview thursday 30th August 2012

Social Activities Programme and Excursions

Like the conference sessions, the social activities programme of IGC 2012 was well attended. The excursions, especially multi-day trips, were the exception, as they met with much less interest than expected by the LOC. The opening concert in Cologne Philharmonic Hall was fully booked early, and the few returned tickets were snatched up by late-comers on the day of the concert (cf. 2.3). Around 700 conference participants and some 500 family members and friends of the student musicians attended the concert. The reception in Cologne's Old City Hall was also quickly booked, with a total of 500 conference participants in attendance (cf. 2.3). The congress dinner at the Brauhaus Gilden im Zims was full, but not overbooked (cf. 2.3). Unlike the opening concert and the reception, which were free of charge for registered participants, the 290 dinner guests had to pay a € 60 contribution.

The IGC party, organised by the association of geography students at the University of Cologne, was also well attended. Around 400 (mostly younger) conference participants danced into the early morning hours at the nearby Club Roonburg. The closing event on the afternoon of the final day of the conference brought IGC 2012 to a festive conclusion. Although Thursday was the day of departure for many, around 650 participants took part in the closing event, in which prizes of the DGfG and the Voss Foundation were awarded and during which departing and upcoming members of the Executive Committee said a few words. Furthermore, the Japanese, Russian and Chinese delegations took advantage of this event to extend their invitations to the upcoming events, i.e. the regional conferences Kyoto 2014 and Moscow 2015 as well as IGC Beijing 2016. The event was accompanied by music from students of the Collegium Musicum of the University of Cologne.

The excursions were conceived as activities arranged both before and during the congress proper. In the tradition of German-language geography, the LOC worked together with geographers from neighbouring countries and other German universities to prepare a varied excursion programme aimed at presenting illustrative cases and regions from both physical and human geography perspectives. The basic idea was to offer excursions with destinations

reachable from Cologne that focused on Cologne's and Germany's location at the heart of Europe. IGU National Committees from Belgium, the Netherlands and France, together with IGU's COMLAND and Transport Commission, had planned multi-day excursions to France, Belgium, the Netherlands and within Germany. Unfortunately, these latter events, along with some of the single-day excursions in the greater Cologne region and the multi-day trip Germany in 9 days, had to be cancelled due to lack of interest. This was a big disappointment, not least with regard to the time and energy put into the planning of itineraries and other organisational aspects. Fortunately, the day-long and half-day excursions to Cologne and the surrounding region were well attended. An overview of the excursions and the number of participants is shown in Table 4.

Young Researchers at the IGC

A central goal of the LOC was to increase the attractiveness of the IGC for young academics. Judging by the percentage of student registrations – 29% were undergraduates, master's students, or Ph.D. candidates – we believe that this important goal was achieved. During the preparatory workshops in Cologne, representatives from the association of geography students at the University of Cologne and from the Organisation of German-Language Associations of Geography Students (Geo-DACH) and Ph.D. students discussed which offers would be interesting for students and young academics and how obstacles to participation could be eliminated. One of their proposals was to use quotas so that an adequate share of session chairs and speakers were young academics. The Scientific Committee later decided to adopt this proposal.

Additionally, the association of geography students at the University of Cologne worked together with Geo-DACH to inform students about the conference. The student association also organised its own social activities programme and a student poster competition. The social activities programme was designed to introduce foreign guests to the Cologne nightlife; participation was optional and meeting spots were announced shortly beforehand in the Congress Daily and via social media. To save students from other countries and cities some money and encourage socialisation, the association of geography students

ABBR.	TITLE	EXCURSION LEADER	STATUS
HALF-DAY TRIPS			
HD1	From Rome to Prussia and what's left of it: Historical and current urban developments in Cologne's city centre	Amelie Bernzen	25 TN*
HD2	Ethnic Diversity in Cologne – Between Multiculturalism and Parallel Society	Prof. Dr. Günter Thieme	20 TN
HD3	UNESCO world heritage: "On the roofs of Cologne cathedral"	PD Dr. Reinhard Zeese	17 TN
HD4	Fortress Cologne and what came of it: Fortifications of the former Prussian fortress Cologne	PD Dr. Reinhard Zeese	18 TN
HD5	UNESCO world heritage: "Cologne cathedral treasury"	PD Dr. Reinhard Zeese	20 TN
HD6	The history and changing faces of Cologne's port "Rheinuhafen"	Alexander Follmann	25 TN
HD7	Rocks and construction history of the Cologne Cathedral	Prof. Dr. Olaf Bubenzer	16 TN
HD8	Cologne – a cultural melting pot	Pamela Hartmann	25 TN
HD9	UNESCO world heritage: "Cologne Cathedral excavations"	PD Dr. Reinhard Zeese	20 TN
HD11	FORD car production in Cologne: A visit to the production plant in Köln-Niehl	Nils Linden	25 TN
HD 13	Art meets Nature in Cologne's Green Belt: "Die Bundesrasensschau"	Dr. Joachim Bauer/ Ralf Witthaus	20 TN
DAY TRIPS			
D1	Frankfurt as a globalizing city: office development, squatter movement and beautification of Frankfurt	Prof. Dr. Susanne Heeg	—
D2	Bonn – the history and future of the former capital of West Germany	Dr. Veronika Selbach	16 TN
D3	National Park "Eifel" and the historical buildings of "Ordensburg Vogelsang"	Mareike Kroll	19 TN
D4	Rhine Romanticism: „Siebengebirge“	Prof. Dr. Winfried Schenk/ Dr. Michael Krautblatter/ Jan-Erik Steinkrüger	—
D5	Bonn: Reinventing the City after the Loss of the Capital Function	Prof. Dr. Hans Dieter Laux	18 TN
D6	UNESCO world heritage: Augustusburg palace and Flakenlust hunting lodge (Brühl)	PD Dr. Reinhard Zeese	22 TN
D7	Regional Change in the Ruhr Area: Waterfront Redevelopment in Duisburg	Prof. Dr. Martina Fuchs	19 TN
D8	Crossing Borders: Euregio Meuse-Rhine	Prof. Dr. Martina Fromhold-Eisebith and Marco Trienes	—
D9	Brown coal open cast mining in the Rhine valley	Prof. Dr. Frank Dickmann	—
D10	Technology Region Aachen	Prof. Dr. Martina Fromhold-Eisebith	—
D11	Narratives of Frankfurt's economic and urban development	Dr. Andrea Mösgen and Nadine Bitterer	—
MULTI-DAY FIELD TRIPS GERMANY			
MD1	Indicators for Climate Change in the Northern Alps	Stefan Weinberger, PD Dr. Mark Vetter und Prof. Dr. Otfried Baume	—
MD2	Rivers meet volcanoes: Geographical highlights of Rhine, Mosel and Eifel	Prof. Dr. Bernd Zolitschka	—
MD3	Berlin's urban and economic development	Prof. Dr. Elmar Kulke	—
MD4	Shaping the Future of the Ruhr Metropolitan Region	Prof. Dr. Harald Zepp	—
MD5	Sylt Island & Hamburg	Prof. Dr. Andreas Vött and Konstantin Ntageretzis	—
MD6	Between River Ems and River Weser: Northwest Germany	Prof. Dr. Jörg Friedhelm Venzke	—
MULTI-DAY FIELD TRIPS EUROPE			
EM1	Natural and Anthropogenic Drivers of Land Degradation and Landscape Change within a Changing Environment: From the Alps to the lower Rhine	Dr. Paul Hudson	—
EM2	Dutch and Belgian port cities, gateways to the heart of Europe	Prof. Dr. Jaques Charlier	—
EM3	Metropolisation, gentrification and social housing in the old Belgian historical cities	Prof. Dr. Christian Vandermotten	—
EM4	Experiencing Dutch Geographies	Prof. Dr. Huib Ernste	—
EM5	Dijon et la vallée du Rhône: patrimoines industriels, vignobles et mobilités urbaines	Prof. Dr. Yves Boquet	—
GER1	Exploring Germany in 9 Days	Prof. Dr. Dietrich Soyey and Prof. Dr. Jörg Stadelbauer	—

Tab. 4: Planned Excursions at IGC 2012 (* = number of participants)

TITEL	INSTRUCTOR	PARTICIPANTS
Managing a PhD thesis	Sven Schindelwick (erfahrungssache)	12
Project management	Jochen Sell (erfahrungssache)	12
Publishing in English: Why, where and how?	Fabienne Quennet (University of Marburg)	12
Academic writing for young researchers	Fabienne Quennet (University of Marburg)	12
Funding opportunities in Germany	Dorothee Eder (University of Cologne)	25
The European Union's Funding Schemes for Research and Innovation	Dieter Dollase/ Uwe David (KoWi Bonn)	25
Strategic decisions: the path to a university career	Harald Sterly (University of Cologne)	21
Careers in Science	Harald Sterly (University of Cologne)	19

Tab. 5: Workshops of the Young Researchers' Forum



Fig. 21: Young Researchers' Forum



Fig. 22: Young Researchers' Forum

set up an internet platform where locals posted information on free rooms. Surprisingly, only a few attendees took advantage of the platform.

The workshop programme of the Young Researchers' Forum proved quite popular. On the opening day of the IGC, eight workshops were scheduled (Tab. 5). The workshops were designed to impart knowledge to the participants and provide them with a place to get to know each other and extend their networks. The workshop subjects covered the areas of academic publishing, career planning and funding. Unfortunately, the number of registrants for each workshop greatly exceeded the number of available seats, so that not everybody interested could take part. What was worse, many participants who had registered for workshops that began at 9:00 am or earlier did not show up. Future IGCs should offer similar workshops – demand appears to be very large – but take care to schedule classes later in the day if they want to avoid a high no-show rate, which can be discouraging for the session chairs and in-

structors. All in all, participant feedback on the workshops was very positive (Fig. 21 & 22).

Trade Fair and Publisher Exhibition

A total of 33 exhibitors were at IGC 2012: 12 German and English-language publishers and 21 associations, research networks and universities. The trade fair took place partly in the auditorium building ("KEY"), partly in two tents ("MARQUEE") set up especially for the trade fair between the congress buildings (Fig. 25 & 27). This was necessary because there was no space available at the university, not even a larger hallway, that met the exhibitors' requirements and was acceptable for the authorities from a fire and emergency perspective. Placing the booths in several smaller rooms would have diminished their attractiveness. All in all, the publisher booths were well visited, mostly because the exhibition area was located at the very centre of all activities. From a financial perspective, the trade fair resulted neither in

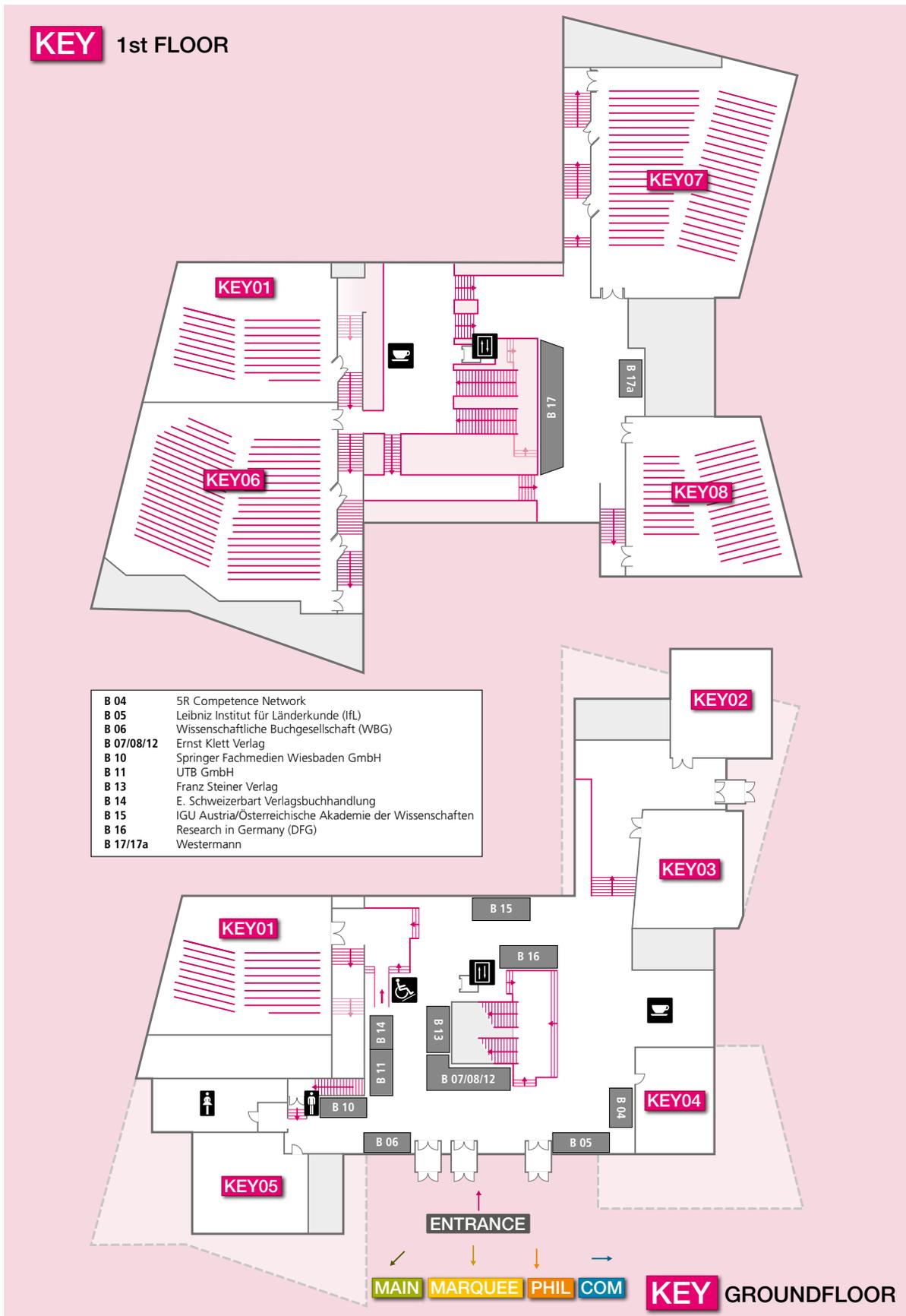


Fig. 23: Trade exhibition

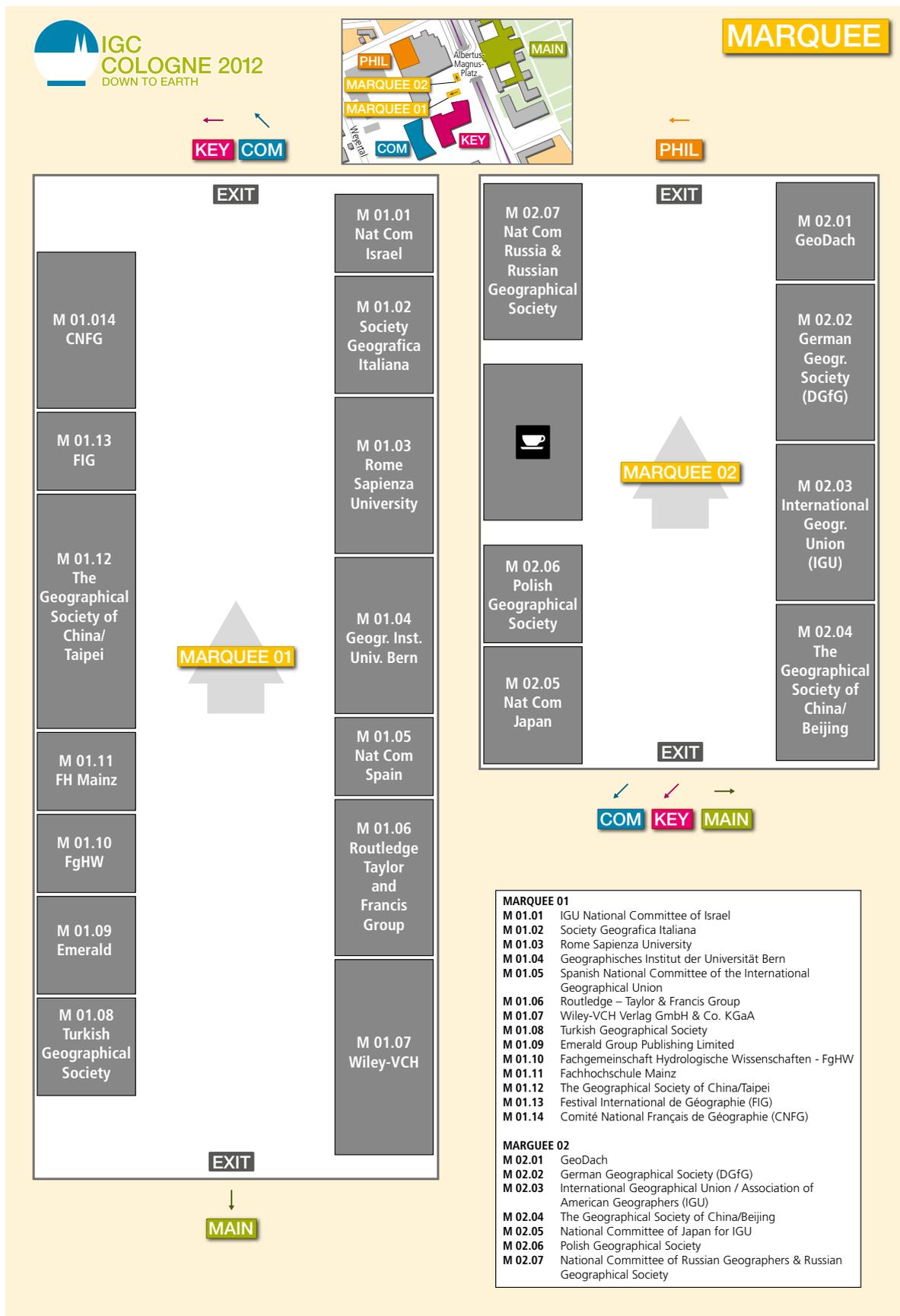


Fig. 24: Marquee exhibition



Fig. 25: Trade Fair - MARQUEE



Fig. 26: Trade Fair - KEY



Fig. 27: Trade Fair - MARQUEE



Fig. 28: Check In Counter



Fig. 29: Check In Counter



Fig. 30: Check In Counter

gains nor in losses. The revenue from the booth fees was just enough to pay for the tent rental and utilities (electricity, internet access, etc.). Figure 23 and 24 display the conference site plan.

Services

Information for participants, fee management, review procedures, IGC 2012 registration and payment occurred via an online system from Lombego, an external provider. Lombego modified its Converia system especially for the needs of IGC 2012, turning it into the main tool for the administration of participant data, presentations, poster abstracts, participant fees and registration for limited capacity events (social activities programme and excursions).

Payment occurred via Converia and a credit card provider. Participants could also pay the fee via bank transfer or in exceptional cases – such as with participants from states where an electronic transfer or credit card payment was not possible – payment on site. The online system considerably reduced the efforts involved in the congress' enormous communication requirements given the large number of participants, and facilitated an efficient organisation of the review procedure and participant administration.

The IGC 2012 homepage featured links to the congress video archive. Hosted on YouTube, the archive contains recordings of the eight keynote speeches and the opening concert and also includes a welcome trailer. By the following years, the keynote speech by Martin Lees had been watched 268 times, and the keynote speech by Derek Gregory had been watched 1,241 times. The opening concerts had been watched 2,840 times and the welcome trailer 3,736 times. Given these results, the LOC was pleased with its decision to use a professional film crew to make the recording. A complete documentary film of the conference is included with this report on DVD.

Another highly appreciated service of IGC 2012 was the food. Coffee, sandwiches and cookies were served during the session breaks (Fig. 31-36, the cookies only in the afternoon). Each day, participants also received vouchers for two 0.5l soft drinks. Participants were offered the morning and afternoon snacks for free and, very much to the organisers'

surprise, most of our guests regarded the offerings as welcome – and sufficient – lunch servings. This added to the spaces and periods for intense participant interaction, and only a few seem to have walked to nearby commercial fast food or restaurant facilities.

The conference fee included a ticket for public transportation within Cologne. It was printed directly on participants' conference badges. This allowed all participants to ride all city buses, trams and local trains during the duration of the congress free of charge.

An internet café gave IGC 2012 participants the opportunity to access the internet and edit their presentations. 20 PCs fitted with so-called kiosk software, which limits the functionality to online searches and viewing, were available. In addition, there were two fully functional PCs that allowed participants to revise presentations. The internet café saw a lot of use; on average 50% of PCs were taken; during the keynote speeches almost all PCs were in use. The two PCs for editing presentations did not suffice to cover demand; at least 4 PCs would have been necessary.

The IGC 2012 was the first IGC to offer childcare for congress participants. Professional childcare was available for the heavily subsidised price of € 5 for a half or € 10 for a full day. Children could play and sleep, and also received meals. In general, the service was well received, and between three and eight children were in childcare each day. All parent feedback was positive.

One way in which news was communicated before and during IGC 2012 was via Facebook. A total of 743 participants regularly checked the IGC 2012 Facebook page. The viral reach exceeded 20,000 people during the week of the congress.



Fig. 31: Coffee station



Fig. 32: Participants during coffee break



Fig. 33: Participants during coffee break



Fig. 34: Coffee station



Fig. 35: Volunteers and staff of the department



Fig. 36: Staff of the department



2.3

**The Social Activities
Programme in Detail**

THE SOCIAL ACTIVITIES PROGRAMME IN DETAIL

Franziska Krachten, Holger Kretschmer

Opening Ceremony

An important part of IGC 2012, in addition to the scientific programme, was the social activities programme.

The IGC 2012 was officially opened on the first day of the congress with a concert in Cologne's biggest and most renowned concert hall, the "Kölner Philharmonie", which is situated in the centre of the city in the direct vicinity of Cologne Cathedral and the River Rhine.

„Welcome to the 32nd international geographical congress, welcome to Cologne, welcome to Germany“ – with these words, Frauke Kraas and Dietrich Soyez, who guided the audience through the programme, greeted the roughly 1,200 attendees of the opening ceremony (Fig. 1). In addition to the Local Organising Committee, Hans-Rudolf Bork, the President of the German Society of Geography, also welcomed the participants of the IGC 2012. He particularly emphasised the great honour bestowed upon German geography as hosts of the IGC and drew attention to the planning process, in which the scientific commissions played a significant part (Part 2.1). Angela Spizig, Mayor of the City of Cologne, and Axel Freimuth, Rector of the University of Cologne, warmly welcomed congress participants and emphasised the long tradition of the city at the heart of Europe as well as the special significance of the conference location being a university, which forms the basis of scientific exchange. Alongside the opening speech by Ron Abler, President of the International Geographical Union, who underlined the importance of global and intercultural exchange among the scientific community, the words of welcome by Anne Glover, Chief Scientific Advisor to the President of the European Commission, were particularly impressive. She emphasised with the following words that

geographical expertise is not something to be discussed exclusively within the scientific community: „You must make your voice heard. And that doesn't mean publishing in peer reviewed journals, it doesn't mean coming along to congresses and listening to wonderful talks. It actually means that you have to get out and shout about what you know. [...] You must make your voice heard“.

Her Royal Highness Princess Maha Chakri Sirindhorn from the Kingdom of Thailand also greeted the attendees of the opening ceremony and told of how the numerous travels with her father, Phrabat Somdet Phra Paraminthara Maha Bhumibol Adulyadej, His Majesty King Bhumibol Adulyadej, had awakened in her an interest in geography at an early stage, and had shown her that humankind and nature can only exist together if they do so in harmony (Fig. 2). This thought was picked up and elaborated upon in the Inaugural Lecture given by Eckart Ehlers entitled „Down to Earth – Geography in the Anthropocene“ (Fig. 3). The role of geographers as “bridge builders” between nature and society in the age of the Anthropocene was the principal focus of his lecture. A further highlight of the opening ceremony was the awards ceremony for the participants of the iGeo, the school programme of the IGC (Part 2.4). The presentations were made by Joop van der Schee, Henk Ankone and Sylvia Löhrmann, Deputy Minister President and Minister of Schools and Education of the federal state of North Rhine-Westphalia, who, in her address, specially mentioned the inter-cultural exchange made possible by iGeo (Fig. 4).

The fact that the opening ceremony made a lasting impression on so many participants was due to a great extent to the symphony orchestra, choir and big band of St. Ursula Gymnasium (high school) in Brühl (Fig. 5 & 6). The pupils and teachers contributed to the festive element of the event with works



Fig. 1: F. Kraas and D. Soyez during the opening ceremony



Fig. 2: Her Royal Highness Princess Maha Chakri Sirindhorn from the Kingdom of Thailand



Fig. 3: E. Ehlers during the inaugural lecture



Fig. 4: S. Löhrmann, H. Ankone, J. van der Schee during the award ceremony for the iGeo participants



Fig. 5: Orchestra, choir and big band of St. Ursula Gymnasium Brühl



Fig. 6: Orchestra of St. Ursula Gymnasium Brühl

including Robert Schuman's „Rhenish“ Symphony, Ernst Toch's „Geographical Fugue“ and Lynn DeShazo's „For the Beauty of the Earth“.

Mayoral Reception

The Lord Mayor of the City of Cologne welcomed the participants of the ICG 2012 on the evening of the second day of the congress in the „Piazetta“ of the Historic Town Hall. The Historic Town Hall stands like no other building in Cologne for the freedom of the citizens of Cologne. It was constructed at the end of the 14th century by the Cologne guilds as a symbol of their municipal power and has survived the centuries virtually undamaged. With the choice of location in the heart of the city, the citizens of Cologne placed themselves firmly within the tradition of the Roman founding fathers, who had built their Praetorium on the same site, from there guiding the fortunes of the city.

Following the welcome from Lord Mayor Jürgen Roters, Ron Abler proposed a toast with the roughly 620 attendees of the reception to a successful con-

gress with the typical Cologne drink „Kölsch“. The discussions over pretzels and drinks were accompanied by music played by musicians from the Collegium Musicum of the University of Cologne (Fig. 7-10).

Congress Dinner

As is the case at every IGC, the traditional congress dinner was a must at the ICG 2012, offering participants the welcome chance to converse away from the formal congress atmosphere. The term „traditional“ was taken literally by the Organising Committee, who hosted the dinner in the roughly 600-year-old brewing cellar of the „Gilden im Zims“ brewery house. This environment provided a special atmosphere and a contrast to the otherwise typical banquet halls. Its multiple levels, many niches and smaller tables seemed to encourage the exchange among the 300 guests, with lively discussions continuing on well into the night. Gastronomical needs were also catered to. The participants had the choice between a warm and a cold buffet, including regional specialities and of course, the regional beer, Kölsch (Fig. 11-14).



Fig. 7: D. Soyez, F. Kraas, R. Abler and Lord Mayor J. Roters



Fig. 8: Mayoral reception in the Historic Town Hall



Fig. 9: Lord Mayor J. Roters



Fig. 10: Musicians from the Collegium Musicum of the University of Cologne



Fig. 11: Congress Dinner



Fig. 12: Congress Dinner



Fig. 13: Congress Dinner



Fig. 14: Congress Dinner



2.4

Geography and School at
IGC 2012: iGeo 2012,
the Geography and School
Symposium, and the
School Outreach Programme

GEOGRAPHY AND SCHOOL AT IGC 2012: IGEO 2012, THE GEOGRAPHY AND SCHOOL SYMPOSIUM, AND THE SCHOOL OUTREACH PROGRAMME

Dorothea Wiktorin

Ever since preparations began for 2012 IGC in Cologne, one of the primary goals of the organising committee has been to allot significant time to the topic of geographical education over and above the sessions and research group meetings already offered by the Commission for Geographical Education. The committee set three main goals:

The first was to ensure that young geography students have a visible and proportionate share in the IGC. Through the active participation of students from around the world, the committee hoped to promote interest in the discipline and intercultural exchange, and to stimulate lively discussions between researchers and young adults about questions pertaining to the future of humankind. The second goal was to motivate geography teachers to take part in current discussions within the international geographical community. Their third goal, in collaboration with the German Academic Association for Geography and its Didactics (Hochschulverband für Geographiedidaktik, HGD) and the German Association of Geography Teachers, was to hold a symposium during IGC 2012 aimed at German-speaking geography teachers. The objective was to lower linguistic barriers and to ensure that specific current topics of German geography instruction are handled with their target audience in mind.

Three events took place at IGC 2012 to achieve these goals: the International Geography Olympiad (iGeo), the Geography and School Symposium and the School Outreach Programme. The objectives, contents and itineraries of these events are presented in detail below.

iGeo: The International Geography Olympiad

Goals, Run-up and General Rules of Competition

The idea of an International Geography Olympiad goes back to IGC 1994 in Prague. There, geography teachers and the geography education researchers resolved to initiate an iGeo task force and, following the lead of other disciplines, to start a school-level competition. In 1996, an iGeo pilot project took place in the Netherlands under the direction of Henk Ankoné and Joop van der Schee. Thereafter, the event was held every two years under the auspices of the IGU task force. From 2013 onwards, the iGeo will be held annually. The task force sets the rules and creates questions and exercises for the sections of the competition, while the respective local organising committee is in charge of running it. Typically, the iGeo takes place at an IGU regional conference during an International Geographical Congress.

Soon after the IGU decided to hold IGC 2012 in Cologne, the local organising committee agreed to schedule the iGeo prior to the IGC 2012. The event was designed to stress the importance of geography education and intercultural exchange. In accordance with the statutes of the iGeo task force, the competition had the following goals:

- to awaken interest for geography in young people;
- to foster intercultural understanding among young people;
- to increase the quality of geography education by promoting conversations between representatives from theory and practice.

A country team usually consists of four students and two chaperones. Upcoming host countries for the iGeo send observers, and members of the iGeo task force were invited to attend. All in all, 125 students from 32 nations as well as several chaperones and observers took part in iGeo 2012.

During the Olympiad, which ran from 21 to 27 August, the participants stayed and ate at a youth hostel in Cologne Deutz. The tests and some parts of the social activities programme were held on the premises of the Department of Geography of the University of Cologne.

The local organising committee had the task of planning and running the fieldwork and the social activities programme.

Fieldwork Exercises for iGeo 2012

A central part of the Olympiad is the fieldwork section. The fieldwork exercises were designed to test students' methodological skills and, more importantly, their spatial abilities. For that it was necessary to define a topic of current interest, create a challenging task and designate a suitable area within the city.

The working group entrusted with preparing the fieldwork decided on the subject of riverfront development (Fig. 2 & 3). Along with providing a relevant theme – for almost every major city in industrial countries, structural change in the age of deindustrialisation and post-modern urban development is a burning issue – the topic focused on the Rhine

as both a lifeline (through commerce) and a danger (through floods). The two banks of the Rhine – each different in their urban structures – offered a unique chance to study comparative riverfront development. An introductory lecture from Klaus Zehner and Alexander Follmann on the general significance of riverfront development the day before the start of the field exercises put the competitors in the right mood.

The fieldwork exercises were divided into two areas. The first day featured a mapping exercise testing competitors' ability to make maps on specific subjects. Because the students had different levels of background knowledge depending on their country, the fieldwork was preceded by a half-day preparatory workshop to level the playing field. The workshop was taught by faculty members from the Department of Geography and the Seminar for Geography and its Didactics.

Since there were so many participants, two large groups – each with representatives from all the participating nations – were formed for the mapping assignment. The participants of the first group had the task of mapping parts of Cologne's old city to the left of the Rhine, which contain a large number of restaurants and shops. The participants of the second group had to map the area of Rheinauhafen (a former harbour) to the left of the Rhine, where the upmarket service sector – computer tech, the wellness industry – predominates. The competitors had to use maps and other materials to assess the potential of the areas and write a report.

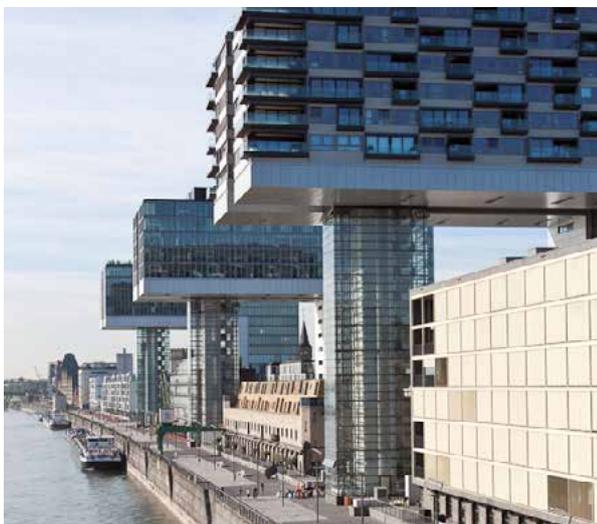


Fig. 2: Riverfront development in Cologne Rheinauhafen



Fig. 3: Participants, volunteers and staff during the fieldwork exercises

The exercises on the second day focused on geographical skills – the ability to make and justify decisions about urban planning. Each group concentrated on the bank opposite the one they had mapped the previous day. The participants in the first group had the task of surveying the structure of the right, only somewhat developed side of the Rhine across from the Cologne old town, and briefly identifying its potential. The second group was assigned the Deutzer Hafen, which is located across from the Rheinauhafen. Other parts of this former harbour area are widely used and show much potential for future development.

After a walking tour and a quick sketch of the observations, participants assembled in exercise rooms, where they had to create a map detailing potential uses of the right bank of the Rhine and provide a written justification for their conclusions. Participants were asked to use their results from mapping the left bank of the Rhine to help.

The mapping exercise of the first day and the planning exercise from the second day were rated by the jury in a lengthy correction procedure.

After assessing and weighting the three competition sections, the jury announced the gold medal winners of iGeo 2012: Samuel Chua, Singapore; Wojtek Kaczmarczyk, Poland; Ștefania Ursică, Romania; Taivo Pungas, Estonia; Rimgaudas Stundzia, Lithuania; Hana Pařízková, Czech Republic; Constantin Popa, Romania; Maris Serzans, Latvia; Max Rogge, Germany; Brendan Tan, Singapore.



Fig. 4: Honoring the iGeo winner

Social activities programme during iGeo 2012

iGeo 2012 began on 21 August with an opening ceremony in the main auditorium of the Department of Geography and concluded on 26 August with a festive ceremony in Cologne Philharmonic Hall (which was simultaneously the opening ceremony of the IGC 2012) and in the Cologne Deutz Youth Hostel. At the opening ceremony, hosted by Joop van der Schee, all country teams were welcomed to Cologne and given a ceremonial address by Frauke Kraas on the meaning of geography education today.

During the closing ceremony in Cologne Philharmonic Hall, which directly preceded the opening event for IGC 2012, 10 gold medals were presented to the iGeo winners from the event's patron, Sylvia Löhrmann – Deputy Minister President and Minister of Schools and Education of North Rhine–Westphalia (Fig. 4 & 5 and the transcript of her speech in 1.2). The silver and bronze medals and participation certificates were given out afterwards during a party at the Cologne Deutz Youth Hostel.

Poster Presentation

The poster presentation took place on the afternoon of the third day. It was one of the highlights of the Olympiad. Unlike previous years, in which the posters focused on a randomly selected geography topic from each of the participants' home countries, the organising team of iGeo 2012 modified the guide-



Fig. 5: Winners of the iGeo

lines. The teams were asked several months in advance to create posters on a common theme, which they then had to relate to each of their home regions. The topic of the 2012 poster session was “Water as an essential resource – Water as a versatile habitat”.

The teams had to demonstrate how water is an essential resource for society and environment and design their posters around central issues for their countries, such as water supply and sewage, effects of droughts and floods, flood prevention, or trade channel development. The posters were judged according to defined criteria and contained elements such as figures, maps and written explanations.

The teams presented the posters in the afternoon at a gallery show in the inner courtyard of the Department of Geography. The participants had around three hours to study the 32 posters on display. Two members from each country team explained their poster’s contents and fielded questions. After one team’s presentation, the next began, so that all participants had time to look at the others’ posters and present their own.

Intercultural Evening

The intercultural evening has always been one of the highlights of iGeo. In past years, it consisted of a succession of performances – theatrical, musical, multi-medial – that showcased the typical, and sometimes stereotypical, traditions of each team’s country. The intercultural evening of iGeo 2012, which took place

on 24 August in the Rautenstrauch Joest Museum, put more emphasis on true intercultural exchange than on the multicultural exchange of previous iGeos (Fig. 6-13). It established a general geography-related theme that each team’s performance had to incorporate in its own way. The concept for 2012 included the following new elements:

Four workshops were conducted on each of the two prior evenings with all participants. A student from each team was assigned to a workshop, so that 32 students from 32 nations participated in each. This guaranteed that every nation came in contact with every other – the best prerequisite for collective, intercultural learning. All participants rated this aspect of the event very highly.

The teams were guided by students and instructors of the University of Cologne and the University of Münster (Johanna Mäsgen and Dorothea Wiktorin at the University of Cologne and Gabriele Schrüfer of the University of Münster).

Four performances took place for the workshops:

- Theatrical performance – intercultural communication, speech, gestures and rituals;
- Musical performance – intercultural choir, music as a global language, global music industry, favourite international and national artists;
- Fashion show – fashion as a form of individual cultural expression; fashion industry as market power



Fig. 6: Intercultural evening



Fig. 7: Intercultural evening



Fig. 8: Intercultural evening



Fig. 9: Intercultural evening



Fig. 10: Intercultural evening



Fig. 11: Intercultural evening



Fig. 12: Intercultural evening



Fig. 13: Intercultural evening

- Slideshow presentation – pictures expressing how people see their own cultures and how people see foreign cultures.

The overarching theme of the evening was “diversity in the global village”. One aim of the workshops was to make participants aware of the threats posed by globalisation: the repression of unique cultures by mass homogeneity, whether in fashion (jeans and t-shirts), in pop music (global pop stars), in linguistic simplicity (English as the lingua franca) or in the ubiquity of visual stereotypes. A second aim was to highlight the chances that an increasingly interconnected world can offer – such as the cultural mix and the creative influence in world music and fashion trends. People from all over the world can come into contact with each other by a click of the mouse and join together in virtual networks.

The intercultural evening took place in the auditorium of the Rautenstrauch Joest Museum. The rent fees were paid for by the Cologne Geographical Society/Gesellschaft für Erdkunde zu Köln. The Rautenstrauch Joest Museum, a new ethnology museum in Cologne, offered a fitting backdrop for the festive event. The unanimous opinion of the participants was that it was a resounding success. The president of IGU, Ron Abler, accompanied by several IGU vice presidents, greeted the participants of iGeo and emphasised again the importance of intercultural exchange among geographers young and old.

Excursions in the Cologne Region

On Saturday 25 August, iGeo participants were able to select one of three excursions to geographically interesting destinations in the region.

- *Rhineland Nature Park (led by Miriam Sabo, with generous support from the Rhineland Nature Park).*
- *Rhine Brown Coal Field (led by Johannes Hamhaber and the Cologne University of Applied Sciences).*
- *Ruhr Region (led by Veronika Selbach, Department of Geography of the University of Cologne and Rainhard de Witt, Ruhr Tour, Essen, with generous support from the Ruhr Regional Association).*

In addition to the whole-day excursions, the chaperones doing the corrections had the chance to go on half-day tours in Cologne led by students from the University of Cologne’s Department of Geography.

Learning by Teaching – An Excursion by Students for Students

On the morning of 26 August, six student groups from secondary schools in Cologne and the surrounding region greeted the participants of iGeo 2012 and took some on group tours to Cologne’s inner city. The geography students from Cologne prepared in advance the city excursion for the guests from abroad. The goal was to promote intercultural contact among geography students through the principle of “learning by teaching”.

Geography and School – Paths to Skills-Based Geography Instruction

Idea, Central Questions, Organisation

The German-language symposium Geography and School took place on 27 and 28 August 2012. It was attended by around 250 geography teachers and education professionals. Two years before the congress, the idea arose to offer, in addition to the many sessions in English, some German-language sessions on geography education specifically tailored to the needs of German-speaking countries. The plan was finalised during the preparatory workshops for IGC 2012 (see 2.1) by the participating representatives from the German Academic Association for Geography and its Didactics (HGD) and the German Association of Geography Teachers (VDSG). The promise of the symposium was to open the door for German-language geography teachers to participate in the international and academic discourse of the conference. Based on the results, the symposium lived up to its promise.

The symposium’s central question concerned almost everyone involved in geography education: the potential and limits of skills-based learning. The demand for this approach arose as part of a general paradigm shift in education. This paradigm shift contains three closely linked changes: a strong-



Fig. 14: Participants at the registration for the Geography and School Symposium

er emphasis on output, thinking the entire teaching process, and more concentration on core geography curriculum. A skills-based approach should not be misinterpreted: it does not mean that teachers have not done enough to foster their students' skills. Rather, every paradigm shift offers educational professionals the opportunity to rethink their discipline, their ideas about education and their approach to teaching. IGC 2012 was an ideal platform for such a symposium.

The symposium focused on four skill areas: systematic thinking, methods, spatial orientation and communication. The organising team placed particular emphasis on the following procedures and symposium agenda:

- All participants should be given the chance to visit a session in each skill area. For this, four parallel sessions, each 90 minutes long, were scheduled for each theme.
- Scheduling allowed all participants time to attend the IGC keynote sessions and the trade fair so that they could gain an impression of the congress.
- Each symposium session was led by a tandem of professionals – one a geography school teacher, the other a geography didactics researcher – to stimulate dialogue between theory and practice.
- The leaders each provided a short introduction containing some theoretical reflections about the session's featured skill area.



Fig. 15: Participants at the registration for the Geography and School Symposium

- After the short introduction came a presentation of two examples from practice, giving participants a sense of the everyday conditions of school education.

To supplement the conceptual foundations of the skills-based approach with meaningful examples from geography teaching and learning, a *call for papers* was distributed among the members of HGD and VDSG six months before the symposium. Around 45 educational professionals submitted papers. Of them, session leaders chose 29 to be presented at the symposium.

Sessions and Speakers

The leaders of the skill area **Systematic Thinking** were Armin Rempfler, University of Luzern, André Szymkowiak and Rainer Uphues, University of Erlangen Nuremberg. In their introductions on education theory, they emphasised that the challenges of the 21st century arise from the interplay between human activities and changes in natural geography. The special strength of geography instruction lies in synthesising different perspectives on the basis of a holistic spatial understanding. To this end, systematic thinking has been made a cornerstone of Germany's national educational standards (DGfG 2010). The leaders understood systematic thinking in geography as the ability to describe, reconstruct and model (by effect diagram, for example) the spatial characteristics of complex realities systematically, and to use the models for explaining interdependencies,

for making forecasts and for creating, assessing and implementing strategies.

The session leaders selected the following papers from those submitted:

- From the “Network of Global Challenges” to the Systematic Understanding of Solutions: A Teaching Unit in the Secondary School. *Thomas Hoffmann, State Seminar for Education and Teacher Training, Karlsruhe*
- The Development of an Extracurricular Place of Learning at Schools for Promoting Skills-Based Learning: The “Green Classroom Pulheimer Bach”. *Stephan Langer, University of Cologne*
- Promoting Systematic Thinking with Projects for Sustainable Development. *Sonia Ziliotto, University of Padua*
- Ecological Agriculture: An Alternative Way to Secure the World’s Food Supply? Investigative Radio Reports Show Its Limits and Possibilities. *Thorsten Zahn, Freies Christliches Gymnasium Düsseldorf*
- Ethical Learning in Geography Education – A Complex Field of Personal, Social and Cognitive Skills. *Stefan Applis, University of Erlangen-Nuremberg*
- Pilot Courses in Geography – Skills-Based Learning in a New Format. *Georg Jöbkes, Städtisches Gymnasium Schleiden*
- Expanding the Systematic Skills through Geographic Roll Excursions. *Ulrike Ohl, Universität Augsburg; Maik Böing, ZfsL Vettweiß*
- “Thinking Tools” instead of Piles of Books? – Skill-Based Learning in Geography Instruction at the Secondary Level. *Nina Erdmann, Gymnasium Altllünen*

The leaders of the sessions on **Methods and Knowledge Acquisition** were Karl-Heinz Otto (University of Bochum) and Simone Reutemann (Dresden University of Applied Sciences). In their introductory talks, they emphasised that far-reaching skills in media and communication are needed to cope with everyday life in today’s information society. Geography teaching, they noted, can give students many of these skills and thus provide the foundations for life-long learning. Solving geographical tasks and problems requires a variety of methods and media, both traditional and digital. Geography students also acquire knowledge and skills with the help of experi-

ments and excursions. Of all the areas, methods and knowledge acquisition makes clear the importance of skills being linked together, not thought of one by one. Targeted work on different media and methods at the same time enable the acquisition and immersion of know how. The special focus of the sessions lay on taking a closer look at the steps and development of information acquisition and its assessment.

The session leaders selected the following papers from those submitted:

- Skills-Based Tasks in Geography Instruction. *Norma Kreuzberger, Gymnasium Lohmar, ZfsL Engelskirchen*
- Complexity as a Didactic Problem: The Significance of Learning Tasks for Nontrivial Learning in Geography and Economics Instruction. *Jelena Deutscher, University of Bochum*
- Service Learning in Geography Class: Geographical Methodological Skills through Shared and Reflective Experiential Education. *Nils Thönnessen, University of Cologne*
- Skills-Based Experimentation in Geography Instruction: Development and Implementation of an Intervention Study. *Carina Peter, University of Giessen; Sandra Hof, University of Hamburg; Johann-Bernhard Haversath, University of Giessen*
- Quality of Life Research with Youth: An Innovative Approach Using a New Skill Model from Austria. *Lars Keller, University of Innsbruck; Anna Oberrauch, University of Innsbruck*
- Multiple Perspectives on Space Evaluation Using the New Media: The Spaces of Cologne-Niehl and Cologne-Riehl. *Björn Schray, Abtei-Gymnasium Brauweiler; Urs Piazzolo, Abtei-Gymnasium Brauweiler*
- Strategies for a Reflective Approach to Diagrams, Pictures, and Films: New Learning Methods from the “Thinking with Geography” Approach. *Stephan Schuler, Goethe University, Frankfurt am Main*

The leaders of the session on **Spatial Orientation** were Thomas Breitbach (Irmgardis-Gymnasium Cologne) and Ingrid Hemmer (University of Eichstätt-Ingolstadt). In their introductory presentation, they highlighted the fact that spatial orientation is frequently equated with basal topography, but that the area encompasses significantly more when it comes to national education standards. Breitbach and

Hemmer called for five specific skills to be stressed in geography education: knowledge of basic topography, the ability to categorise geographical objects and information, the ability to use and interpret maps, the ability to find orientation in real spaces, and the ability to reflect on how spaces are perceived and constructed. In addition, geography education must include the various concepts of space that exist in the discipline. As the session leaders argued, spatial orientation represents an important field – and a unique feature – of geography education. They presented the theoretical foundations of spatial orientation and its various aspects and gave a glimpse into some of the research in the field. They also described the importance that decision-makers and geography experts assign to spatial orientation skills. They depicted the skills of students in different areas of spatial orientation across three Federal German States in comparison. They also provided some examples of how skills can be fostered in geography instruction. The talk by Breitbach and Hemmer was supplemented by discussions from Anne-Kathrin Lindau and Lisa Schönefeld (Martin Luther University Halle-Wittenberg), who presented the theory and findings from an observational study on the spatial orientation in geography instruction.

The session leaders selected the following proposals from those submitted:

- When Students with GPS Devices Discover the School Grounds Anew – Progressive Skills Development in the 5th, 6th, and 8th Grades. *Kerstin Neeb, Pädagogische Hochschule Weingarten*
- How Does One Foster Critical Map Reading Skills? A Concept for the 7th Grade. *Christine Kreuzberger, Anno Gymnasium Siegburg*
- INDO-GERMAN Intercultural Cache – Geocaching as an Instrument to Promote Spatial Orientation and Reflective Spatial Perception. *Holger Nagel, Hellenstein-Gymnasium Heidenheim*
- Linking the Creation of Spatial Orientation Skills with Aspects of Sustainability based on the Nürburgring Example. *Winfried Sander, Erich-Klausener-Gymnasium Adenau*

The sessions on **Communication** were introduced and moderated by Alexandra Budke (University of Cologne), Tilman Rhode-Jüchtern (University of Jena), Frank Czapek (First Chair of the VDSG e.V., Hanover) and Andrea Rendel (State Institute

for Teacher Training, Heilbronn). They argued that communication belongs to the process-based skills called for by education standards and the new core curricula laid down by the Federal German States. The leaders noted that it is often unclear what is meant exactly by communication. The education standards of the DGfG distinguish between communication in instruction and communication in social contexts. Three session focuses addressed this distinction: (1) communication as linguistic ability, (2) communication as social discourse, (3) communication as an argumentative skill. The session also asked how the power of arguments can be used for better understanding concepts and the individual construction of knowledge and for creating opinion and values.

The session leaders selected the following proposals from those submitted:

- Arguing about Complex Human-Environment Relations in India: The Example of Drinking Water Supply in Pune. *Stephanie Leder, University of Cologne*
- “Sustainable Change of Perspective for a Fair Future”: Education for Sustainable Development in Intercultural Dialogue as a Challenge for the Project-Based Geography Instruction. *Sönke Wanzek, Peter-Joerres-Gymnasium Ahrweiler*
- Normative Arguments for Specifying Communicative Skills in Geography Instruction. *Jochen Laub, KIT / IG Heidelberg*
- Discussion at the Panel: Learning by Arguments about Chocolate. *Andreas Hoogen, University of Cologne; Miriam Kuckuck, University of Cologne*
- Speech Spaces: Potentials of the Production-Based Literature Education for Geography Instruction. *Romy Hofmann, University of Erlangen-Nuremberg; Martina Mehren, Gymnasium Adolfinum in Moers*
- The Argument Sun: Linguistic Diversity and Semantic Correction with Geographical Arguments. *Miriam Kuckuck, University of Cologne*
- Discussions in Geography Instruction. *Sophia Kulick, University of Potsdam*
- Positioning Oneself – A Problem for Students and Teachers: The Example of the German Energy Supply Debate. *Astrid Kähler, Gymnasium Engelsdorf, Leipzig*

Events outside the Sessions

There was a variety of additional events supplementing the symposium sessions. On Monday 27 August, an opening ceremony kicked off the symposium between 10 am and 12 pm. In the evening, the Klett Verlag (Klett publishing house) invited all participants to a reception in the cafeteria of the University of Cologne. On the following Tuesday morning, the programme began with an event organised by the Klett Verlag together with Engagement Global. Participants had the option of taking part in a variety of excursions: a presentation on fieldwork at the International Geography Olympiad 2012, led by Stephan Langer (University of Cologne); an excursion on waterfront development in Rheinauhafen, led by Karin Steinhäuser (Cologne); a visit to the zdi Student Lab “Spaceship Earth”, led by Andreas Schulz (University of Cologne).

The symposium ended at 4pm with a closing ceremony. All the ceremonies and special events (in part bilingual) took place in the main auditorium of the University of Cologne and were open for all participants of IGC 2012. The events were intended to acquaint a broader public with the thematic focus of the event.

The **opening event** was designed to put participants in the right mood for the two-day event. It was led by Dorothea Wiktorin (University of Cologne), Michael Hemmer (University of Münster) and Karl-Walter Hoffmann (Studienseminar Speyer). Hemmer and Hoffmann delivered an introductory address conceived as a dialogue between university educators and secondary school teachers. The lecture was entitled “Paths to Skills-Based Geography Instruction – Foundations, Approximations, Reservations”. After the introduction, there were discussions on the theoretical foundations and the genesis and contextualisation of the skills-based approach, on definitional clarifications and on characterisation of basic attributes. The speakers emphasised the principles of the approach: keeping the goal in mind, school activation, output orientation and a concentration on the core geography curricula. In the second part of the lecture, the speakers asked about the possibilities of implementing these principles in the everyday school environment and focused on actors and fields of activity. They cited examples of individual

school curricula, innovative education planning, a new culture of tasks, some skill models and additional training for teachers.

After presenting and discussing the skills-based approach, in the second part of the lecture the speakers addressed concerns, confusions and untapped potential. Hemmer and Hoffmann outlined the following themes critically:

- Knowledge versus Skills – Where is the Content?
- Construction versus Instruction – Where is the Teacher?
- Education versus Standardisation
- Top Down versus Bottom Up

The lecture ended with a short summary and a call for participants to think about the subsequent sessions constructively and critically – exploring the possibilities and limits of the skills-based approach and entering a fruitful dialogue between theory and practice.

The **event** organised and financed by Klett Verlag (Christoph Rausch) and Engagement Global (Hannes Siege) on Tuesday morning was entitled “International Online Discussions of German, Indian and American Students about Global Climate Change – Chances and Limits of Geography Instruction”. After a talk by Steffen Höhnle and Rainer Uphues from the University of Erlangen-Nuremberg, who led and documented a project of the same name, a podium discussion took place with students from Germany, India and the U.S. as well as their teachers. During the podium discussion, Höhnle and Uphues discussed these themes together with the presenters Gregor Falk (University of Freiburg), Hans-Rudolf Bork (President of the German Society for Geography) and Hartmut Grassl (Max Planck Institute, Hamburg). The participants were prime examples of the added value and knowledge that comes from intercultural exchange.

The **closing ceremony** was chaired by all the session leaders. Guest speaker Michael Becker-Mrotzek (University of Cologne) observed the two-day event as an external observer and expert for the skills-based approach in German-language education. Though he was impressed by some of the inspiring examples from practice, he noted in his critical yet

constructive lecture the ongoing need for empirical studies on the chances and limits of the skills-based approach in geography. The session leaders heard his commentary and delivered short responses reflecting on the examples from practice and the session discussions.

In the closing discussion, it became clear yet again that there is need for further empirical studies but also for more dialogue in theory and practice. Only through repeated exchange between researchers and practitioners is a successful implementation and critical advancement of skills-based teaching and learning possible – that was the unanimous conclusion. Perhaps the most important insight of the symposium was this: if science and schools are to pursue the common goal of promoting rich and feasible curricula in geography, as many places as possible for meeting between the two must be created. In this way, they can pursue a substantive and sustainable geography education.

School Outreach Programme: School at IGC – Geographers in School

The school outreach programme at IGC 2012 contained two parts:

The first part gave around 400 students from the Cologne region the chance to visit IGC 2012. Months in advance, an invitation was sent to secondary schools in the region calling for geography classes to apply to IGC 2012 by creating a poster on a geography topic. Courses from 16 schools were selected based on the submissions. Each day, around 100 secondary school students visited the sessions of IGC 2012 and contributed to the discussions with their curiosity, commentaries and questions. According to teacher feedback, it was an unforgettable experience for the students. They were able to find out what an international congress is like, interact with the international scientific geography community and listen to academic presentations.

The following schools participated in the programme: Weiterbildungskolleg Bonn, chaperoned by Swen Keller; Gymnasium an der Gartenstraße, Mönchengladbach, chaperoned by Silke Niehoff; Gymnasium Gerresheim, Düsseldorf, supervised by

Tanja Rusche; Kardinal Frings Gymnasium, Bonn, chaperoned by Achim Weiffen; Konrad Adenauer Gymnasium, Meckenheim, chaperoned by Thomas Hahn; Dreikönigs-Gymnasium, Cologne, chaperoned by Tim Höttermann; Gymnasium auf dem Asterstein, Koblenz, chaperoned by Tom Pieper; Landrat Lucas Gymnasium, Leverkusen, chaperoned by Jens Wenzel; Hildegard von Bingen Gymnasium, Cologne, chaperoned by Moritz Elschner; Gymnasium Schaurtestraße, Cologne-Deutz, chaperoned by Juan Ruiz Alvarez; Marianum, Leverkusen-Opladen, chaperoned by Petra Scharfenberg; Hildegard von Bingen Gymnasium, Cologne, chaperoned by Rene Krolczik; Marienschule Leverkusen, chaperoned by Elke Heise; Käthe Kollwitz Gymnasium, Wesseling, chaperoned by Nicole Landvogt; Ursulinengymnasium Cologne, chaperoned by Julia Seifert.

The **second part** of the school outreach programme asked researchers to give talks at the schools in the Cologne region on geography subjects. Four geographers volunteered straight away. Their job was to visit a school, stand before hundreds of students, present their newest research findings and discuss them with the students.

Professor David Lanegran, Minnesota (USA), held a lecture at the Erzbischöfliches Irmgardis Gymnasium Cologne entitled “Development, Urbanization and Restructuring of the Iron Mining Region of Northern Minnesota and the Related Developments in Detroit”. His enthusiasm for the school outreach programme was clear in advance. As he commented, “It sounds like something that will be both fun and informative. I have heard about Gymnasiums for most of my adult life but did not think I would ever be able to visit one.”

Professor Surinder Aggarwal, New Delhi (India) spoke at the Geschwister Scholl Gymnasium, Pulheim. His talk was entitled “Challenges and Vision for Contemporary Urbanization in the Developing Countries: Experiences from India.” The geography students at the school showed great interest in the topic and asked many questions.

Professor Yukio Himiyama, Kyoto (Japan), Vice President of the International Geographical Union (IGU), talked about the catastrophe of Fukushima and its geographical and personal consequences. The students at the Kardinal Frings Gymnasium, Bonn-

Beuel, were enthusiastic about having the chance to hear expert, first-hand information on the topic.

Professor Lee Boon Thong, a geographer from Kuala Lumpur (Malaysia), held a talk at the Willy-Brandt-Gesamtschule, Cologne-Höhenhaus, entitled “Building Buildings or Building Peoples? Rushing into Urban Development in Southeast Asia”. Like the other talks, this event was well attended and the students were well prepared.

The teachers prepared the students for the event and drafted questions for the podium discussion. Some colleagues from the Department of Geography at the University of Cologne (Miriam Kuck-

uck, Beatrice Müller, Johanna Mäsgen, Elisabeth Gohrbandt, Veronika Selbach and Stephan Langer) provided assistance. The journal *Geographische Rundschau*, published by the Westermann Verlag, supported the event with materials and offered to publish a student report for each talk in upcoming volumes of *Geographische Rundschau*. This was a unique chance for young adults to gain some experience with academic publications.

The feedback on the school outreach programme was extremely positive. The general conclusion was that large academic congresses should seek to include a young audience so as to promote intercultural exchange and geographical education.





2.5

Evaluation of the IGC 2012
Participants' View

EVALUATION OF THE IGC 2012 - PARTICIPANTS' VIEW

Carsten Butsch

Participants' view

At sessions of the IGC 2012 scientific programme (commissions, task forces and the key topics), volunteers handed out evaluation forms to participants. They were asked to comment on the organisation of IGC 2012, its programme, its communication policy and the venue. In total, 652 people – more than a fifth of the congress participants – completed the survey. The percentage of surveys filled out by German participants (just under 42%) was just as high as the share of Germans who participated. The broad spectrum of participant nations was also reflected in the evaluation (Fig. 1). The youngest participant to fill out a form was 17; the oldest was 82. The average respondent age was 38, the median age was 33. 447 respondents work at universities and 10 at schools. 100 were school or university students. 19 described themselves as unemployed. When asked about their highest level of education, 38 indicated A-level, 54 indicated a bachelor's degree, 190 indicated a master's degree, 252 indicated a Ph.D. and 77 indicated a habilitation, i.e. the second thesis typical of the traditional German university system, making candidates eligible to seek tenured professorship positions competitively. 456 of the respondents had a full ticket, 23 had a day ticket, 16 had a two-day ticket and 102 had a student discount ticket. 14 participants were on a school trip; two were accompanying participants.

Respondents were asked to assess the preparation, organisation and implementation of IGC 2012. The results are summarised below according to topic. The overwhelming majority of respondents were satisfied with the pre-event organisation and on-site registration. In particular, the survey confirmed organisers' impressions that the on-site registration proceeded without a hitch. 75% described the on-site registration as "excellent" and 18.4% saw it as "good". The 107 forms without an answer in the

category "online submission system" were probably respondents who did not lead a session and did not give a presentation. All in all, the survey results show a very high degree of satisfaction with the event organisation (Fig. 2).

Figure 3 shows satisfaction with the information system implemented by the LOC. While feedback in this area was overwhelmingly positive, the online site was seen by some participants to be extremely complicated, a fact particularly testified to by the sheer number of related email contacts (see below). Indeed, a transparent, interactive display of such a complex event with hundreds of sessions and lectures as well as other gatherings is a major challenge, and we had obviously underestimated the difficulties encountered by many of those interested in registering. Nevertheless, two-thirds of respondents rated the online presence as good or excellent.

The vast majority of respondents also rated the conference programme proper as successful: the four key topics – conceived by the LOC to supplement the traditional lectures of the commissions and task forces and to open up the IGC for new participants – were experienced by most as a clear enrichment (Fig. 4).

The scientific content of the conference sessions was rated as above average by almost two-thirds of the respondents. The multi-stage selection process and the strict review process certainly played an important role for this outcome (Fig. 4).

As mentioned earlier, all keynote lectures attracted an average attendance of roughly 1,000 people. They clearly represented a new feature of IGC 2012, as their thematic thrust was consistently related to the four key topics. Just short of 80% of the respondents thought that this element was a good or excellent idea. Slightly under 25% of the respond-

ents indicated that they visited none of the keynote lectures. 63% of those who rated the keynotes evaluated the level of the lectures as good or excellent; 16% rated the content as average, while 11% found the lectures bad or very bad (Fig. 5). For a more differentiated assessment, a detailed survey on the individual keynote lectures would have been necessary. But obviously the expectations of some of the participants were not fulfilled. If this particular element of IGC 2012 is to be introduced to subsequent IGU conferences and congresses as well, potentially interested parties could be asked, for example during a pre-registration process, what kind of topics or issues they would prefer.

The respondents rated both the idea and the events of the Young Researchers' Forum as positive (Fig. 6). Because its workshops were not open to all IGC 2012 participants – many were addressed specifically towards Ph.D. students and Post-Docs and had strictly limited class sizes – there were relatively few who responded to this section of the survey. Of the 164 respondents who provided an assessment, 83% found the workshops excellent or good – a sign that the workshops met the needs of the target group. It should be noted, however, that the workshops were booked out fairly early, indicating that demand exceeded supply. As already alluded to, some participants who registered for workshops that began at 8:30 am on Sunday did not show. Obviously, early workshop starts posed some problems for this specific target group.

One of the main pillars of the Cologne LOC's 2004 application for hosting and carrying out the IGC 2012 was to bring it back to an institution of higher education. Holding the event at the university ensured a genuinely academic atmosphere compared to, for instance, an international congress centre. While some disadvantages should not be underestimated (Fig. 7) there were clear organisational and financial advantages. These were, of course, also linked to a second basic strategic choice for IGC 2012 Cologne, namely not to hand over the organisation to a professional event managing company but to rely almost completely on the in-house organisational experience and competence of the Cologne Department of Geography, strongly backed by two colleagues from the Department of Geography, University of Bonn.

At the same time, the venue brought with it numerous challenges. The most obvious problem for participants was the uninterrupted construction work at some sites due to specific constraints imposed on the university administration and its construction division. Parts of the Philosophikum ("PHIL"), the area outside the main building ("MAIN") and Albertus-Magnus-Platz were being refurbished during the IGC 2012, not only leading to clear aesthetic impairments, but also to inconveniences caused by noise. Moreover, and due to recently imposed new fire security regulations, the poster session had to be relocated to a building about five minutes away by foot. These circumstances no doubt explain some of the negative feedback. Despite these less than optimal circumstances, however, the conference venue and the general appearance of the congress were viewed very positively. A recurrent comment by many participants, accompanied by a reassuring smile, was: "Don't worry, most of us work or even live in universities, and that's how it is...". Altogether, the familiar atmosphere, the adornment of the campus with signs, banners, etc. and the many coffee stations helped make the university a great environment for a large congress like this. In addition, the location proper – right in the middle of Cologne and easily accessible by free-of-charge public transport – was rated very highly (Fig. 7).

The coffee station catering was rated very highly by congress participants. In feedback conversations, participants emphasised repeatedly that the stations were an important place for talk and close interaction and exchange with other participants, thus a key plus point (besides making outside eating during the day almost unnecessary). Their comments were reflected in the evaluation. 86% of participants rated the quality and quantity of food and beverages as either good or very good. The reaction was somewhat less enthusiastic when it came to the diversity of food at the coffee breaks. But all in all, refreshment planning and execution were seen as a success (Fig. 8).

The final section in the survey asked participants how they experienced the IGC 2012 staff as a whole. The responses were very positive. Respondents appreciated the friendly demeanour of the volunteers and the department staff. For many participants, the volunteers were the face of IGC 2012 – a role that the 195 committed student volunteers assumed

enthusiastically. 84% of participants assessed their conduct as “excellent”; 13% as “good”. The atmosphere during IGC 2012 was seen as “good” (48%) or even excellent (44%). 75% of those who participated in the social and cultural programme rated it as positive; 21% saw it as average; 4% were dissatisfied. 80% of those who participated in the excursions saw them as positive; 15% as average; 5% were dissatisfied (Fig. 9).

The overwhelmingly positive feedback provided by the respondents confirmed our own positive impressions. However, the surveys also confirmed the criticisms discussed by the LOC during and after IGC 2012, some of which will be discussed in more detail in the next paragraph. We hope that this report and evaluation can help the IGU Executive Committee and the organisers of future IGCs better adapt to the expectations of our worldwide geographic communities.

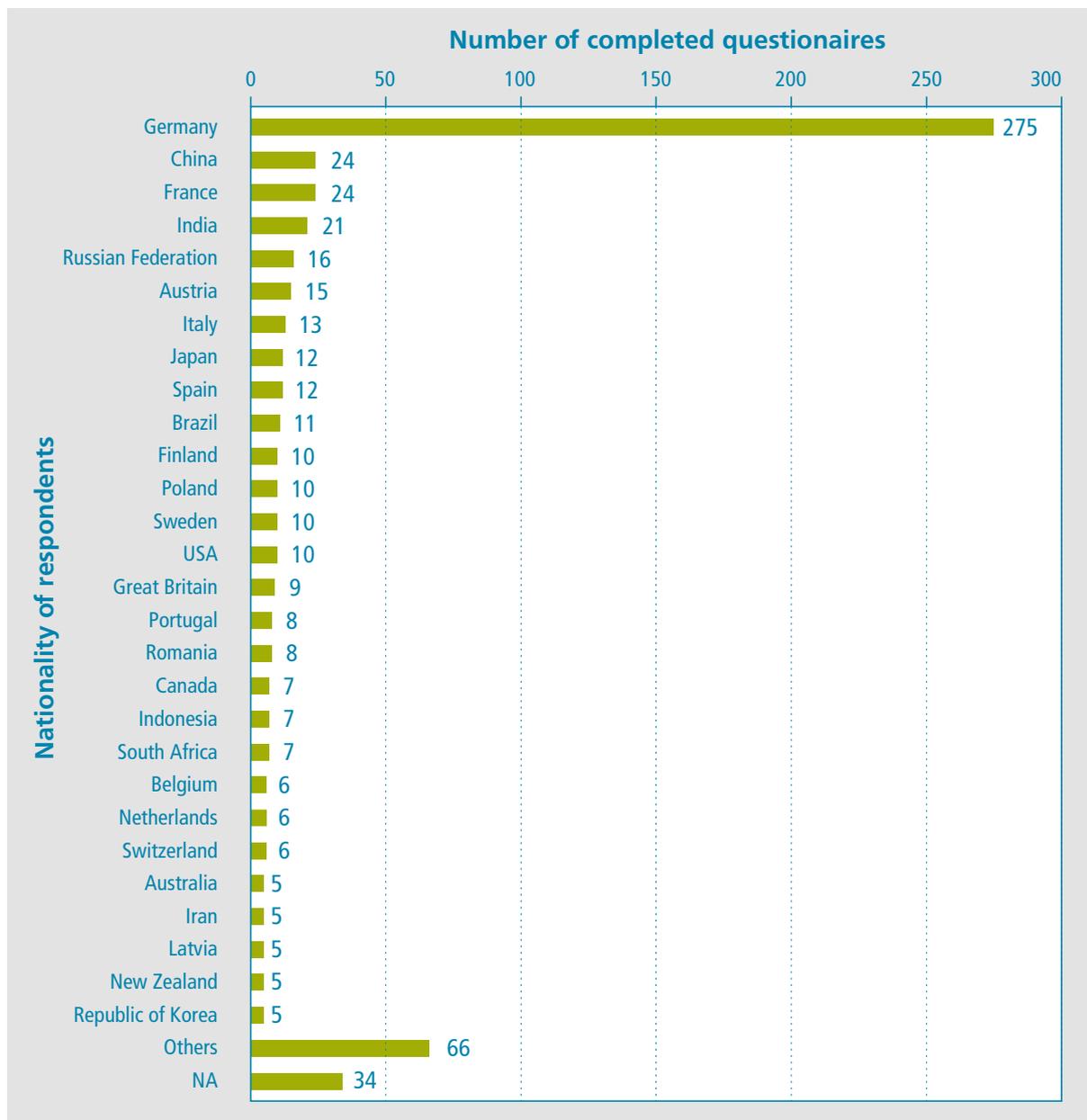


Fig. 1: Number of completed questionnaires according to nationality of respondents

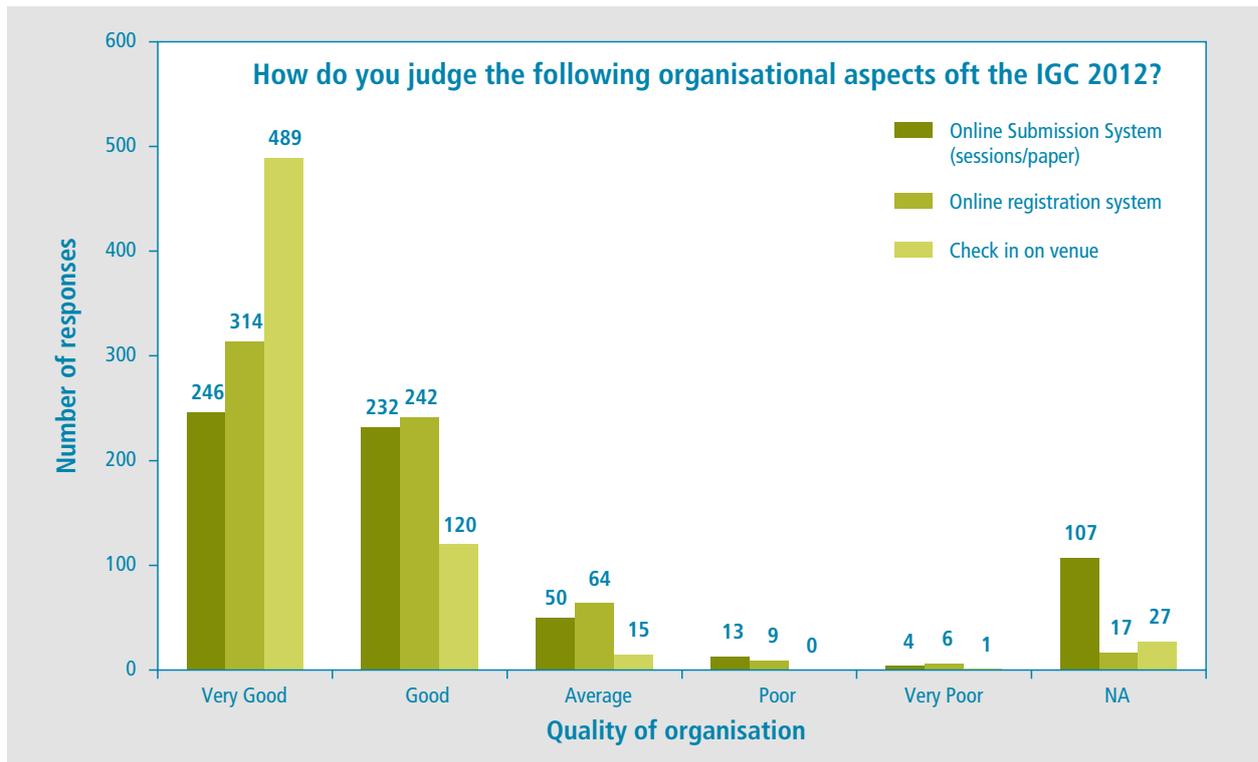


Fig. 2: Assessment of organisational aspects

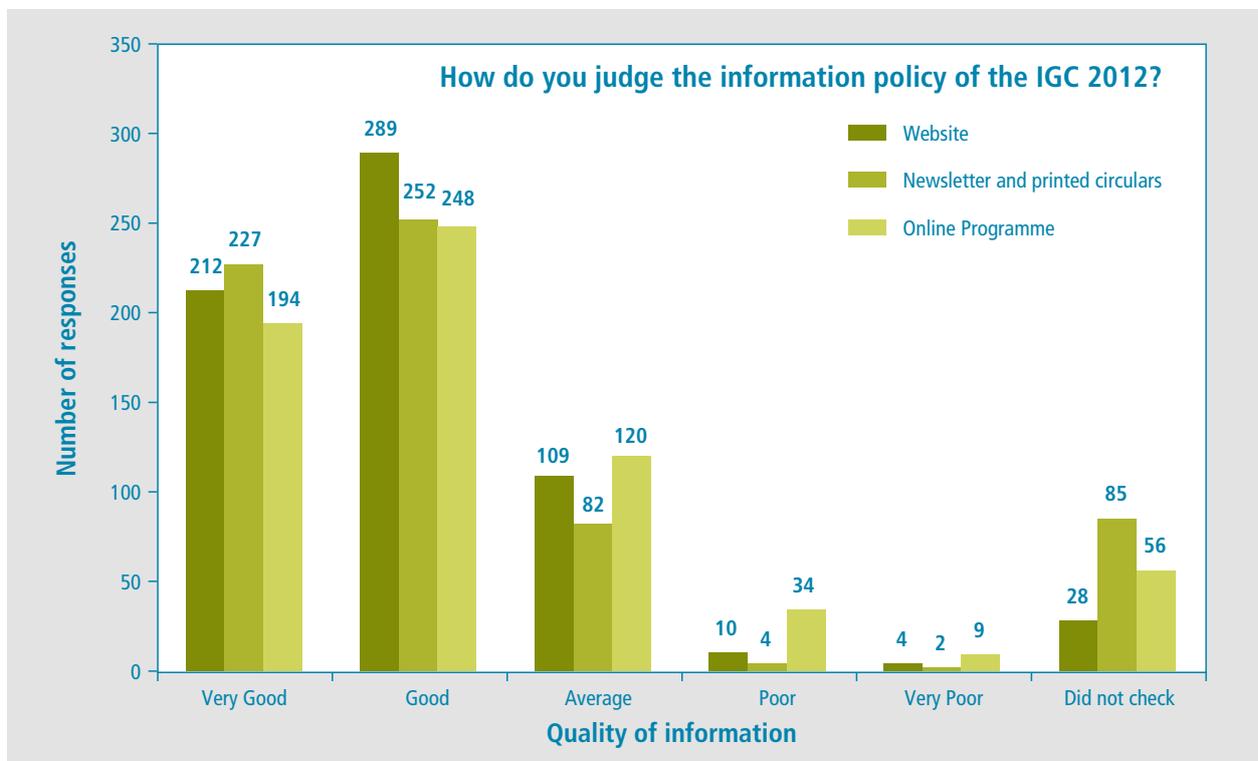


Fig. 3: Assessment of the information policy of the congress

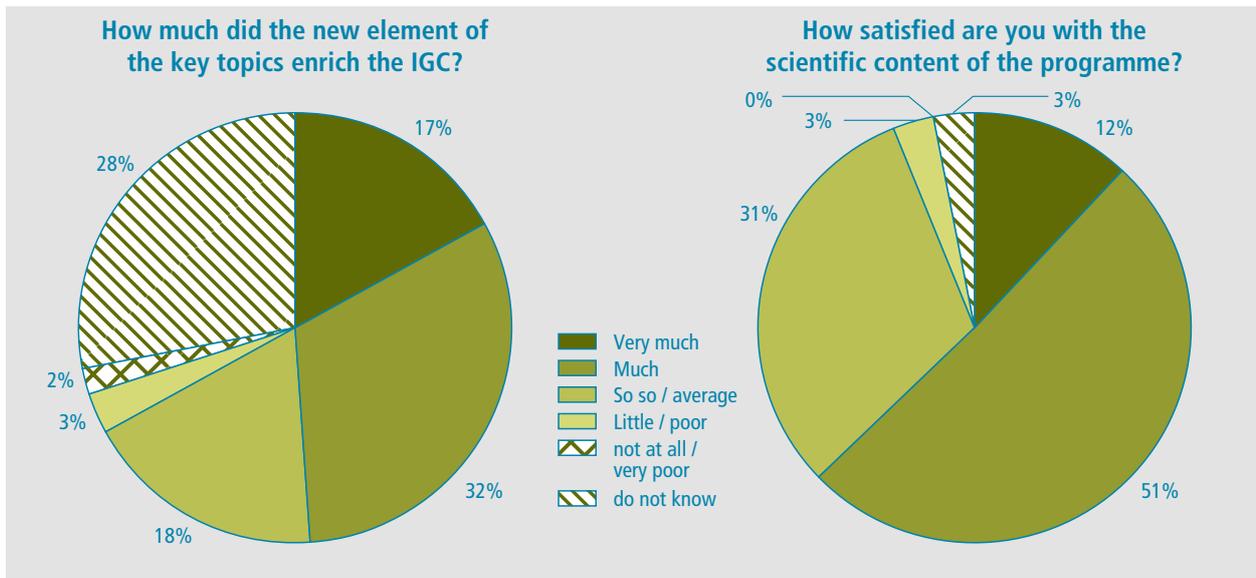


Fig. 4: Assessment of the conference programme

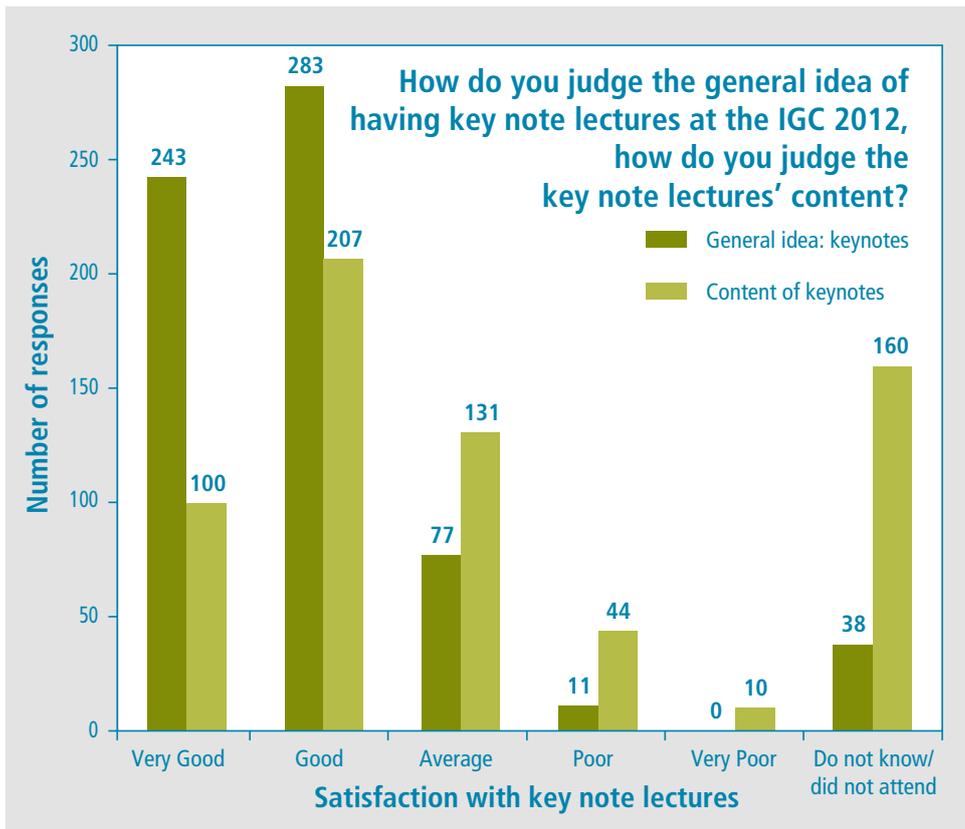


Fig. 5: Assessment of the keynote lectures

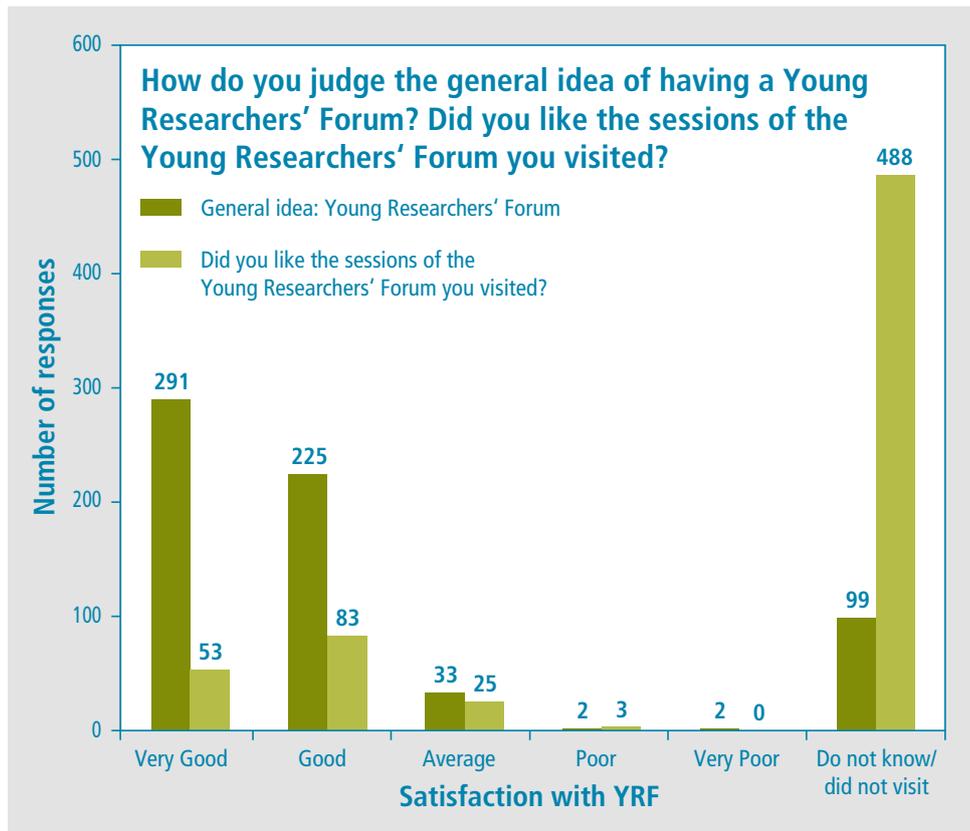


Fig. 6: Assessment of the Young Researchers' Forum

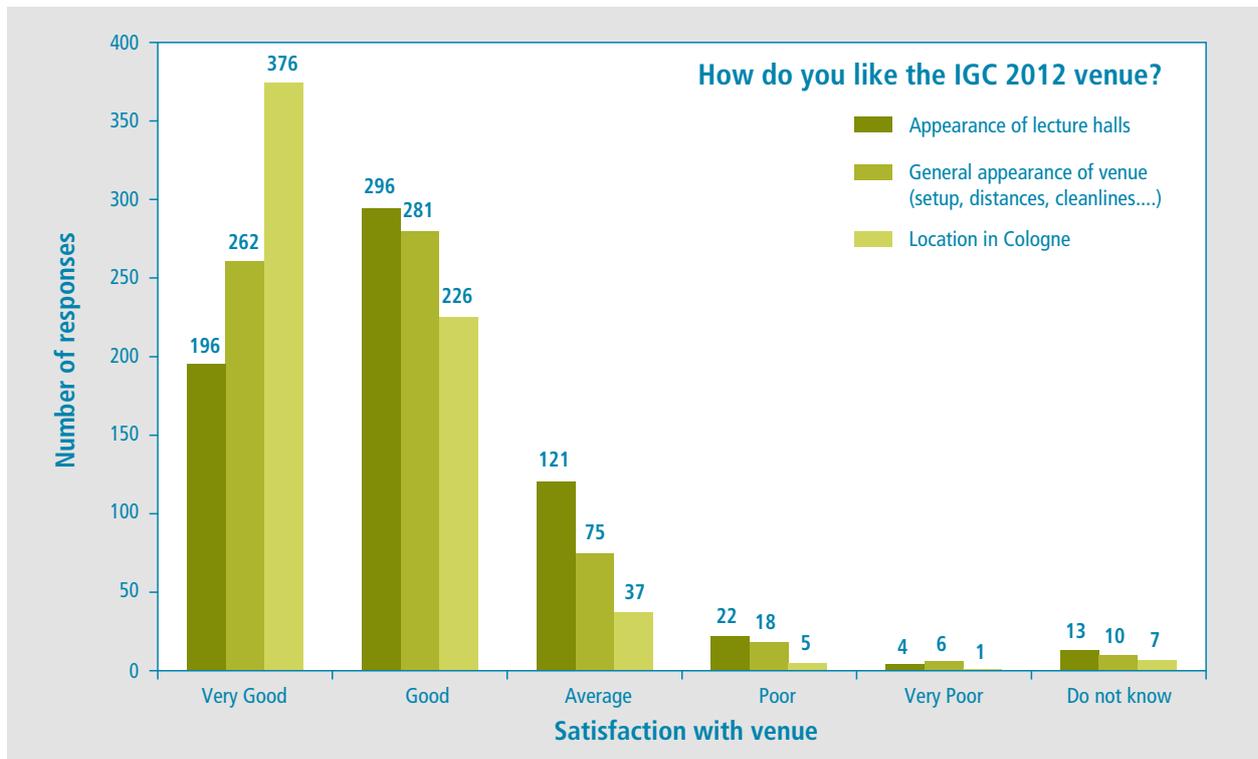


Fig. 7: Assessment of venue

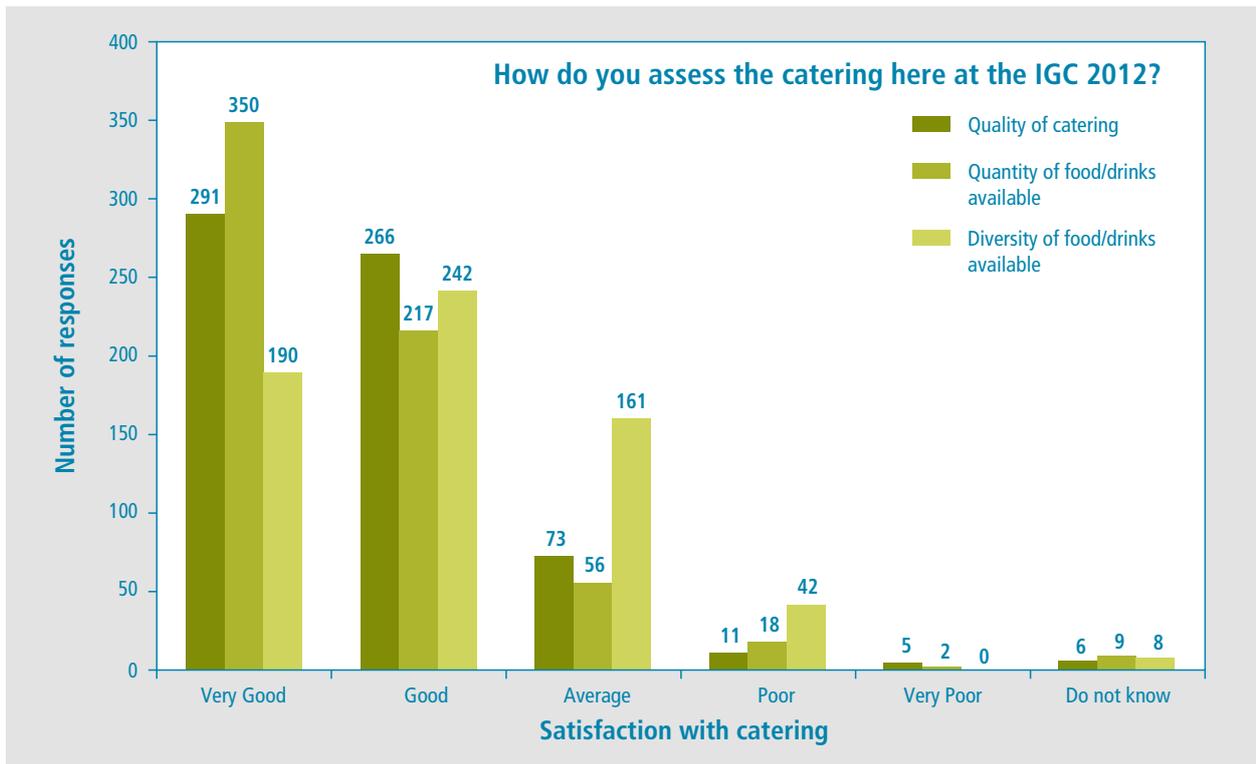


Fig. 8: Assessment of the catering

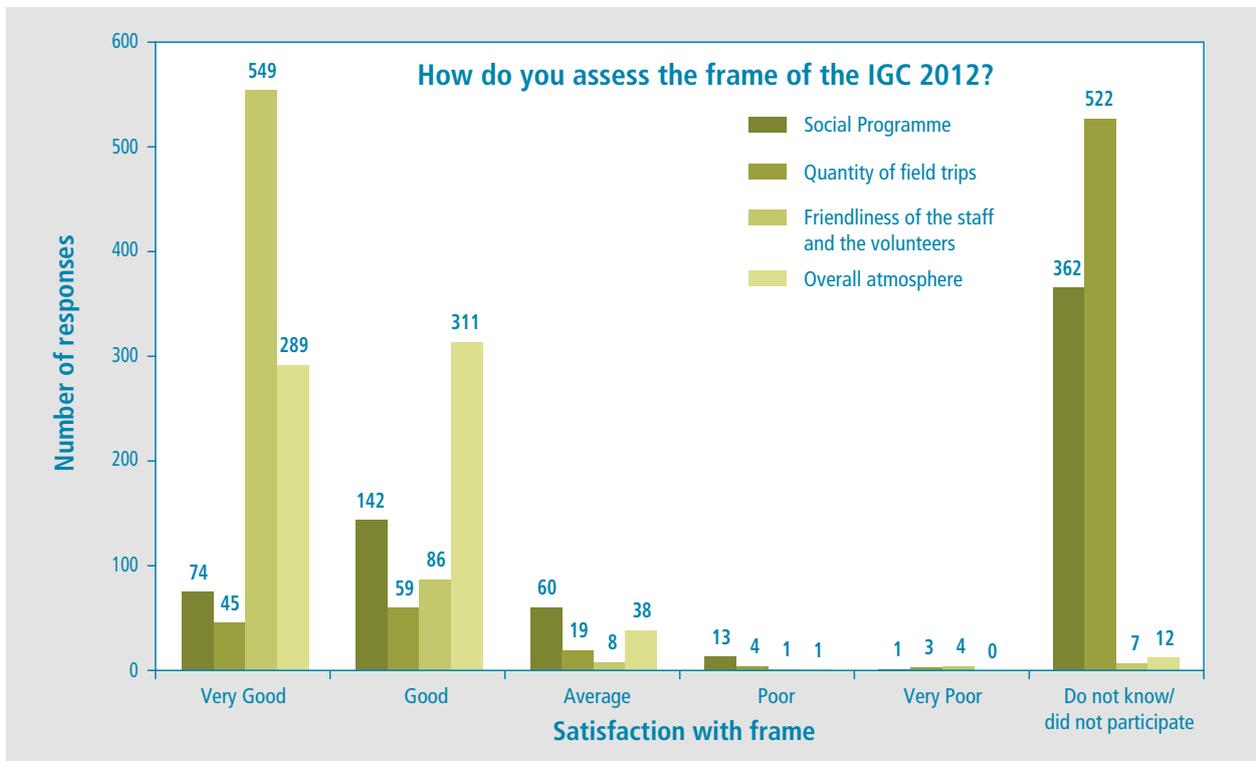


Fig. 9: Assessment of the IGC 2012 frame





2.6

IGC 2012 - Organisers' View

IGC 2012 - ORGANISERS' VIEW

Dietrich Soyez

To begin with, it is very important to stress that the great variety of both strategic and practical decisions as well as of selected approaches eventually chosen by the Local Organising Committee (LOC) had been influenced by several of its members' earlier experiences as to the organisation of larger congresses and conferences, for example biannual meetings of German geographers (with attendance numbers approaching those of the traditional IGCs). These meetings, however, were predominantly national gatherings. But all LOC members also had broad experience as participants and observers of a large variety of international meetings worldwide, not only in IGU and AAG geography contexts, but also in other disciplines. It is quite different, however, to act as an organiser hosting a wide variety of nationals from all over the world. We were aware of the fact that this would present a particular challenge.

Against this backdrop, we readily admit to having learned a lot from IGU Regional Conferences since the 1990s and, in particular, the IGC Seoul 2000, Glasgow 2004 and Tunis 2008. When we were intensifying our preparation of the submission to the IGU EC from 1999 to 2004, even more so after the IGC 2012 had been awarded to Cologne in Glasgow 2004, our sensitivity for particular settings and issues had increased considerably. To mention all those institutions, officials and individuals that influenced our conceptions and levels of awareness up to that point is almost impossible. We are particularly grateful, however, to those members of the German geographical community who helped us in a variety of meetings prior to 2004 to set the goals. In these early preparations, one event stands out: an intensive discussion with some 30 geographers from all over Germany (mostly officials and members of the German Society for Geography/DGfG and the Association of Geographers at Universities/VGDH), hosted by the Department of Geography, University

of Bonn, on 6 February 2004. The meeting was organised jointly by the small group of the Department of Geography, University of Cologne, as a matter of fact a kind of pre-LOC, which was in the process of preparing the application proper for hosting IGC 2012: Frauke Kraas, Christian Schulz (now University of Luxembourg) and Dietrich Soyez, the last two mentioned also forming the German National Committee of the IGU from 2000 to 2004 as Secretary and Chair respectively. Many of the ideas and suggestions discussed during this meeting in Bonn were integrated into the draft application (presented together with the delegations of the two competitors, Beijing and Santiago de Chile) at the IGU Executive Committee meeting in Helsinki on 4 April 2004. Taking into consideration the EC's critical remarks and positive suggestions, the final application was submitted to the IGU Executive Committee prior to IGC UK 2004 Glasgow. There, the main thrust and approaches for an IGC 2012 Cologne were presented orally by Frauke Kraas and Dietrich Soyez to the IGU General Assembly on 18 August 2004.

After the positive vote for Cologne in Glasgow, Lorraine Craig (Congress Co-ordinator/RGS-IBG, London, today Imperial College London) played a particularly important role. We had the privilege of welcoming her to Cologne only a few months after the IGC Glasgow 2004 and she generously shared her experiences with us, both the good and the problematic ones. Her ability to read the Glasgow event and its underpinnings as well as its organisational set-ups and procedures made us highly aware of how to approach our own organisational tasks. She deserves our sincere gratitude.

Despite these intense periods of preparation and the advice coming from both the domestic and international communities of geography, the organisation of IGC 2012 Cologne involved many surprises and un-

expected challenges that we attempted to cope with more or less successfully. The most important issue, however, overshadowing almost the entire preparation process, was the highly unpredictable risk linked to all financial calculations and procedures connected to such an important endeavour at such a distant date in the future (a perspective of 8 years for IGCs). Careful planning and constant updating of all elements concerning assured, probable and unforeseen revenues and expenses is necessary and helpful, to a certain degree at least. But this does not eliminate the vagaries of context trends and events, not to mention the intricacies connected to and caused by both strategic and ad hoc decisions in an interdependent network of involved institutions, groups and individuals. While these, and the sometimes controversial discussions on how to cope with them, characterised both internal (inside LOC and the University of Cologne) and external relations, only the latter will be addressed here as far as domestic and international geography communities are concerned. Some of the more problematic aspects have been alluded to already, but they will briefly be put in their larger contexts in the following section. One remark, however, is of particular importance: there is no attempt to provide recommendations for future events. Not only are some of the issues described below either typical for contemporary German contexts, or at least influenced by them, but we also trust that the critical readers will be able to draw their own conclusions on the basis of the facts and reflections presented. From the local organisers' point of view, the main issues that deserve special attention are described in the following section.

Communication

The single most important reason for an unexpectedly high workload was the number of email exchanges, in particular during specific peaks connected to new announcements as well as prior to and just after deadlines and notices. With the ambition to guarantee an efficient handling of contacts and queries, LOC members had the intention of responding to every email within 24 hours. While this worked well in some periods during the last year prior to the congress, it became impossible during the peaks mentioned above. During early spring 2012, two more staff members had to be hired, mostly just attempting to cope with this flood of emails and

calls, which in peak periods easily totalled up to several hundred contacts a day, many of which were 'autoreply' messages - but they had to be opened anyway. In answering this flood of communication, the 24-hour rule was impossible to uphold, and a no-reply address for many emails was established in order to make the barrier to an immediate reaction higher.

Several brief comments are necessary at this point. In hindsight, one of the reasons for this totally unexpected flood of emails was certainly that some of our texts were too long, perhaps not exactly to the point, and consequently not immediately clear to colleagues who were not native English speakers either. Obviously, however, many of the reactions and questions simply demonstrated that texts longer than a few lines were not carefully read, with questions immediately being submitted in emails, although the answers were already in the texts. The same was true for information published on our website: in certain periods, hundreds of emails arrived asking questions about details that had been made perfectly clear on the website.

Another special move apparently led to misunderstandings, namely the LOC's offer to interested parties to pre-register as soon as the IGC website was put online. While our intention was to create a convenient channel to keep in touch and to better and regularly inform participants about the continuous unfolding of our organisational work (and clearly stating that a pre-registration did not lead to any commitments), this fact was probably not communicated in a comprehensible way for many and necessitated many queries and responses.

Finally, it has to be underlined that good relations between the LOC and the IGU Executive Committee were of the essence, underpinned, of course, by good communication routines and smooth cooperation. As this is a particularly important point, the next paragraph will be dedicated exclusively to this topic.

LOC - IGU Executive Committee

Immediately after Glasgow 2014, the idea was discussed to have one member of the LOC run for a position of Vice President during the last four years prior to the IGC in order to ensure close consultation

with, and smooth cooperation between, the Executive Committee and the Local Organising Committee. Thus, in late 2007, Dietrich Soyez (past Chair, IGU National Committee of Germany) was asked to run and was elected EC Vice President by the IGC Tunis 2008 General Assembly. As previously stated, this certainly contributed to the fact that Cologne LOC's relations with the Executive Committee were excellent. The importance of a position in the EC from a German point of view is documented by the German Research Foundation's (Deutsche Forschungsgemeinschaft) decision to award a generous annual grant from 2008 to 2012 to cover the costs incurred in the context of IGU events, meetings and activities that were regarded as necessary for the German representative's function in the EC.

Now, focusing on the relations proper between the LOC and the EC, it must be emphasised that there was a clearly underestimated and almost insurmountable structural problem, namely the extremely variable meeting frequency of the two parties. Whereas the LOC would meet, at least during the last two years or so prior to the congress, once a week and sometimes more often, the EC normally has two meetings per year where face-to-face discussions and quick decisions are possible. The stream of decisions to be made, however, is almost continuous. It thus goes without saying that this split almost inevitably leads to a suboptimal coordination of the consultation and decision-making processes, often leading to unintended delays, postponements or, in the worst case, even non-decisions that later cause problems and, in some cases, clearly divergent views.

This is why some frank comments might be helpful for external observers: while relations between the LOC and the EC were characterised by both genuine trust and, whenever needed, strong support, the four years of close interaction were not without difficult moments for both parties, as there were some situations of dissent or even controversy in which trade-offs had to be negotiated. Some of these seem inevitable in hindsight, as every local organiser must indeed strive for an IGC that bears the clear imprint of local (and national) contexts and preferences. Others, however, were caused by technical and procedural errors that were not recognised early enough or were communicated inappropriately.

Here, it will suffice to mention three facets. The first and most important one relates to the LOC's decision to establish a second pillar besides the traditional and sole focus on IGU commissions and task force activities, i.e. the key topics. For some time, the impression emerged in segments of the international geographical communities generally, and the commissions and task forces as well as the EC specifically, that - even unintentionally - the Cologne activities might potentially be leading to detrimental effects on the traditional backbone of the IGU: commissions and task forces. This perception may have been reinforced by a clear procedural split that was caused by the Cologne intention to increase competitiveness with regard to the key topics: while chairs of commissions and task forces traditionally have the sole right to choose session topics, this task was handed over completely, i.e. without interference of the LOC, to a carefully selected and independent International Scientific Committee that evaluated submitted key topic session proposals. The ensuing high rejection rate of papers submitted to the key topic sessions (raising considerable discussion from those colleagues not accepted) furthermore gave the impression to some critical insiders and observers of a highly problematic split in crucial procedural approaches within the same event. It became obvious that the Cologne LOC had underestimated this perception or miscommunicated its intentions. More intense internal and external communication as to these issues (and the underlying reasons) alleviated most concerns with the clear effect that the significant innovation of the traditional IGC approach in Cologne was regarded as strongly contributing to the event's success.

Two more critical aspects arose from misunderstandings: firstly, the fact that an updated Memorandum of Agreement draft, i.e. the document regulating mutual responsibilities of LOC and EC with regard to the organisation of the IGC, was not finalised and signed in due time; secondly, new regulations concerning the organiser's financial contributions to iGeo (Geographic Olympiad), the result of a General Assembly decision in Tunis, were not duly noticed by the Cologne LOC - nor specifically communicated by those involved. In both cases, solutions were negotiated, but it is now clear for any future LOCs how such problems can be solved easily.

Excursions

Based on the experience of several LOC members at earlier IGU gatherings, those field trips offered were generally well accepted. However, we thought that they should receive a much greater significance during IGC Cologne 2012, as this particular detail of geographic education and practice has traditionally played a crucial role in German geography. We were aware of the fact that many well-established geographers from all over the world had already been to Germany both on business and private trips, but against the backdrop of our intention to clearly increase the number of younger participants, it was thought that a comprehensive range of shorter and longer trips, both in physical and human geography, offering insights into many regions and issues would represent another Cologne asset. Our younger colleagues in the LOC, however, made it clear that from their point of view, the meaning, significance and attractiveness of field trips was not only critically discussed in the discipline (not least in Germany), but that their own preferences, and consequently those ascribed to their peers arriving from abroad, were quite different. Therefore, the offers made in the final program constituted a clear trade-off without, however, any more consistent attempt to obtain a more general feedback from the international geographical communities as to what kind of field trip offer would meet their expectations. Such a 'survey', for instance, would have been possible during what we called the (non-committal) pre-registration (see also below).

As it turned out, LOC's younger members had the right premonition: as documented in chapter 2.2, only half and whole-day field trips were chosen, and much fewer than offered, and multi-day trips raised so little interest that all of them had to be cancelled, causing quite a disappointment affecting the whole LOC.

As there was no time for a more systematic approach to documenting the underlying reasons for this miscalculation, no clear conclusions are possible. Some feedback, however, was given, leading to quite a complex picture, for example:

- Costs: the congress as a whole, although much less expensive than other comparable gatherings, constituted quite an investment for many participants, in particular if connected with long-distance travelling from regions of the world with quite unfavourable currency exchange rates; consequently, the willingness to spend even more was limited, and, apparently, the (carefully calculated) rates charged for multi-day trips were also considered too high.
- Time: current workloads, both in public educational institutions and the private sector, have increased considerably, exacerbated during the last couple of years by the seemingly ever rising pressure emanating from ratings, evaluations, changing student-teacher ratios or budget cuts, all of this leading to reduced possibilities for travelling, in particular with regard to such 'broadly themed events' as IGU meetings, as opposed to dedicated specialist meetings (see below); furthermore, it was obvious at IGC Cologne as well that an increasing number of attendees no longer stay during the whole congress, but only come to particular sessions or, in extreme cases, exclusively for their own papers to be delivered.
- Specialisation: contemporary constraints in many university systems (see above) now push many colleagues to prefer highly specialised meetings where a direct exchange with their peers is regarded, scientifically and socially, as much more efficient in view of knowledge extension and career paths; and, what is more, high specialisation with regard to cutting edge research questions results in regional interests increasingly disappearing, leading to ever more geographic communities and curricula in which regional geography becomes all but negligible.

Visa

An additional amount of work was repeatedly caused by problems and (often repeated) queries as to visa application and issuing, some of them handled urgently by phone just a few days prior to the congress. An important reason has to be seen in the perception of foreign attendees that the LOC, by way of direct contacts with the responsible authority in Germany, Auswärtiges Amt/Federal Foreign Office (Berlin), would be able to appeal to the authority in order to reverse unfavourable decisions. This, however, was a misconception, as the consular sec-

tions of German embassies abroad are completely autonomous in their handling of visa applications. Additional problems arose in some countries due to the fact that access to embassies is controlled either by domestic authorities (for example a police check post) or external service providers not able to understand official letters or instructions issued by the embassy, thus even refusing access to the consular section if the latter's officials had invited the applicant to visit them.

A completely unexpected barrier was erected by German consular officials abroad trying to discourage potential illegal immigrants from Asia, Africa or South America: checking the IGC program and realising that the predominant language of almost all presentations and other events was English, they attempted to find out the level of applicants' command of English - and refused, in some cases, visas to native speakers of French or Spanish who were perfectly able to understand English but had difficulties speaking it fluently. Long, sometimes heated, long-distance phone discussions and email exchanges with both applicants and embassy officials were the result.

Some of these difficulties may be the reason for the fact that some of the duly registered participants were not able to make it to Cologne.

No-shows

A recurrent problem of not only IGU Regional Conferences and International Geographic Congresses, but almost any larger academic gathering has been, and often still is, the rate of papers that are not, or cannot be, delivered as planned. This is why the Cologne LOC attempted, from the beginning, to adopt procedures to reduce the number of these embarrassing events. Compared to many other international meetings, the overall Cologne figure of 11,9% non-delivered papers is quite positive. While this is inevitable if specific health conditions, family events or travel irregularities are involved, there is another facet that is clearly documented in the Cologne case even if the LOC restrained from quantifying it: persons not delivering their accepted papers duly registered during the congress and often also seen on certain days or events, but subsequently leaving for official duty or private pleasure in Germany

or elsewhere. This reveals an unacceptable attitude, not only towards those sitting in the session and waiting for the speaker, but perhaps even more so with regard to those persons with acceptable paper proposals who were not selected after the general call or who were on the waiting lists and hoping, until the very last days, to receive notice that they could present their paper due to a cancellation. Unfortunately, there seem to be few ways of addressing this behaviour other than urgent appeals prior to the congress to anybody considering not presenting his or her paper to cancel officially.

Currency rates

Unexpectedly, some discussions and irritations were caused by currency rate fluctuations, a problem that arose in cases of reimbursements, some of which had to be made months after quite considerable downpayments. Unfortunately, the LOC had not included a provision regarding currency fluctuations in its General Terms and Conditions of Registration, made public on the IGC website.

Public relations, press work

The press and publicity work was directed both at the participants of the congress and at the general public and journalists. For the participants, for example, 2,000 copies of the daily newspaper were produced every day throughout the period of the congress (see appendix). In order to inform the general public on the local, regional and national levels, press releases were made and specific contacts to representatives of the media were established. In order to enable background discussions between journalists and scientists, the Press Breakfast was held on the first day of the congress, at which interview partners were explicitly brought into contact with one another.

It became evident that for a more far-reaching success of the press and publicity work, it would have been recommendable to begin earlier. It would have been particularly good to have had more time for the assembly of the journalist contact database and to have been able to carry out more personal, preparatory discussions with journalists. From the point of view of the hosts, it would also have been advanta-



geous to have highlighted stronger thematic emphases with current relevance and concrete examples. This would certainly have been well received by the media representatives.



2.7



Financial Report

FINANCIAL REPORT

Wolfgang Schmiedecken

In the course of the planning process, it was clear from the beginning to the organisation team Local Organising Committee (LOC) of the Department of Geography of the University of Cologne, as the host of the International Geography Congress 2012 (IGC), that the organiser of the event, the German Society of Geography (DGfG), being a non-profit scientific association, would not be able to compensate for a massive negative error in the financial planning. This fact gave rise to the specification that the immediate costs of the congress were to be covered by the participant fees and, if possible, by donations and sponsorship. However, an agreement was made in 2004 with the DGfG and its subsidiary organisations, according to which a total of € 52,500 was made available to the LOC in its preparatory phase from 2008 onwards in order for it to remain solvent leading up to the payment of the first participant fees; this figure, however, was to be repaid if profits allowed.

In accordance with these specifications, the following questions had to be answered, at least with estimates, at the beginning of the planning process:

- How many participants can be expected?
- What effect will the size of the participant fee have on the number of participants?
- What should the participant fee cover, i.e. what can participants expect to receive for their fee?
- What other events “connected” to the IGC must be included in the calculation and possibly “horizontally” financed?
- What proportion of the total calculated budget should not be exceeded by the individual expense areas – personnel costs, rent, publicity, fees for invited guests and guest speakers, congress management, social activities programme etc.?

In the course of deliberating upon and answering these questions, the LOC could assume the following:

- Personnel costs would only be incurred to a limited extent, since the University of Cologne and the Department of Geography consider the IGC, a large international congress, to be a high priority and would make funds available to the LOC for academic staff encompassing 180 half months distributed among five people with varying tenures over a four-year preparation and a six-month post-processing period. Once again, many thanks goes to the University of Cologne as well as the Department of Geography and their professors.
- Because the congress was to take place in the rooms of the university - “Down to Earth” - there would only be minimal costs for rent, cleaning, security etc. which needed to be considered in the calculation.
- In accordance with the pledge made in the application, the participant fees for fully paying attendees were to be kept well under USD \$500.

On the basis of these considerations, an initial (and very preliminary) calculation of income and expenditure was made in December 2008 based on 1,200 participants paying a fee of € 300 per full-price ticket and € 150 per student ticket. This produced a figure of € 290,000 in income from participant fees and a grant from the DGfG of (at that time) € 40,000. A goal of € 580,000 in proceeds was formulated, however, which included an additional grant from the German Research Foundation (DFG) of € 52,000, sponsorship totalling € 150,000, proceeds from an exhibition fair of € 35,000, along with a further grant from the association of € 12,500.

In terms of expenses, a total figure of € 330,780 was arrived at, although this did not include the cost of the opening ceremony (the location of the ceremony had not been determined at this time), a possible horizontal financing of the Schools Olympiad iGeo, or the costs of subsidising any excursions which might be offered.

These calculations of income and expenditure were regularly revised in the following months and adapted to the actual circumstances. From 2010 onwards, parallel calculations for 1,500 and 2,000 participants were also made, since by that stage, numerous enquiries and responses were indicating a widespread acceptance of the congress in Cologne; in addition, sponsorship was reduced, and from May 2011, it was possible to calculate more exactly the expected income from the participant fees, once these had been finalised by the LOC (Tab. 1).

The costs for the optional social activities programme and the desired excursions were also to be covered by participants.

On 2 November 2011, the first participant fees could be registered. From this point onwards, the planned/expected income and expenses were replaced step-by-step with the actual amounts (Fig. 2).

The registration of participants occurred, as expected, in waves, as the following diagram clearly shows. The first peak was reached at the end of the Early Bird period (15 April 2012), the second peak on 31 May 2012 (the end of the final registration for contributors), and the third on 15 July 2012 (the end of the online registration period).

A total of 500 registrations was reached on 23 March 2012, 1,000 on 9 April 2012, 1,500 on 1 May 2012, 2,000 on 31 May 2012, 2,500 on 6 July 2012. The 2,864th and final participant registered on 30 August 2012.

The invoices arriving after the end of the congress – a total of 1,461 transactions were carried out via the account of the congress between 17 August 2008 and 15 December 2013 – could be paid for the most part before the end of 2012.

However, it has not yet (on 15 December 2014) been possible to reach a full conclusion, since further payments (Tax Office, DFG, printing of the congress report, ...) are still to be made. Table 3 is thus only preliminary. Nevertheless, it can safely be said that from the point of view of the congress host concerning the financing, the goals set at the beginning of the planning phase have been more than reached.

	EARLY BIRD		NORMAL		ON-SITE	
	Full-price	Day ticket	Full-price	Day ticket	Full-price	Day ticket
Participant	295	./.	350	110	400	130
Doctoral Student	145	./.	175	60	200	70
Student	100	./.	120	40	140	50

Tab. 1: Congress fees (in €)

	INCOME	EXPENDITURE	BALANCE
Grant & Repayment - Association	52,500	15,000	
Preparatory Workshop (Income: Grant DFG)	12,300	18,000	
Grant DFG for Congress	52,500		
Participant Fees	485,000		
Exhibition	32,000	25,000	
Donations / Sponsorship	5,000		
Publicity & Documentation		34,000	
Executive Committee & International Geographical Union		45,000	
Rent, Rental Furniture and Equipment, Insurance & Security		64,300	
Congress Travel Costs		20,000	
Opening & Closing Ceremonies incl. Music		15,000	
Congress Office incl. Travel Costs		19,400	
Congress Management & Credit Card Booking		68,500	
Equipment for Participants (Conference Programme etc.)		44,800	
Catering for Participants		60,000	
Volunteers		45,000	
Social Activities Programme (Mayoral Reception, Conference Dinner)		10,000	
Schools Olympiad iGeo		Not calculated (in = out)	
Symposium „School“		Not calculated (in = out)	
Young Researchers Forum		10,000	
Excursions		Not calculated (in = out)	
Tax Advisor		5,000	
Tax Office & Bank		10,000	
Sum	639,300	509,000	130,300

Tab. 2: The last calculation draft dated from December 2011; according to this, the following income and expenses were planned based on a figure of 2,000 participants (in €)

	INCOME	EXPENDITURE	BALANCE
Grant & Repayment - Association	52,500	52,500	
Preparatory Workshop (Income: Grant DFG)	12,300	17,928	
Grant DFG for Congress (Expenditure primarily for Rent)	60,000	60,000	
Participant Fees	541,583		
Exhibition	42,693	33,790	
Donations / Sponsoring (not including Material Donations)	1,750		
Publicity & Documentation		92,805	
Executive Committee & International Geographical Union		22,033	
Rent, Rental Furniture and Equipment, Insurance & Security		11,264	
Congress (Travel Costs & Equipment)		37,477	
Opening & Closing Ceremonies incl. Music		13,102	
Congress Office incl. Travel Costs		21,315	
Congress Management & Credit Card Booking		40,633	
Equipment for Participants (Conference Programme etc.)		48,647	
Catering for Participants		54,693	
Volunteers		92,797	
Social Activities Programme (Mayoral Reception, Conference Dinner)	15,720	22,223	
Schools Olympiad iGeo	75,879	81,403	
Symposium „School“ (Income: Participants)	12,660	456	
Young Researchers' Forum		3,330	
Excursions	4,374	3,643	
Tax Advisor		4,724	
Tax Office & Bank		6,961	
Sum	808,959	721,224	87,735

(As of 15 Dec. 2014)

Tab. 3: Income and expenditure of the IGC 2012



2.8

Acknowledgement

THANK YOU

Local Organising Committee of the IGC 2012

In this chapter, the Local Organising Committee of the IGC would like to thank those people who worked on the organisation and realisation of the IGC 2012 and those who made the congress possible through their financial support. In his speech at the closing ceremony, the Secretary General Mike Meadows compared the IGC 2012 to a swan, painting a very aesthetic picture as it glided majestically over the water. The perfection and grace of this picture on the surface corresponded with hard work underneath the surface – the tireless paddling of the swan which usually remains hidden from the observer. In the following section, we wish to thank those who carried out this hard work.

One essential pillar of support for the LOC was the Congress Office, which was formed at the beginning of 2012 and grew in terms of personnel throughout the year. From the beginning of the year, Patricia Schnettler took over the external communication of the LOC and answered the emails of our participants with great patience. She processed emails and telephone calls conscientiously, professionally and with great patience, even in times of considerable stress. She also managed the check-in counter during the congress, where she could also always be relied upon to retain an overview. From May, Tine Trumpp provided added support to the team and dedicated herself with patience and devotion to the areas of conference support, finances and excursion support. During the IGC 2012, she took care of the cash register and solved all problems concerning payment on site. The third team member to provide additional support was Michael Nolden, who took responsibility for the deployment plans of the volunteers, coordinated the drivers and along with a small group of volunteers formed a “quick response team” which solved all the large and small problems during the IGC.

In the months before the IGC 2012, numerous employees of the Department of Geography helped in the organisation of the congress. Without them, the IGC 2012 would not have been possible in this form – without external service providers. The employees took on individual sections of the task in small teams, each responsible for themselves, with a member of the LOC participating in each team in order to ensure that all the necessary information came together in the LOC. The employees were involved in the following ways:

Alexander Follmann took responsibility for the organisation of the volunteer programme. Andreas Bolten, Florian Wilken and Norbert Grötsch (from the Geographical Institute of the University of Bonn) covered the planning, installation and support of the technical infrastructure.

Iris Hindersmann and Katrin Matern helped in the planning of the signage concept and managed the packing of the congress bags. Regine Spohner and Ulrike Schwedler were responsible for the signage concept and designed all the site and room plans. They also took responsibility for the production of the signs (even during the congress) in the cartography section of the office. Tim Reichenau and Florian Steininger were also involved in the planning of the signage concept and invested a great amount of time hanging up the signs throughout the entire campus.

Harald Sterly was heavily involved in the preparation and implementation of the Young Researchers' Forum and helped with the evaluation during the IGC.

At the registration and the information stand, Gerrit Peters, Birte Rafflenbeul, Megha Sud, Zhang Yingmin and Brigitte Beracz willingly gave congress participants information and helped in the solving of practical problems.

The organisation of the coffee stands was undertaken by Beate Forthmann, Daniela Hülle, Claudia Müller-Engels, Marie Pahl and Petra Tiller, who also took care of the gastronomical needs of our visitors throughout the entire congress.

Andreas Janotta and Verena Dlugoß took responsibility for the proper execution of the publishers' exhibition.

The very time-consuming compiling of the programme booklet and the book of abstracts was undertaken by Juliane Bendig, Martin Gnyp, Nora Tilly, Ulrike Schwedler, Regine Spohner and Veronika Selbach.

Support of the keynote speakers, including the communication in the lead-up to the congress, the clearing-up of technical issues and the presentation were taken care of by Boris Braun, Amelie Bernzen and Alexandra Hilgers.

The organisation of the poster sessions – from the handling of the abstracts to the communication with the poster authors and the organisation of the catering – was covered by the work group led by Helmut Brückner (particularly Max Engel and Matthias May), Tabea Bork-Hüffer and Victoria Lenz-Wiedemann. It was through their ideas that the poster sessions were such a great success.

Mareike Kroll was particularly involved in the organisation of the opening ceremony, while Nicole Reps and Veronika Selbach made significant contributions to that of the closing ceremony.

Paul Wagner, Wolfgang Korres, Rike Schwarz, Sven Bremenfeld and Christian Koyama formed the “Welcome Team”, giving visitors to the IGC an initial orientation and personally showing those participants who were searching for a particular event where to find it.

Fabian Sonnenburg captured the IGC in pictures with his camera.

Sebastian Fastenrath was heavily involved in the support of the keynotes and the fair.

Regine Spohner and Franziska Krachten took responsibility for the careful design and layout of the documentation book.

The local organising committee of the iGeo that planned the content (fieldwork, social activities) and was responsible for the realisation thereof consisted of:

Dorothea Wiktorin (chair), Konstantin Ntageretzis (co-chair), Stephan Langer (fieldwork test), Veronika Selbach (fieldwork test, cartography workshop and excursion), Elisabeth Gohrbandt (fieldwork test, cartography workshop), Günther Weiss (cartography workshop), Klaus Zehner (fieldwork test), Alexander Follmann (fieldwork test), Johanna Mäsgen (inter-cultural evening).

Alongside the employees of the Department, the student volunteers made an immeasurable contribution to the IGC. In the days leading up to and during the congress, they helped with the work required for the iGeo, packed the bags for the participants, hung up signs, manned the coffee stands, accompanied the publishers' exhibition, carried out the driver service, helped with the production of the congress newspaper, “held the fort” at the central coordination point in the Congress Office, carried out laptop maintenance and staffed the internet café, provided support for the topical sessions and the symposium, and as “emergency firemen” averted countless disasters both small and large.

The following students supported the IGC 2012 as volunteers:

Dana Bach, Angela Balk, Alexander Basiri, Sina Bauer, Stephan Becher, Charlotte Beckbissinger, Eva Beyer, David Bimmermann, Laura Biskupek, Miriam Blechschmidt, Martina Bock, Plamen Boev, Verena Böhle, Fabian Böhme, Hannah Bold, Sabine Katharina Bongers-Römer, Teresa Bönsch, Inken Böse, Tobias Bothe, Sonja Brachat, Mirjam Bracht, Tina Brehm, Johannes Budde, Christoph Burow, Stefanie Büttner, Jasmin Caspary, Susanne Clemens, Julia Delille, Derya Dönmez, Verena Eilers, Katharina Esser, Sabine Faas, Heiko Falk, Daniel-Martin Farynski, Andrew Feist, Laura Feld, Jasmin Feß, Marcel Filla, Rebecca Flammang, Tobias Flügen, Manuel Folk, Andreas Folkers, Nele Franc, Saskia Franz, Thomas Friederich, Yannick Furmanski, Anja Gbur, Annika Geimer, Henrik Gelhausen, Julian Gesenhoff, Katrin Glados, Melanie Göldner, Franz Gottschalch, Susanne Gülden, Alexander Haas, Isabel Hackemann, Bastian Hallen, Antonia Hante, Valeska Hauke, Manuel Heckmann, René Heinen, Nadine Heinrichs, Arne Heisterkamp, Nadine Hentschel, Jan Hermanns, Maike Hildebrandt, Hanna Hiltner, Aline Denise Hirtz, Carolin Hulke, Maren Hüls, Jan-David Huxol, Kalliopi Ioannidou, Andreas Iskam, Anna Jaax, Nils Jahn, Ole Joeress, Simone Jogwich, Lina Maria Kasper, Lennard Kehl, Fatima Keklik, Michele Keller, Angela Klein, David Klipper, Lara Kögel, Wiebke Köker, Anne Kolvenbach, Deniz Fabian Konzack, Simon Köster, Stefanie Krahe, Anna Lena Kraska, Andreas Krause, Kathrin Krockauer, Maxim Krohmer, Sebastian Kulartz, Michael Kurschildgen, Hannes Laermanns, Susanne Lang, Sandra Leder-müller, Roxana Leitold, Helene Leneschmidt, Magdalena Lethaus, Laura Linck, Nils Linden, Stefan Linnarz, Jonas Lugibihl, Ulrike Lussem, Natalie Lützler, Christoph Mainka, Manuel Jeschka, Jannik Martens, Verena Medinger, Stephanie Merkel, Claudia Merkl, Maximilian Metzemacher, Melissa Meurel, Christina Meyer, A-lisa Meyer, Nils Michels, David Micken, Katharina Molitor, Amelie Mönnikes, Kai Mörl, Matthias Nink, Rahab Njeni, Michael Nolden, Lena Nordloh, Rosalia Nußbaum, Magdalena Oppitz, Thomas Paschke, Felix Peintner, Dragan Petrovic, Janina Pfeiffer, Isabell Piren, Marcel Possoch, Sabrina Prangs, Melanie Preis, Eva Quix, Sa-rah-Jasmin Raffel, Gerrit Rahier, Christian Raschke, Damian Ratajski, Janina Rau, Laura Reck, Raphael Rei-mann, Anika Reißner, Shari Reuter, Inga Richerzhagen, Marina Rico, Johanna Riedmann, Sarah Rosell, Roman Roßmann, Annika Salingré, Aramazd Sarkis-Karapetians, Torben Scharm, Kira-Sophie Schettler-Köhler, Lisa Schilling, Kai Schindler, Tobias Schlereth, Andrea Schmitt, Anna Züleyha Schneider, Laura Schneider, Patricia Schnettler, Mario Schoofs, Saskia Schrade, Lynn Schüller, Thomas Schulz, Stefanie Schulze Palstring, Fabian Selg, Sarah Smikale, Tobias Sodekamp, Daniel Sperl, Caroline Stelter, Julia Steuermann, Jan Stevens, Isabel Stiebner, Helen Störk, Anna Strohmann, Nina Szemkus, Lisa Terfurth, Anna Thurau, Daniela Unterein, Judith Vedder, Benedict Vierneisel, Henrike Voss, Daniela Weber, Pia Weidenmüller, Stefanie Weiler, Anselm Weis-che, Freya-Sophie Widera, Florian Wilkens, Maximilian Willkomm, Janina Windmüller, Andreas Wittke, Zhang Yingmin, Florian Zebisch, Benedikt Ziegler, Jutta Zingsheim.

Particular thanks goes to the staff of the Department of Geography, who became involved in the planning process at a very early stage, publicised the IGC 2012 among students throughout Germany and were especially involved in the Young Researchers' Forum.

We would like to thank the following people and companies from outside the Department who also gave great support to the congress:

Especially heartfelt thanks go to the university leadership, particularly to Rector Prof. Dr. Axel Freimuth and Chancellor Dr. Johannes Neyses, who supported the congress personally, financially and in terms of ideas.

We would like to thank the members of the Scientific Committee for their ideas and impulses in the conception of the "second pillar" of the IGC 2012, the four key topics.

We wish to thank the geographers who agreed to offer an excursion as part of the IGC 2012. Without the willing support of so many colleagues, such a varied programme would not have been possible. Particular thanks go to Johannes Hamhaber for his work on the umbrella concept of the excursion programme.

We owe deepest thanks to the Department of Building Management, the caretakers and the service team of the University of Cologne. Without their dedication, which included extra work at the weekend and often without additional pay, such a problem-free realisation of the IGC 2012 would not have been possible.

We would like to thank the Building Department for last-minute damage control.

Heartfelt thanks go to Stefanie Naumann of LNT Design (Cologne) for the excellent corporate design of the IGC 2012 – from the conception through to the detailed planning.

For the installation, adaptation and support of the congress software, we wish to thank Lombego Systems in Weimar, especially Rainer Kretzer and Christian Burger, who also supervised the registration process on site.

Our thanks go to the event manager Reinhard Heitjans, who guided us safely through the pitfalls of large event permission application.

ATM Broadcast (Cologne), especially Frank Mai and Thorsten Trayser, deserves our gratitude for the filming of the IGC 2012, stretching from a trailer to whet appetites all the way to the closing documentation.

We would like to thank Michael Wodak and Andreas Wittke from MFK (Cologne) for the photographic documentation of the IGC 2012.

The press office of the university, especially Patrick Honecker, must receive our thanks for their support in terms of publicity.

Thanks go to Uschi Heidel and Katja Sproß from Trio Media (Bonn) for their support in the development and implementation of the concept for the publicity work of the IGC 2012.

We owe heartfelt thanks to Ms. Merino-Cruz and Sabine Heister from the Students Association, who gave us great support in the planning of catering and reacted flexibly to our requests during the IGC 2012.

We wish to thank Norbert Grötsch from the University of Bonn for his constant IT support.

Thanks also go to the printers Martin Rösberg (Bonn) for the excellent cooperation in the printing of flyers, circulars and programme booklets.



Fig. 1: Local Organising Committee, the staff of the Institute of Geography and the IGC 2012 Volunteers

Karen Schneider, Edel Sheridan-Quantz and Kerry Jago helped us a lot with English translations; we thank them warmly for all their support.

We would like to thank Christian Woronka from the Cologne Convention Bureau of KöIntourismus for accompanying the IGC 2012 throughout the entire planning process. Alongside countless small tips and suggestions, the Cologne Convention Bureau was greatly involved in the implementation of the hotel booking system. It not only made sure that the appropriate number of rooms were reserved very early on, but also made a simple and easily understandable booking portal available through the involvement of its partner Hotel Reservation Service (HRS).

Our heartfelt thanks go to the employees of Cologne Philharmonic Hall, especially Wolf Geuer, who helped us with the planning and hosting of the opening ceremony.

Special thanks go to all the pupils and teachers, particularly Ulrich Menke, Angela Ankermann and Bernhard Heini of St. Ursula Gymnasium in Brühl for the wonderful music during the opening concert.

We wish to thank the Westermann-Verlag for the generous support in terms of participant equipment (lanyards, congress bags, etc.), free advertisements and numerous reports in the newspapers and supplements of the publishing house. For this we particularly wish to thank Sebastian Schlüter and Reiner Jüngst.

We would like to thank the Ernst Klett Verlag for their support of the German-language symposium as part of the IGC 2012. Alongside the equipment of symposium participants, which included bags, pens, cups, lanyards etc., the publishing house also provided further print services such as roll banners and printing cost subsidies, for example for the programme booklet. We wish to highlight at this point the cooperation with Cordula Rodenberg, who carried out all liaison work with the LOC in a professional, helpful and foresightful manner.

Without the dedication of Esri Europe, the IGC 2012 would have been without one of its most striking features. Thanks to the provision of more than 400 radiant blue volunteer t-shirts, the helpers were easily recognisable and could be readily identified by participants as providers of competent assistance. Our thanks thus go to Frank Holsmüller for the quick provision of the t-shirts at short notice.

A total of four Ford Transit Transporters were provided to the LOC for the duration of the congress for the transport of honorary guests and keynote speakers as part of the Ford Corporate Responsibility Programme. Our particular thanks thus go to Benjamin D. Hennig, who made this possible.

Special thanks also go to the German Research Foundation (DFG), who supported the holding of the IGC 2012 as an international conference in an extremely generous and uncomplicated manner.

Heartfelt thanks are also due to the Rheinenergie Foundation, which supported the congress through an unconditional donation.

We wish to thank the following people for the support of the iGeo:

A heartfelt thanks goes first and foremost to Sylvia Löhrmann, the Minister of Schools and the Deputy Minister President of North Rhine-Westphalia. S. Löhrmann served as the event's patron, delivered the greeting at the closing ceremony in Cologne Philharmonic Hall and handed out gold medals to the competition winners.

Thanks are also in order for the institutions that sponsored iGeo 2012. Their financial and intellectual support was indispensable. In particular, we wish to thank:

- didacta international, which provided backpacks and t-shirts to all the participants;
- the Society for Geography of Cologne, which donated the prize money for best posters (Dr. Prill Prize) and covered auditorium rental fees and catering in the Rautenstrauch Joest Museum;
- the Klett Verlag, which donated international atlases to students for the written response test;
- L.E.B., which donated the money used to buy the presents for gold-medal winners (compass, map sleeve, topographical map);
- the Regional Association Ruhr (RVR), which financed a day excursion in the western Ruhr region, including bus travel and tour guide fees;
- the Rhineland Nature Park, which provided a staff member to accompany students for a day trip from Cologne to the Siebengebirge;
- UNESCO, which graciously permitted the event organisers to use the logo “Education for a Sustainable Development – A Contribution to the International Decade”.

We also wish to thank the following secondary schools and geography teachers for leading a group of competition participants through Cologne:

- Landrat Lucas Gymnasium Leverkusen, accompanied by Jens Wenzel
- St. Ursula-Gymnasium Brühl, accompanied by Ulrich Menke
- Willy Brandt Gesamtschule Cologne Höhenhaus, accompanied by Wolfgang Fritzsche
- Integrierte Gesamtschule Paffrath, accompanied by Andreas Bremm
- Apostelgymnasium Cologne, accompanied by Christoph Schmitz
- Hildegard von Bingen-Gymnasium, accompanied by Moritz Elschner
- Lessing Gymnasium Cologne, accompanied by Christoph Jütte
- Geschwister Scholl Gymnasium Pulheim, accompanied by Sonja Gerling

Special thanks goes to Hannelore and Kurt Krieg and Monika and Hartmut Woelk, who provided the catering for the juries.

We would like to thank Gabriele Schrüfer (Institute for the Didactics of Geography, University of Münster) for supporting us in planning the intercultural evening.

We wish to show our appreciation to the people who carried out the time-consuming corrections for the competition and the members of the IGU 2012 task force who developed the questions and exercises as well as initiating the International Geography Olympiad:

Joop van der Schee (co-chair), Free University of Amsterdam, Netherlands; Henk Ankoné (co-chair), National Institute for Curriculum Development, Netherlands; Kathryn Berg (secretary), Royal Geographical Society of Queensland, Australia; Fernando Garcia-Garcia, Universidad Nacional Autónoma de México; Wolfgang Gerber, Sportgymnasium Leipzig, Germany; Yoshiyasu Ida, Institute of Education, University of Tsukuba; Sue Lomas, Salford City Council, United Kingdom; Su-Min Shen, National Taiwan Normal University

Last but not least, we of course wish to thank the geographical associations that helped fund, advise and support the event from beginning to end: the IGU, the DGfG and the German Association of Geography Teachers.

Symposium: Support Staff and Benefactor Institutions

A heartfelt thanks goes first and foremost to the event's main sponsor, Klett Verlag, Stuttgart – especially Cordula Rodenberg and Christoph Rausch, who were always available for questions and happily accommodated every wish. Christoph Rausch, in addition to organisational questions, provided important ideas for the symposium's programme. The generous financial support of Klett Verlag paid for the printing of the brochures, bags

and coffee mugs for participants, the banners and labels, the coffee stations and the lavish evening buffet. We also wish to thank the Bildungshaus Schulbuchverlage, Braunschweig, for its generosity in covering participant fees, and Engagement Global, especially Hannes Siege, for helping out with the events on Tuesday morning. For carrying out the excursions, we wish to give a warm thanks to Stephan Langer (University of Cologne), Karin Steinhäuser (Cologne) and Andreas Schulz (University of Cologne). A special thanks also goes to Michael Becker Mrotzek, who commented on the event critically as an external observer.

Without the committed assistance of many school and university educators, the symposium in this form would not have been possible. We would like to thank the many staff members from HGD and VDSG who helped, especially Michael Hemmer (University of Münster) and Karl-Walter Hoffmann (Studienseminar Speyer), who gave an inspired introductory lecture to put the participants in the right mood for the sessions. Like all session leaders, they provided crucial assistance with the planning, organisation and content.

We also wish to thank the student assistants and especially Veronika Selbach as leader, for a smooth execution of the programme and the excellent care of the participants.

Not least, we would like to thank all speakers for their readiness to actively participate and for their inspiring talks, and all participants for the many constructive discussions and comments.

The Local Organising Committee

Finally, we would like to document the responsibilities within the Local Organising Committee of the IGC 2012:

Chairs: Frauke Kraas and Dietrich (Dieter) Soyez

Carsten Butsch: Registration and Congress office, editing of the programme, editing of the book of abstracts, editing of the final report, signage concept, organisation of the YRF, Volunteer programme, poster sessions, support of the scientific committee, website content and IGC 2012 facebook account, technical facilities

Ursula Dörken: Support of the IGU Executive Committee, and liaison to IGU

Holger Kretschmer: Registration and Congress office, catering, fair trade, finances, coordination of social programme, support of the scientific committee, technical maintenance and content of the website, merchandising, technical facilities

Franziska Krachten: public relations, IGC audio-visual documentation, organisation of the lord mayor reception

Konstantin (Kosta) Ntageretzis: Catering, organisation iGeo, organisation of the YRF, planning of the “thank-you-event”

Wolfgang (Schmie) Schmiedecken: finances

Valerie Viehoff: Field trips, poster sessions, website content, support of the scientific committee, support of the keynote-speakers

Dorothea Wiktorin: Organisation iGeo, organisation of the school programme, organisation Symposium Geography and School





IGC

COLOGNE 2012
DOWN TO EARTH

3



The logo features a large orange circle. The top half of the circle is white, and the bottom half is orange. Two orange triangles point upwards from the orange section into the white section. The text 'IGC' is in blue, 'COLOGNE 2012' is in white, and 'DOWN TO EARTH' is in white.

IGC

COLOGNE 2012
DOWN TO EARTH

3.0



Appendix



IGC TODAY 27.08.2012

32ND INTERNATIONAL GEOGRAPHICAL CONGRESS IN COLOGNE 26 - 30 AUGUST 2012

DEAR GEOGRAPHERS AND HONOURED GUESTS,



On behalf of the German geographical communities, the University of Cologne and the Local Organising Committee, it is a great pleasure to welcome you to the 32nd International Geographical Congress in Cologne.



All individuals and institutions involved feel very honoured to have contributed to this extraordinary event. And they feel rewarded by the unprecedented attendance for an IGU congress.

Today will certainly be the most crowded day of our event – hopefully the lines at registration will not be too long. But once this checkpoint is behind you, the remaining days are sure to flow smoothly. Sure, the construction sites are less pleasant to look at. But during these times of financial squeeze in the educational sector, our University community is happy to see the long-awaited refurbishments progress – any delay at this point would cause new financial risks.

We have strived to ensure accessibility for geographers of all ages and from the global South and North. And we hope we have succeeded in making the IGC 2012 a platform for a focused exchange of ideas and a memorable festival of and for Geography. We are also curious to know, of course, if our efforts to complement the traditional backbone of IGC - the Commissions and Task Forces - with broader and boundary-spanning key topics are seen as adding a rewarding new element to the mix.

Enjoy the day and for those who have registered: See you tonight at the Lord Mayor's reception!

On behalf of the Local Organising Committee,

Frauke Kraas and Dietrich Soyez

GET IN TOUCH

E-Mail to the editorial office
info@igc2012.org

IGC-Facebook
facebook.com/igc2012

IGC-Twitter
twitter.com/IGC_Cologne2012.de



Welcome to Cologne

Official Opening

Make Your Voice Heard

“Welcome to Europe, welcome to Germany, welcome to Cologne” – these were the words spoken by Professor Frauke Kraas and Professor Dietrich Soyez, Chairs of the IGC Local Organising Committee, as they welcomed geographers from all around the world to the 32nd IGC in Cologne. The guests had gathered for the opening event at a very special place – the Cologne Philharmonic Hall, located in the heart of Cologne beside the towering Cologne Cathedral.

True to its slogan, “Down to Earth”, the Congress will be taking place at the University of Cologne. As the University's rector Professor Axel Freimuth pointed out, the University is not only one of the oldest and largest in Germany but counts as one of 11 top level research universities in Germany. It is therefore proud to be the official venue of the IGC.

Anne Glover, Chief Scientific Advisor to the President of the European Commission, would like to see the IGC and geographers in general take their work beyond the university halls. The challenges facing humanity demand solutions that require input from the scientific community. “Geographers naturally bring together all the necessary

disciplines needed for the solution-finding process,” says Glover.

Her Royal Highness Princess Maha Chakri Sirindhorn, a global advocate of Geography, also welcomed the IGC participants. She talked about how the travels with her father awakened her early interest in Geography. “Humans can only live with nature; they can never control it,” said Her Royal Highness Princess Maha Chakri Sirindhorn. As Professor Eckart Ehlers explained in his Inaugural Lecture, the footprints left behind by humans are indeed indelible. The age of the Anthropocene is here, placing geographers in their role as bridge-builders between the natural world and society at the forefront.

Professor Ron Abler, President of the IGU, Professor Hans-Rudolf Bork, President of the German Geographical Society and Angela Spizig, Mayor of the City of Cologne, also gave welcome addresses. True to the occasion, the musical performances by the Symphonic Orchestra, Bigband and Choir of St. Ursula-Gymnasium Brühl all had to do with Geography. The crowd particularly enjoyed the students' renditions of Robert Schuman's “Rhenish”, Ernst Toch's “Geographical Fugue” and Lynn DeShazo's “For the Beauty of the Earth”.

DATES

27.08.2012, 11.45 Uhr:
Keynote-lecture “Society and Environment“:

Klaus Töpfer
“On the way to the Anthropocene. Consequences for scientific research, societal understanding and political responsibility”

Anne Buttner
“Diverse perspectives on society and environment: retrospect and prospect”

The Keynote-lecture will take place in MAIN 13 and will be broadcasted live in KEY 7 if the maximum occupancy is exceeded.

LAST MINUTE CHANGE

FIELD TRIP HD 01: From Rome to Prussia...

New meeting point: the horse-shoe shaped „Rundbau of Institute of Geography – Zülpicher Str. 41“ (cf. map on p. 291 of the programme)

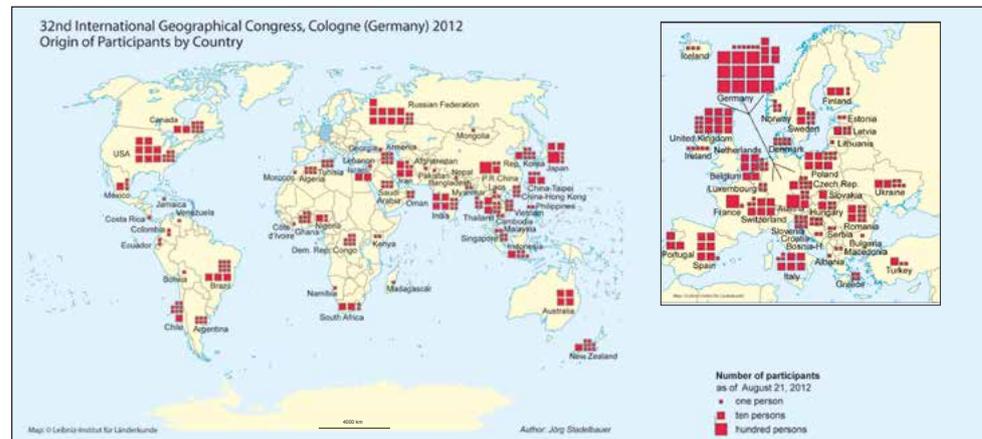
GET YOUR IGC 2012 T-SHIRT



AND YOUR IGC 2012 MUG.



Both are available at the Booth of the German Geographic Society (DGfG) in the marquee.



Registered participants by country of residence



INTERVIEW

EDITH MUKAKAYUMBA, PH.D.
PRÉSIDENTE
MAISON DE LA GÉOGRAPHIE
DE MONTRÉAL



Je suis devenue géographe parce que mon pays d'origine, le Rwanda, de concert avec mon pays d'adoption, le Canada, qui a donné la bourse d'études grâce à laquelle j'ai poursuivi mes études de deuxième cycle en géographie, a décidé de mon orientation. Et maintenant que je suis géographe depuis quelque temps, les choses plus importantes sont : assumer mon identité de géographe et réaffirmer sa valeur dans une société où elle est malmenée; poursuivre mon travail d'information et de formation des citoyens responsables, notamment grâce aux méthodes pédagogiques qui privilégient la proximité (via les cafés géographiques par exemple); promouvoir une géographie qui sert, aussi, à faire la paix et, ainsi, contribuer à la correction et à la préventions des tragédies inhérentes au « somnambulisme téléguéidé ».

TODAY'S SAYING

Organisation is great!
I've been looking forward
to meeting all colleagues.
IGC 2012 is simply great fun!

- Frank Schüssler | Jade University of
Applied Sciences Oldenburg | Germany -

Jörg Stadelbauer

Berlin 1899:
The Seventh International
Geographical Congress

A Retrospective on Occasion of the
32nd IGC, Cologne August 2012
Now available at the desk of



MARQUEE M 02.02

WEATHER
27.08.2012



22°C, cloudy

IMPRINT

University of Cologne info@igc2012.org
Albertus-Magnus-Platz www.igc2012.org
50923 Köln



iGEO

The Geography Olympiad
Recognises the World's Best!

Sylvia Löhrmann, State Minister of Schools and Education, presented 13 gold medals to the winners of the 9th International Geography Olympiad (iGEO).

A total of 124 high school students from five continents participated in the competition held 21 - 25 August in Cologne, tackling the tests and challenges put in front of them. With 32 nations taking part – from Australia and Mongolia to the People's Republic of China and the UK – this year's iGEO was the largest since its founding in 1996.

And the winners are.....

Samuel Chua, Singapore; Wojtek Kaczmarczyk, Poland; Stefania Ursică, Romania; Tairvo Pungas, Estonia; Rimgaudas Stundzia, Lithuania; Hana Parizková, Czech Republic; Constantin Popa, Romania; Maris Serzans, Latvia; Max Rogge, Germany; Brendan Tan, Singapore.

Test of skill and knowledge

The competition consisted of three parts: two written exams to test the knowledge of the pupils and a fieldwork exercise to check up on their practical and methodical skills. Participants were asked to draw maps and develop urban planning scenarios for the inner city's waterfront. Aside from the actual competition, another important aspect of the iGEO is intercultural exchange. The highlight of the Olympiad was the intercultural evening at the Rautenstrauch Joest-Museum, where the participants presented a colourful collaborative performance on stage.

Dorothea Wiktorin

KEYNOTE "SOCIETY AND ENVIRONMENT"

Diverse Perspectives on
Society and Environment:
Retrospect and Prospect

Prof. Anne Buttimer speaks about the "root metaphors" of geography and the challenges as they evolve

Questions about society and environment have always been central concerns for geography (Gaia graphem). In classical times issues of health, cultural identity and political economy were couched in terms of people's relations to their natural surroundings. In later centuries, some European nations claimed cultural superiority on the basis of their "ideal" physical environments, often extending their domains to empires and colonies worldwide. Practices of geography associated with such claims were branded as "environmental determinism" and the mid-20th century witnessed an aggressive attempt to bolster a definition of geography as the study of spatial interactions. A clear separation of human and physical branches followed, as "space" was regarded as a tabula rasa on which processes unfolded following the requisites of economic and technological efficiency. Implications of this new orthodoxy included an eclipse of both historical perspective and environmental concerns.

i.e., socio-technosphere, and organic (relationship to place and local resources), i.e., biosphere. With each of these levels there is an associated challenge of human interest: identity (noosphere), order (socio-technosphere) and niche (biosphere), all three with a varying horizon of time, through past, present and future.

Getting to the roots Z



This presentation outlines four distinct worlds-views ("root metaphors") which geographers have deployed in their studies of these human interests: world as organic whole, world as mosaic, world as mechanical system, world as arena of spontaneous events. Each "root metaphor" is anchored in its own criteria of truth and results derived from any one of these procedures cannot be evaluated in terms of the criteria of another. Scientific preference for one or other of these stances can be easily related to concurrent political priorities; likewise the demise and replacement of them can also be related to societal judgement.

Reintegration

Two important counter voices, however, were heard. Man's Role in Changing the Face of the Earth (R.L.Thomas, ed. 1956) and Traces on the Rhodian Shore (C. Glacken, 1967), re-awakened interest in both landscape transformations and dramatic changes in human perceptions and behaviours vis-à-vis environments over time. Strongly emerging from both was the centrality of livelihoods (ways of life) as a core analytical focus of geographic enquiry. Genes de vie (ways of life, life-ways) offered an integrative approach to the understanding of society and environment on three distinct levels: cognitive (knowledge, perceptions, values), i.e., noosphere, functional (interactions, industry, social organisation),

Exciting challenges ahead

The conclusion points toward emerging challenges for research on society and environment in Century 21. It highlights the contrasting stances on science and society in terms of those of "Archimedes" (top-down) and "Little Prince" (bottom-up), noting also the need to regard societal interests as changing over time. Recent conceptions of an evolving universe – including its noosphere – as in states of becoming pose especially exciting challenges for Gaia-graphem.

Prof. Anne Buttimer.

IGC KOMPAKT

YOUNG RESEARCHERS WORKSHOPS

When the initial planning for the IGC 2012 began, both the Scientific Committee and the junior researchers involved wanted to better integrate younger researchers in the conference.

To this end, a special programme was set up for post-docs, postgraduates and undergraduates with workshops on topics such as managing a PhD thesis, writing and publishing in English, finding funding opportunities and planning a scientific career. A science slam and a special poster competition is also part of the programme.

In the "Careers in Science" workshop on 26 August, three senior professors with bi- and multinational university careers met with 18 postgraduates and post-docs at the World-Science-Café and spoke about their own experiences in the field. In both plenary and small-group formats, they engaged the students in an intensive exchange about future prospects and the challenges of international careers in Geography.



Henrik, Undergraduate Student, Germany: "The methods of our seminar were very innovative and motivating – we had a very intensive time and we surely learnt how to best integrate a PhD thesis into the system of our daily life."

Prof. Hervé Théry, France/Brazil: "Going abroad for your PhD or Postdoc studies is a great chance for your career, but also for your personal development. There are many opportunities – for example, Brazil is currently offering about 100.000 grants for outgoing but also for incoming 'young talents'."

Martina, PostDoc, Spain: "It was very motivating to learn which different approaches to a university career exist; it was also good to hear that for publishing, impact factors of journals are often regarded less important than addressing the relevant reader groups: 'publish in the journals you read!'"

A special social programme has also been organised for the younger geographers – and for all those young at heart – by the Cologne Geography Department's student council. Certain to be the highlight is the big party planned for Wednesday!

Harald Sterly





**IGC
COLOGNE 2012
DOWN TO EARTH**

IGC TODAY 28.08.2012

32ND INTERNATIONAL GEOGRAPHICAL CONGRESS IN COLOGNE 26 - 30 AUGUST 2012

DEAR COLLEAGUES,



I hope you are enjoying Cologne and the Congress. With Sunday's spectacular Opening Ceremony, yesterday's full day of congress sessions, and last night's Mayor's Reception in the Cologne Town Hall behind us, today marks the halfway point of the Congress. So much has happened already, but much remains to enjoy...

Today's session devoted to Facets of Contested Geographies: Negotiating lieux de mémoire in Transnational Contexts (10:00–11:30 am in COM 01) was organized by IGU Vice Presidents Ruth Fincher and Dietrich Soyez at the request of the IGU Executive Committee. The session is a response to the controversies regarding the location of the 2010 IGU Regional Conference in Tel Aviv and the venue of the November 2011 IGU Regional Conference in Santiago—the Escuela Militar Bernardo O'Higgins. The session will focus on general geographic approaches to understanding places deemed sanctified or profaned.

The first IGU General Assembly session was held yesterday afternoon. Among the items to be addressed at today's General Assembly session is the election of the IGU President for 2012–2016 and of four IGU Vice Presidents for the same period. While only National Committees of countries in good standing may nominate candidates for the IGU Executive Committee and cast ballots in the General Assembly, all individuals registered for the Congress may observe the General Assembly. If you'd would like to watch the election, come to Com 01 from 2:00 to 5:00 pm. The exact time of the balloting has not been fixed, but it will most likely occur between 4:00 and 5:00 pm. Enjoy the day and the city. I hope to see you tonight at the Congress Dinner.

Ron Abler
President, International Geographical Union

GET IN TOUCH

E-Mail to the editorial office
info@igc2012.org

IGC-Facebook
facebook.com/igc2012

IGC-Twitter
twitter.com/IGC_Cologne2012.de



Last night at Cologne's historic town hall.
From left to right: Dietrich Soyez, Frauke Kraas, Ron Abler, Jürgen Roters.

LORD MAYOR'S RECEPTION

An Official Welcome to Cologne!

The Lord Mayor of Cologne extends a warm welcome to IGC 2012 participants at the city's historic town hall.

Last evening, with the first day of IGC sessions and lectures behind them, some 620 scientists and scholars from around the world made their way from one 14th century institution – the University of Cologne – to the next, Cologne's historic town hall, where they were received by the city's Lord Mayor Jürgen Roters.

Proud hosts

The town hall's "Piazzetta", where the Lord Mayor received his guests amid music and pretzels, was abuzz with the excitement of a day of firsts – the first full day of IGC sessions and lectures of the first Congress to be held in Germany in over 100 years.

Honoured that his city of Cologne had been selected as the venue of the International Geographical Union's (IGU) quadrennial meeting, Lord Mayor Roters noted the aptness of the choice. As the Lord Mayor pointed out in his address, science and research have been a part of the city's fabric since

the founding of the University of Cologne in 1388, making it a central research hub within Germany.

The Lord Mayor also called attention to how well-timed the choice was, with the University – in Roters' words "a true gem" in the region's science landscape – having just been named a "University of Excellence" by the Federal Government of Germany. A perfect location for a week of high-calibre and stimulating discussion for the international geographical community.

Truly "down to earth"

Before handing over to IGU President Ron Abler, the Lord Mayor congratulated Professor Kraas and the rest of the Local Organising Committee for putting on such a high-profile event in Cologne, a cosmopolitan city that prides itself for its friendliness and its uncomplicated, down-to-earth way. Just another reason why Cologne is the perfect choice for the IGC.

IGC

Professor Anne Glover meets with young researchers

The Chief Scientific Advisor of the President of the European Commission, Professor Anne Glover, passed three 'golden rules' on to the young researchers, when she, and her assistant, the geographer Dr. Jan Marco Müller, gathered with the young geographers for drinks and an informal chat after the IGC's Official Opening Ceremony: Be positive. Be proud of the exciting research you are doing and don't forget to communicate it beyond academia. And finally, don't be shy.

Admitting that she used to be very shy herself, Professor Glover suggested: "Just ask yourself: What's the worst that could happen? If it's anything less than dying, then don't worry."

Not being afraid of rejections seems to have served Professor Glover well in her extraordinary career as scientist and policy advisor. Professor in microbiology at the University of Aberdeen, she was appointed scientific advisor to the Scottish government in 2006 and European Chief Scientific Advisor in 2011.

Despite her light-hearted style, her honest advice left the young researchers very impressed. As Vanessa Rodriguez, a young researcher from Brazil, currently studying in Cologne put it: "Anne is such an inspirational person! It's amazing to have had this opportunity to talk to her!"

Valerie Viehoff

DATES

28.08.2012, 11.45 am:
Keynote-lecture "Urbanisation & Demographic Change"

Martin Lees
"Demographic change and urbanisation within the boundaries of a fragile planet"

Surinder Aggarwal
"Emerging global urban order and challenges for harmonious urban development"

The keynote lecture will take place in MAIN 13 and will be broadcasted live in KEY 7 if the maximum occupancy is exceeded.

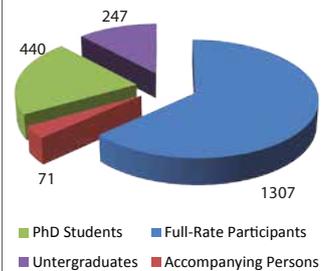
LAST MINUTE CHANGE

FIELD TRIP HD 05: Cologne cathedral treasury

New meeting point: Main entrance of Cologne Cathedral

VGdH PhD-AWARD

Award of the price for the best PhD-thesis in human geography is postponed: It will now take place during the poster session tomorrow at 6:30 pm.



Registered participants by status

GET YOUR IGC 2012 T-SHIRT

AND YOUR IGC 2012 MUG.

Both are available at the booth of the German Geographic Society (DGfG) in the marquee.

INTERVIEW
HLAING MAW OO

I wanted to be a geographer, because...



Being an architect and a planner responsible for human settlements planning, I felt an urge to understand interrelations and problems of the changing physical and socio-economical environment in my country. I believed such understanding to be vital, in fulfilling my planning tasks responsibly. That is why I became a geographer. While exploring parts and bits of the vast field of Geography, I have come to understand that the most important task of geographers, both physical and human, is to contribute towards the well-being of humankind. All the encounters with and explorations of nature, places, people, activities and traditions undertaken by the geographers in an unbiased and open-minded manner facilitate a better understanding of the past and the present, which I believe is an essential step towards a better future.



Happy Birthday,
dear Frauke!

COMMENT OF THE DAY

"The programme is well organized. Especially the session in applied geography gave young researchers a great overview on geographers' practical work."

- Vergara Adrian | Universidad del Norte | Colombia -

Jörg Stadelbauer
Berlin 1899:
The Seventh International
Geographical Congress

A Retrospective on Occasion of the
32nd IGC, Cologne August 2012
Now available at the desk of



Deutsche Gesellschaft
für Geographie DGGG

MARQUEE M 02.02

WEATHER
28.08.2012



26°C, cloudy

IMPRINT

University of Cologne info@igc2012.org
Albertus-Magnus-Platz www.igc2012.org
50923 Köln



Press breakfast at the "Alter Senatssaal" Tuesday morning

KEYNOTE "URBANISATION & DEMOGRAPHIC CHANGE"

Emerging global urban order and challenges to achieving a harmonious urban development

Professor Surinder Aggarwal addresses current urbanization trends

More than half of the world's population is now living in urban areas, making urbanization a defining phenomenon of this century. At the centre of this transformation are cities in developing countries.

The new face of urbanization

Developing countries, with a 73% share of global urban population and high urban growth rates, are the new actors in contemporary urbanization. Urbanization today is driven by globalization forces, neo-liberalization tendencies, technology transfer and national policy changes. Push factors that propelled urbanization until the mid-90s are now being reversed by pull forces. Urban growth is not uniform, but rather this urban transition is dominated by the developments occurring in the world's megacities, global cities and emerging urban agglomerations. Recent trends also indicate high growth rates of mid-size cities. Voluntary migration that had fuelled early migration streams is now being supplemented and reshaped by recruitment agencies, employment regimes and immigration policies. Recent demographic structures also exhibit signs of change, with more women migrants and swelling elderly and young population cohorts.

Developed countries, on the contrary, exhibit a stabilizing or even negative urban growth trend following declining fertility levels. Counter-urbanization is the trend, with more expansion in the rural settings for both working and living environments. Mega-urbanization has slowed down and urban transitions have matured, except in the transition countries of industrializing Eastern Europe. Countries in Latin America like Brazil have joined the developed countries list with high urban population share.

Impacts

Advanced capitalism, largely responsible for contemporary urbanization process, distances humans from nature and individuals from society.

The natural world (including urban ecosystems) is being abused and mediated through resource exploitation, urban sprawl, air and water pollution. Climate change, ecological footprints and natural disasters are the results. Likewise, neo-colonization along with neo-liberalization also incurs social costs for the majority, while generating only minoreconomic benefits for a small number of urban residents. Conflicts over social and economic spaces disturb the social harmony of the urban society. Both converging and diverging forces are operating simultaneously to produce concentrated and highly differentiated and fragmented urban landscapes. The phenomenon of 'local losers' and 'global winners' is also becoming more evident.



Towards a harmonious urban development

To achieve harmonious urban development, developing countries' foremost challenge is conservation and protection of (urban) ecosystems and to provide poverty reduction. For wealthy countries the challenge lies in containing urban sprawl, promoting inner cities, encouraging mixed land use planning, and appreciating emerging social and cultural heterogeneity for harmonious and inclusive urban landscapes. Energy efficiency through judicious land use and public transport development will be essential for combating climate change. Overall, what is most needed is a shift in theoretical underpinnings and urban research to explain emerging urban forms, agglomeration economies, rural-urban fuzzy dichotomy, rising inequities, and new urbanism.



Professor Surinder Aggarwal



IGC SPOTLIGHT

COMPETENCE-ORIENTED GEOGRAPHY TEACHING

The two-day symposium "Geography and School" held in German got off to a good start yesterday, with more than 300 participants in attendance. Our mission of integrating educators responsible for modern geography teaching into the IGC was clearly accomplished!



The main symposium sessions addressed four key competencies: systemic thinking, methods and skills, orientation in space and communication. Best-practice examples from all types of German schools were presented during the sessions, with the goal of identifying the components of competence-oriented geography teaching.

IGC participants interested in the subject of geographical education are invited to join the symposium **TODAY** from 10:00-11:30 am. The panel discussion on International online-discussions of German, Indian and American students concerning global climate change with Hans-Rudolf Bork (President of the German Geographic Society/DGGG) and Hartmut Grassl (Max Planck Institute, Hamburg) will take place in room MAIN 13.

Dorothea Wiktorin

IGC COLOGNE 2012
FACHSCHAFT GEOGRAPHIE
29 August 2012
8 pm
Roonburg
IGC 2012
IGC - PARTY
YOUNG RESEARCHERS
Roonstraße 33 | 50674 Köln | www.roonburg.de



IGC
COLOGNE 2012
DOWN TO EARTH

IGC TODAY 29.08.2012

32ND INTERNATIONAL GEOGRAPHICAL CONGRESS IN COLOGNE 26 - 30 AUGUST 2012

DEAR GEOGRAPHERS!



While we are gathering at the University of Cologne the largest river of Central Europe, the Rhine, is still flowing through the city as peacefully as ever, undisturbed by the buzz created by 2300 geographers. Tourist boats

and container ships are passing under the bridges connecting the two parts of Cologne either side of the stream. Most visitors to Cologne are impressed by the picturesque view of this unique "riverscape".

Cologne and the Rhine are an excellent example of human-environment interactions and reactions. From time to time continuous heavy precipitation in the Rhine's catchment area causes severe inundations, putting the old city centre of Cologne at risk of being flooded. In the past, extreme floods often devastated the centre of Cologne. The most severe summer flood of the last millennium hit Cologne in July 1342. Bridges were destroyed. Rows of houses bordering the river were washed away. Erosion cut deep gullies into the meadows along the Rhine and hillslope erosion destroyed fertile agricultural land.

A volcanic eruption between June 1783 and February 1784 at the Laki fissure in Iceland was responsible for the most severe winter flood of the last centuries in Central Europe. The winter of 1783/1784 was one of the coldest since records began.

When spring arrived, sudden warm weather combined with heavy rainfall resulted in unprecedented amounts of snowmelt gushing down the Rhine. Large blocks of floating ice blocked bridges and many settlement areas along the Rhine suffered from severe flooding.

In Bonn, a 13-year old boy named Ludwig van Beethoven, was trapped with his parents in the top floor of their house. They narrowly escaped the floods and survived. Many others were not so lucky. It's hard to imagine that during these floods, Rhine water gushing through the old town of Cologne, destroyed everything on its way. Today mobile flood walls protect the old town of Cologne.

Floods and severe erosion are, needless to say, not only a characteristic of Cologne. In China, floods and erosion have been shaping landscapes for a long time. The famous geographer Ferdinand Freiherr von Richthofen, chair of the organising committee of the 7th International Congress of Geography in Berlin in 1899, investigated erosional landscapes and floods in China. Ferdinand von Richthofen's merits were honoured this year in his hometown Pokój (former Karlsruhe) in Poland in June 2012. A bust was erected as a visible and hopefully long-lasting symbol of this joint Polish-German cooperation.

Hans-Rudolf Bork



Thumbs Up: Everything is going fine at the IGC 2012 in Cologne

IMPRESSIONS

The IGC 2012 Barometer: Sunny Outlook

After two full days of Congress sessions, lectures, symposia, field trips and mingling, people have plenty to say about the Congress.

MAIN, the hub of IGC happenings. The turquoise-clad volunteers, all briefed and bright-eyed, stand at the ready to assist the IGC scholars and scientists from around the world. "Well organised" is perhaps the most common feedback from Congress participants. "No matter where you turn, there's always someone you can approach for help," says one geographer from Hong Kong.

For some, who find the Congress overwhelming – not only by its size but by the sheer breadth of its scientific programme – this is an important aspect. Shanti Sumartojo, a sociologist from the Australian National University, who used the walking tour of the city to get her "thinking geographically", appreciated the fact that the organisers thought of offering childcare. "This really sets the right tone," says Sumartojo, who often travels with her children.

Mala Mohammed Daura from the University of Maiduguri in Nigeria and President of the Association of Nigerian Geographers spoke positively not only of the platform offered by the Congress for international exchange and insight, but of the efforts made to attract greater participation from geographers

from the developing world.

For young geographers just launching their careers, the IGC is seen as a great chance to gather feedback on the value of their work. A PhD student from Germany says the Congress is key for positioning his own work in the larger context. "The keynotes in particular, which articulate where Geography is heading in terms of its future tasks, have been central in helping me gauge my own work and where it fits into the bigger picture."

For more established geographers, the Congress is a chance to catch up with international colleagues and gather new input. The Congress has all-around value for Arndt Schimmelmann, a geochemist from Indiana University. "What's so great is that I get to see stuff I'm not normally confronted with. And this time around I've even found new venues and opportunities for collaborations."

Two young professors from Université Paris 8 were particularly pleased with the proximity of the IGC this time around. "It's a shame we have to go home so soon." Which, by the way, seems to be a common sentiment among this year's Congress-goers.

SCHOOLS PROGRAMME

Down to earth: Science meets school – geographers visit local schools

Globalisation and global change have made Geography not only a dynamic but a salient, future-oriented science.

Understanding the need to spread the word about the importance of Geography, IGC geographers visited local schools in the Cologne-Bonn region to report on their latest research. The renowned colleagues responded positively to our idea of promoting the relevance of Geography to the younger generation and were eager to participate. "It sounds both fun and informative," says Prof. David Lanegan from Minnesota (USA). "I've heard much about German Gymnasiums - I never thought I'd be able to visit one."

Sparking real interest

Lanegan's wish came true – he lectured on "Development, urbanization and restructuring of the iron mining region of northern Minnesota and the related developments in Detroit" at the Irmgardis Gymnasium in Cologne. His talk inspired the students to ask excellent questions and even compare the situation in the Manufacturing Belt with the structural change in Germany's own Ruhrgebiet, exploring the transferability of the situation in Detroit to that of the Opel factory in Bochum.

Veronika Selbach

DATES

29.08.2012, 11.45 am:
Keynote-lecture "Global Change and Globalisation":

Eduardo de Mulder
"Global planetary change and human globalization"

Bruno Messerli
"Global change and globalisation – challenges for Geography"

The Keynote-lecture will take place in MAIN 13 and will be broadcasted live in KEY 7 if the maximum occupancy is exceeded.

LAST MINUTE CHANGES

FIELD TRIP HD 08: Cologne – a cultural melting pot
Postponed to 1:00 pm

FIELD TRIP HD 09: Cologne cathedral excavations
New meeting point: Main entrance of Cologne Cathedral

Session C08.24-06 Land Degradation and Geomorphology: Monitoring, Assessment, and Theory Development 4 (scheduled 16:00 in MAIN 01):
SESSION CANCELLED

GET YOUR IGC 2012 T-SHIRT AND YOUR IGC 2012 MUG.

Both are available at the booth of the German Geographic Society (DGfG) in the marquee.

GET IN TOUCH

E-Mail to the editorial office
info@igc2012.org

IGC-Facebook
facebook.com/igc2012

IGC-Twitter
twitter.com/IGC_Cologne2012.de





„MY DAY AT THE IGC...“



Megha from the IGC-Team

It's been an eventful three days at the IGC and the information counter has been a great vantage point to witness the activity of the congress. The variety of participants is astounding, we have had the chance to interact with geographers from around the world; from students to professors and researchers and dozens of their fields. We saw them meet old colleagues and friends, exchange ideas in the lobby, rush from one session to another, meet new people, leave excitedly for excursions, arrange to discuss things further during the evening social programmes or plan a tour of the historic city of Cologne in free time. The energy is infectious. I also had the chance to attend a few sessions yesterday and have a list of new ideas to explore. A PhD research can be a lonely journey, it is opportunities like these where one can share the intellectual excitement of fellow researchers, locate one's own research in the current work in the discipline and truly feel a part of a larger academic effort to understand our world.

Megha Sud

COMMENT OF THE DAY

"Nice to meet colleagues from all over the world, the networking at this congress is even more important than the very interesting sessions on scientific topics."

- Michael Lukas | Universidad de Chile -

Jörg Stadelbauer
Berlin 1899:
The Seventh International
Geographical Congress

A Retrospective on Occasion of the
32nd IGC, Cologne August 2012
Now available at the desk of



MARQUEE M 02.02

WEATHER
29.08.2012



28°C, sunny

IMPRINT

University of Cologne info@igc2012.org
Albertus-Magnus-Platz www.igc2012.org
50923 Köln



IGC field trip impression: „From Rome to Prussia“ (Amelie and her group)

KEYNOTE "GLOBAL CHANGE AND GLOBALISATION"

Global Change and Globalisation
– Challenges for Geography

Humanity finds itself at an evolutionary crossroads. The choice is that of a perfect storm of progressively deepening crises on the one hand, and expanding perspectives of unprecedented opportunities, on the other (Club of Rome 2012). Holistic action is now urgently needed to avoid the significant costs and consequences, both in economic and human terms (OECD 2012). These two quotations by two different organizations, but with comparable content, may be illustrative of our current situation and knowledge, while we recognise the limitations of our unique planet.



First, we look back and demonstrate with instructive figures what has happened in climate change and in global change, i.e. in nature and in society. Four scenarios show the climate change processes from 1870 to 2100. We will then present the effects of the human-induced global change in the 20th century, which the author himself (McNeill 2005) called a turbulent and dramatic scenario. We know that perhaps 80% of these changes have occurred only in the second half of the 20th century. Therefore, it would be much more instructive to analyse and to compare only the last 50 years and to link the natural and the anthropogenic forces in different local or regional studies.

Secondly, four topics may show that geography has ideal prerequisites for an active and innovative participation in international research programmes from the past to the future. We call the first topic "Linking natural and social sciences: Geography as Bridge-Builder". It all began with the UNESCO - Man and Biosphere Programme in 1971, and ended with the last 2011 Nobel Prize Winners Symposium in Stockholm and the wonderful formulation "Ecosystems and social systems are dynamic and inextricably linked".

Why has geography not made much better use of this unique chance to play a leading role in this domain of research? Of course, geography also needs basic grassroots and specialised research. We argue, however, that at least some qualified collaborators should spare a certain amount of their time for this promising "interdisciplinary responsibility" with a rapidly increasing significance since Rio 1992. Society and economy are starting to realise that our planet's natural resources are limited, surprisingly 40 years after the publication of "Limits to Growth" (Meadows et al, Club of Rome, 1972). We therefore propose the second and much more concrete title for a stronger engagement of geography in attractive questions of sustainability: "Ecosystem Services and Resource Use". Knowing that this issue needs to be addressed on a global level, we also propose a more active participation of geographers in international research programmes. All these efforts are useless if we do not find a way in which our knowledge can contribute to so-called "science - policy dialogues" (third title) or even in political decision making processes.

My last point is an appeal to support the "International Research in Geographical and Environmental Education" (fourth title) on all levels and in all regions of the world. The reason is evident: We are at a crossroads with global change and globalisation, and therefore we need to consider a new way of thinking about global solidarity and responsibility and about a new relationship between nature and society. All this demands more courage to intervene in political decision processes from the local to the global level and more energy to support the education of the next generations in order to change today's Global Change.

Professor Bruno Messerli

IGC SPOTLIGHT

GLOBAL UNDERSTANDING:
PROMOTING GEOGRAPHY'S
COMPETENCES THROUGH AN
INTERNATIONAL UN-YEAR

Thinking globally and acting appropriately locally presupposes global understanding. A global understanding of socio-cultural and natural realities is an essential human condition in the 21st century: People need to understand how their everyday actions are embedded in global processes, and what the global impacts of these actions are in order to achieve more sustainable ways of living.

To reach these goals and to promote geography's visibility in the field, the IGU has launched an initiative for an International UN-Year of Global Understanding (YGU) in 2016. This is a unique opportunity to gain worldwide public attention for geography's competences in mastering major challenges of our time.

This initiative aims to bridge the awareness gap between local acts and global effects by stimulating transdisciplinary research initiatives through education and information, which will yield actionable insights into the ways people can live together more sustainably.



The YGU organisation will include continental action centres, as well as national working groups for the different fields of action. This initiative is gathering the best-known experts from all scientific fields. It is supported by global umbrella organisations, such as the International Council for Science, the International Social Sciences Council, the International Institute of Philosophy and the Humanities, as well as the International Human Dimension Program. The YGU has strong partners in economy, media, and politics. Nobel Prize laureates and leading representatives of sustainability policies act as goodwill ambassadors.

We invite all geographers to support this vital initiative on the national, continental, and global level. If you are interested in this initiative, please contact the secretariat IYUN_IGU@uni-jena.de.

Further information is available on
www.global-understanding.info.

Prof. Dr. Benno Werlen
Executive Director of YGU

The
YOUNG RESEARCHERS' FORUM
Party

TICKETS ARE AVAILABLE FOR 5€ AT THE
GeoDach BOOTH IN THE MARQUEE 2 TENT



**IGC
COLOGNE 2012
DOWN TO EARTH**

IGC TODAY 30.08.2012

32ND INTERNATIONAL GEOGRAPHICAL CONGRESS IN COLOGNE 26 - 30 AUGUST 2012

DEAR COLLEAGUES,



More than 2,400 geographers from some 80 countries have gathered for this year's IGC, making for a unique event with an unprecedented turnout. High attendance coupled with the innovative programme offers a wonderful chance to meet and exchange our ideas.

It is particularly important to have participants from Asia, Africa and Latin America, as they are traditionally underrepresented at IGU events. A special meeting, chaired by Prof. Chris Mutambirwa of the University of Zimbabwe, was held August 28th for our 60 IGC delegates from 12 African nations. The objective was to discuss participation in IGU activities as well as issues surrounding the development of Geography in Africa.

Another special session was held August 27th on the ambitious project initiated by the IGU and its former President Adalberto Vallega. The IGU seeks UNESCO's support for the proclamation of the International Year of Global Understanding (YIGU). One of its scopes is to better the global visibility of Geography, including research, teaching and the dissemination of knowledge on the ways we inhabit an increasingly globalised world. The project was presented by its coordinator, Prof. Benno Werlen (University of Jena), former IGU President Prof. Bruno Messerli and Prof. John Pickles (University of North Carolina).

The "ordinary" sessions are what lay at the heart of the IGC, of course. With so many interesting events scheduled over the course of the Congress – and often at the same time – it's hard to fit it all in. Our days in Cologne are full – full not only with meetings and presentation but with friendly contacts and enjoyable nights in this exciting city.

Vladimir Kolossov

IGU EXECUTIVE COMMITTEE ELECTION RESULTS

President: Vladimir Kolossov, Russia
 Vice Presidents: - RB Singh, India
 - Dieter Soyeze, Germany
 - Joos Droogleeveer-Fortuijn, The Netherlands
 - Jarkko Saarinen, Finland

GET IN TOUCH

E-Mail to the editorial office
 info@igc2012.org

IGC-Facebook
 facebook.com/igc2012

IGC-Twitter
 twitter.com/IGC_Cologne2012



Poster session in the POSTER-building

POSTER SESSION

Definitely Worth the Walk

Some 350 attendees "hoofed it" to the other side of campus to view the poster exhibition on Tuesday – and were not disappointed.

By 6 pm on Tuesday, the foyer of the Chemistry building several city blocks away from the rest of the IGC happenings was packed. And buzzing with people – some cradling beers, others taking notes – ambling, mingling, stopping, listening, pointing, asking and explaining. The event was the first of two IGC Poster Sessions, featuring a total of 180 scientific posters on the Congress' four key topics.

A winning format

The first round of posters, 80 in all, covered projects in the area "Global Change and Globalisation" and "Urbanisation and Demographic Change". With poster authors on hand to field questions from interested passers-by, the format is the science community's version of the "elevator pitch". Professor Duval Fernandes from Brazil, who busily represented his PhD student's poster "The New Migratory Flow from Haiti to Brazil", is a real advocate of this often downgraded presentation format. "It's a great way to get ideas out there – quickly, personally and with impact," Fernandes said, who had just exchanged cards with a scientist from Peru. "It can also be the beginning of something new."

For the "youngsters" in the field who had their own showing as part of the IGC's Young Researchers' Forum, the session was in most cases a debut. Ana Hoinic, a

student from the University of Bucharest and the youngest participant at just 22, had admittedly been nervous. "I'm at the very beginning of my career, so I'm starting with the most rudimentary form of presentation," Hoinic said. "I'm just hoping for lots of feedback – from professors and people who are already doing real research." Punyatoya Patra, an associate professor from the University of Delhi, who had been hovering interestedly around Hoinic's poster, piped in with a knowing and supportive, "And it's from this stage we grow."

Awards

Tuesday's Poster Session ended in an awards ceremony, with the top three presenters in each category receiving an armful of prizes – certificates, congress mugs, t-shirts, gift vouchers, flowers and plenty of applause from fellow scientists. First-timer Ana Hoinic was among the evening's winners, receiving the Young Researchers' Forum Second Prize and some feedback she won't soon forget.

Mission accomplished

The goal of the IGC's Poster Session format was two-fold – to stimulate scientific exchange in a relaxed, collegial atmosphere and to give greater prominence to the poster format. Anyone who was there would agree: Mission accomplished.

CONGRATULATIONS TO THE WINNERS OF THE POSTER SESSION:

Global Change and Globalisation

1. Gilles Rixhon et al.
 Dating coastal landforms in central Chile by cosmogenic nuclides: in-situ ¹⁰Be ages of a wave-cut platform and a depositional marine terrace

Urbanisation and Demographic Change

1. Elzbieta Biliska-Wodecka et al.
 Electoral aspects of the socio-political variability of big cities in Poland

Risks and Conflicts

1. Estuning Mei et al.
 Managing evacuation in Ngargomulyo municipalities: An example of the Merapi volcanic crises

Society and Environment

1. Oana Ionus et al.
 Landslide-susceptibility analysis, mapping and validation in the Balacita Piedmont (south-west Romania)

DATES

30.08.2012, 11.45 am:
Keynote-lecture "Risks and Conflicts":

Stephan Baas
 "Disaster Risk and Crises - Challenges for Food and Nutrition Security"

Derek Gregory
 "Deadly embrace: war, distance and intimacy"

The Keynote-lecture will take place in MAIN 13 and will be broadcasted live in KEY 7 if the maximum occupancy is exceeded.

GET YOUR IGC 2012 T-SHIRT

AND YOUR IGC 2012 MUG.

Both are available at the booth of the German Geographical Society (DGfG) in the marquee.

LAST MINUTE CHANGE

Business Meeting of the Commission on Land Degradation and Desertification

Starts earlier! At 10:00 am in MAIN 02

SCHOOLS PROGRAMME

MY DAY AT THE IGC

I liked to visit the university because I want to study there later. I was very impressed by the atmosphere. Did not think that there would be so many people. The speeches were very interesting but sometimes hard to understand. I liked the speech about the Croation tourism (O. Albolino, University of Naples) the most.

Statement from Nils Hast, pupil of the Gymnasium Gerresheim, Düsseldorf

From a pupil's point of view it was very interesting to see the general purpose of events like these. It was impressing how many people from all over the world came together, „only“ to discuss geographical matters with likeminded persons. It showed how important it is, to remain in exchange about this topic.

Statement from Bastian Kohler, pupil of the Gymnasium Gerresheim, Düsseldorf

INTERVIEW

DONGYING WEI
CHAIR OF IGU COMMISSION ON
GEOPARKS

I wanted to be a geographer, because...



... it was my true interest, from early on. I began studying Geography when I was in middle school and thought it was really interesting. I enjoyed answering questions in class and got very good scores. I went to the School of Geograph...

phy at Beijing Normal University and studied with very good geographers – it was there I realised that Geography also demands hard work if you want to dig deeper and know more.

What's your most important task as a geographer?

As a long-time geographer and now in my fourth year as Chair of the Commission on Geoparks, I think one of my most important tasks right now is communicating the role of the Geopark not only as an education tool, but as a site for recreation and nature conservation. The concept of sustainability as applied to Geoparks also needs further developing. Commission member research needs to be better communicated to various academic, industry and policy players in order to influence policy more effectively.

COMMENT OF THE DAY

"I wasn't able to travel the world this summer but now the world comes to visit me."

- Angela Klein | Volunteer | Germany -

Jörg Stadelbauer
Berlin 1899:
The Seventh International
Geographical Congress
A Retrospective on Occasion of the
32nd IGC, Cologne August 2012
Now available at the desk of



MARQUEE M 02.02

WEATHER
30.08.2012



23°C, rainy

IMPRINT

University of Cologne info@igc2012.org
Albertus-Magnus-Platz www.igc2012.org
50923 Köln



Congress dinner at the "Gilden im Zims" brewery

KEYNOTE "RISKS AND CONFLICTS"

Deadly embrace: war, distance and intimacy

It's become commonplace to claim that contemporary wars are fought from a distance: the iconic version is the drone missions flown over Afghanistan, Pakistan, Yemen and elsewhere from the United States. Yet wars have been waged at a distance throughout history, and we need a surer sense of the historical curve through which military violence has shaped (and been shaped by) the friction of distance. But we also need a sharper calibration of war's geography, including the emergence of new media to convey the theatre of war to distant audiences, changes in military logistics, and extensions to the range of weapons systems. Each of these has its own history and geography,



and a series of critical moments can be identified, from the Crimean War through to wars fought in the shadows of 9/11, that brings into closer view the distinctiveness of late modern war. Yet for all these changes the 'death of distance' – and the distance of death – in today's liquid world have been greatly exaggerated: contrary to Friedman's absurdist claim, the world is not flat, even for the US military. The spaces of war have become more complex, punctuated by a developing dialectic between 'here' and 'there', but there remains a stark intimacy to many killing spaces that requires careful reflection.

Derek Gregory

IGC SPOTLIGHT

YOUNG RESEARCHERS POSTERSESSION

Young Researchers from four different countries used the opportunity to apply for the IGC YRF Poster Session which was held on Tuesday evening during the „official“ IGC Poster Session. Covering a wide range of topics the Young Researchers bravely mastered the challenge to make a standing on an international congress. All visitors to the poster exhibition were invited to vote for their favorite student poster by ballot.

Hence, the winners truly represent the opinion of all participants.

We are happy to announce the three winners of the YRF Poster Session! Congratulations!



- 1st Place: Kristof Dorau | Cologne | Germany
- 2nd Place: Ana-Ilinca Hoinic | Bucharest | Romania
- 3rd Place: Elisabeth Miltz | Jena | Germany

HAVE A LOOK AT...

... the IGU Journals Database, which is the IGU's extensive list of Geography or Geography-related journals of the world. You can search by country, journal name, key word or other attributes. The database was initiated by Ton Dietz and colleagues at the African Studies Centre in Leiden.

<http://www.igu-online.org>

IGU SUSTAINABLE CITIES PROJECT

On Monday August 27, the results of one of the IGU special projects have been shared with IGC participants: the sustainable cities project (IGU Global Sustainable Cities Information Network). At the request of IGU's executive board, between 2010 and 2012 a group of Chinese scholars from Hunan University in Changsha has developed a pilot project with inputs from Prof. Ton Dietz from the University of Amsterdam in the Netherlands (on behalf of IGU). With Changsha city as an example a 'rainbow method' was developed, and used on two websites:

In English: www.oursus.org
and in Chinese: <http://zh.oursus.org>.

Seven different rainbow colors are being used to organize information about seven major elements of urban sustainability. For each of the rainbow colors (themes) there is room for:

- (1) experiences (by website users/ any type of contributor)
- (2) products and cases (for businesses and agencies); both 'advertisements' and 'approved' examples of sustainable products and cases
- (3) challenges (for sharing comments and criticisms) and
- (4) campaigns (for the 'environmental movement').

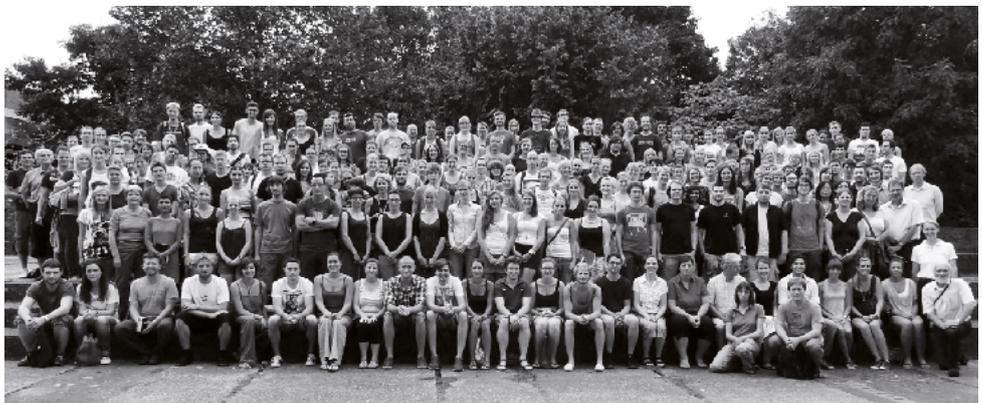
Social media are fully integrated.

Any questions?

Dr Fu Rong: drfurong@163.com
Ms Qiu Li: qiu@hnu.edu.cn
Prof Ton Dietz: dietzaj@ascleiden.nl



Global Sustainable Cities



Thank you to the Local Organising Committee, the Institute of Geography and the IGC 2012 Volunteers. And to all participants: thanks for having participated in the IGC 2012, Cologne. Have a safe journey back home. See you again in Kyoto.

KÖLNER GEOGRAPHISCHE ARBEITEN

Herausgegeben vom

GEOGRAPHISCHEN INSTITUT DER UNIVERSITÄT ZU KÖLN

durch

G. BARETH H. BESLER B. BRAUN H. BREMER E. BRUNOTTE H. BRÜCKNER F. KRAAS T. MANSFELDT J. NIPPER U.
RADTKE K. SCHNEIDER G. SCHWEIZER D. SOYEZ D. J. WERNER

Schriftleitung: D. WIKTORIN

- Heft 1** KELLERSOHN, Heinrich (1952):
Untersuchungen zur Morphologie der Talanfänge im mitteleuropäischen Raum. 104 S., 19 Abb., vergriffen.
- Heft 2** REITZENSTEIN, Ursula (1953):
Das Ruhrkohlengebiet im Vest Recklinghausen zwischen Emscher und Lippe. 102 S., 13 Abb., vergriffen.
- Heft 3** BRUX, Hedwig (1952):
Standortfragen der neueren Wohnsiedlungen am Beispiel der Städte Köln und Essen. 73 S., 2 Abb., vergriffen.
- Heft 4** KNAPP, Rüdiger (1953):
Studien zur Vegetation und pflanzengeographischen Gliederung Nordwest-Italiens und der Süd-Schweiz. 59 S., 3 Abb., vergriffen.
- Heft 5** HERMES, Karl (1955):
Die Lage der oberen Waldgrenze in den Gebirgen der Erde und ihr Abstand zur Schneegrenze. 277 S., 4 Karten u. 4 Tafeln in bes. Mappe, vergriffen.
- Heft 6/7** WEIGT, Ernst (1955):
Europäer in Ostafrika - Klimabedingungen und Wirtschaftsgrundlagen. XIV u. 385 S., 37 Karten u. Fig., 30 Abb., vergriffen.
- Heft 8** DREHWALD, Hans Rudolf (1955):
Zur Entstehung der Spillways in Nord-England und Süd-Schottland. Eine allgemeine und regionale Untersuchung. 82 S., 24 Karten u. Abb., vergriffen.
- Heft 9/10** UHLIG, Harald (1956):
Die Kulturlandschaft - Methoden der Forschung und das Beispiel Nordostengland. VI u. 355 S., 2 Karten, 56 Abb., vergriffen.
- Heft 11** JANSSEN, Hans (1957):
Die sozial- und siedlungsgeographische Entwicklung im westlichen Jülicher Land. 116 S., 15 Karten, 16 Abb., vergriffen.
- Heft 12** WIEGELMANN, Günter (1958):
Natürliche Gunst und Ungunst im Wandel rheinischer Agrarlandschaften. 220 S., 16 Karten, 11 Abb., vergriffen.
- Heft 13** ZSCHOCKE, Reinhart (1959):
Siedlung und Flur der Kölner Ackerebene zwischen Rhein und Ville. 132 S., 10 Karten, 17 Abb., vergriffen.
- Heft 14** BIRKENHAUER, Josef (1960):
Die Eifel in ihrer Individualität und Gliederung. 210 S., 16 Karten, 4 Profile, 16 Abb., vergriffen.
- Heft 15** KARGER, Adolf (1963):
Die Entwicklung der Siedlungen im westlichen Slavonien. 120 S., 15 Karten, 4 Tafeln, (Franz Steiner Verlag GmbH, Wiesbaden) € 14.-
- Heft 16** ZSCHOCKE, Herlig (1963):
Die Waldhufensiedlungen am linken deutschen Niederrhein. 82 S., 20 Karten, vergriffen.
- Heft 17** DÖRRENHAUS, Fritz (1966):
Der Ritten und seine Erdpyramiden.
BECKER, Hans (1966):
Vergleichende Betrachtung der Entstehung von Erdpyramiden in verschiedenen Klimagebieten der Erde. X u. 112 S., 6 Karten, 16 Tafeln, 11 Fig., € 14.-
- Heft 18** BARTEL, Jürgen (1966):
Baum und Strauch in der rheinischen Agrarlandschaft. 84 S., 8 Karten, 31 Abb., vergriffen.
- Heft 19** KLASSEN, Jürgen (1967):
Vergleichende Landschaftskunde der englischen Marschen. 331 S., 88 Abb., vergriffen.
- Heft 20** SIMONS, Peter (1968):
Die Entwicklung des Anbaus und die Verbreitung der Nutzpflanzen in der ägyptischen Nilstromoase von 1800 bis zur Gegenwart. Eine agrargeographische Untersuchung. 218 S., 47 Karten, 36 Fotos, u. zahlr. Tab., € 6.-
- Heft 21** RICHTER, Werner (1969):
Historische Entwicklung und junger Wandel der Agrarlandschaft Israels, dargestellt am Beispiel Nordgaliläas. 360 S., 65 Karten, 28 Abb., zahlr. Tab., vergriffen.
- Heft 22** ZSCHOCKE, Reinhart (1969):
Siedlungsgeographische Untersuchungen der Gehöferschaften im Bereich von Saar-Ruwer-Prims. 79 S., 8 Karten, mehrere Tab., vergriffen.
- Heft 23** SCHMITZ, Helge (1969):
Glazialmorphologische Untersuchungen im Bergland Nordwestspaniens (Galicien/Léon). 144 S., 7 Karten, 1 Profil, 26 Abb., € 10.-
- Heft 24** ZSCHOCKE, Reinhart (1970):
Die Kulturlandschaft des Hunsrücks und seiner Randlandschaften in der Gegenwart und in ihrer historischen Entwicklung. XI u. 254 S., 34 Karten, 12 Abb., (Franz Steiner Verlag GmbH, Wiesbaden) vergriffen.
- Heft 25** SCHACHT, Siegfried (1971):
Drei ausgewählte Reisbaulandschaften im westlichen Mittelmeergebiet (Küstenhof von Valencia, Sadobecken, Camargue). 199 S., 26 Abb., 29 Fotos, vergriffen.

Heft 26 KOCH, Wilfried (1971):

Funktionale Strukturwandlungen in Taiwan. Das Beispiel Luchou im Umland der Millionenstadt Taipei. 261 S., 10 Karten, 5 Abb., 35 Fotos, € 21.-

Sonderband FORSCHUNGEN ZUR ALLGEMEINEN UND REGIONALEN GEOGRAPHIE (1971):

Festschrift für Kurt Kayser zur Vollendung des 65. Lebensjahres. XXXIII u. 448 S., 31 Karten, 14 Fig., 36 Abb., (Franz Steiner Verlag GmbH, Wiesbaden) € 43.-

Heft 27 SCHLÜSSEL, Peter (1972):

Entwicklungen im Einflußbereich der Großstadt, dargestellt am Beispiel der Stadtrandgemeinde Lövenich bei Köln. 297 S., 16 Karten, 30 Fotos, zahlr. Tab., statistischer Anhang, € 19.-

Heft 28 KURSAWE, Hans-Dieter (1973):

Monheim, neue Stadtentwicklung zwischen den Großstädten. 263 S., 38 Abb., 14 Fotos, € 10.-

Heft 29 HENKEL, Gerhard (1973):

Die Wüstungen des Sintfeldes. Eine historisch-geographische Untersuchung zur Genese einer alten westfälischen Kulturlandschaft. 156 S., 28 Abb., 28 Fotos, vergriffen.

Heft 30 IM DIENSTE DER GEOGRAPHIE UND KARTOGRAPHIE (1973):

Symposium Emil Meynen. VI u. 107 S., 1 Karte, 3 Abb., 5 Fotos, € 7.-

Heft 31 BECKER, Hans (1974):

Das Land zwischen Etsch und Piave als Begegnungsraum von Deutschen, Ladinern und Italienern in den südlichen Ostalpen. 200 S., 20 Karten, 12 Fig., 29 Abb., € 29.-

Heft 32 NÖLLE, Fritz W. (1975):

Siegburg und Troisdorf. Die Entwicklung zweier Nachbarstädte an der unteren Sieg. XV u. 312 S., 52 Tab., 43 Abb., 14 Bilder, € 11.-

Heft 33 SABELBERG, Elmar (1975):

Der Zerfall der Mezzadria in der Toskana urbana. Entstehung, Bedeutung und gegenwärtige Auflösung eines agraren Betriebssystems in Mittelitalien. 260 S., 43 Abb., 16 Fotos, € 13.-

Heft 34 MATHEMATISCHE VORHERSAGEMODELLE ZUR GEWÄSSERGÜTE (1976):

SYMADER, Wolfhard: Multivariate Nährstoffuntersuchungen zu Vorhersagezwecken in Fließgewässern am Nordrand der Eifel.

RUMP, Hans Hermann: Mathematische Vorhersagemodelle für Pestizide und Schadstoffe in Gewässern der Niederrheinischen Bucht und der Nordeifel. 276 S., 1 Karte, 19 Abb., 48 Tab., € 10.-

Heft 35 STRAHL, Dorothea (1977):

Sozial-ökonomische Wertmaßstäbe und ihre Wandelbarkeit im ländlichen Raum. Untersucht an Beispielen aus dem Dollendorfer und Hillesheimer Kalkgebiet und der östlichen Hocheifel. 221 S., 1 Karte, 4 Beil., 5 Fig., € 10.-

Heft 36 BREMER, Hanna und PFEFFER, Karl-Heinz (Hrsg.) (1978):

Zur Landschaftsentwicklung der Eifel. Beiträge zur Ge-

ologie, Bodenkunde und Geomorphologie. 255 S., 40 Abb., 7 Tab., 6 Beil., vergriffen.

Heft 37 HEGNER, Rüdiger (1979):

Nichtimmergrüne Waldformationen der Tropen. Untersuchungen zu ihrer Typologie und Verbreitung. 410 S., 57 Abb., 64 Tab., € 15.-

Heft 38 ZENSES, Elisabeth (1980):

Reliefentwicklung in der nördlichen Eifel. 220 S., 17 Abb., 10 Karten, € 14.-

Heft 39 KUPPELS, Inge (1981):

Die Karstspalten der Schwäbischen Alb als Leitformen für die Morphogenese. 221 S., 13 Abb., 16 Tab., 12 Karten, vergriffen.

Heft 40 TOPOROWSKY, Norbert (1982):

Zentrale Orte und zentralörtliche Beziehungen in der Nordeifel und ihrem Bördenvorland vom Ende des 18. Jahrhunderts bis zur Gegenwart. VIII u. 218 S., 35 Tab., 8 Karten, vergriffen.

Heft 41 SCHMIDT, Siegfried (1982):

Wandlungen von Gefügemustern und Wirtschaftsformen im ländlichen Raum der südwestlichen Rheinbacher Lößplatte zwischen 1660 und 1830. 360 S., 10 Karten, 16 Tab., € 16.-

Heft 42 BURGER, Dieter (1982):

Reliefgenese und Hangentwicklung im Gebiet zwischen Sayn und Wied. 139 S., 83 Fig., 12 Tab., € 10.-

Heft 43 NICKE, Herbert (1983):

Reliefgenese des südlichen Bergischen Landes zwischen Wupper und Sieg. 286 S., 25 Abb., 2 Karten, 6 Profile, € 15.-

Heft 44 ARENTZ, Ludwig (1983):

Nährstoffe und Spurenelemente in Böden der Vulkaneifel. Eine landschaftsökologische Untersuchung mit Hilfe multivariater statistischer Verfahren. 247 S., 47 Abb., 16 Tab., € 12.-

Heft 45 EK, Camille und PFEFFER, Karl-Heinz (Hrsg.) (1984):

Le karst belge / Karstphänomene in Nordrhein-Westfalen. 583 S., 137 Abb., 23 Tab., 34 Fotos, € 23.-

Heft 46 JUNGE, Harald (1987):

Reliefgenerationen und Petrovarianz im Norden der Eifeler Nord-Süd-Zone. 245 S., 11 Tab., 32 Abb., 5 Tafeln, vergriffen.

Heft 47 ZEHNER, Klaus (1987):

Stadtteile und Zentren in Köln. Eine sozialgeographische Untersuchung zu Raumstruktur und räumlichem Verhalten in der Großstadt. IX u. 171 S., 17 Karten, 23 Tab., 16 Abb., vergriffen.

Heft 48 KUBINIOK, Jochen (1988):

Kristallinvergrusung an Beispielen aus Südostaustralien und deutschen Mittelgebirgen. 178 S., 10 Karten, 27 Abb., 7 Fotos, € 12.-

Heft 49 JANUS, Ursula (1988):

Löß der südlichen Niederrheinischen Bucht. 174 S., 3 Karten, 5 Tab., 31 Abb., € 12.-

Heft 50 ZENSES, Elisabeth (1989):

Kaltzeitliche Überformung des Altreliefs in Süd- und Zentral-Wales im Vergleich zur Nord-Eifel. 148 S., 13 Karten, 12 Tab., 33 Abb., € 12.-

Heft 51 BREITBACH, Thomas (1989):

Basaltschuttdecken in der Hocheifel. Indikatoren pleistozäner Reliefüberprägung. Mit Vergleichsuntersuchungen im Hessischen Bergland. 265 S., 5 Tab., 41 Abb., € 15.-

Heft 52 BORGER, Harald (1990):

Bohnerze und Quarzsande als Indikatoren paläogeographischer Verwitterungsprozesse und der Altreliefgenese östlich von Albstadt (Schwäbische Alb). XII u. 209 S., 11 Karten, 18 Tab., 38 Abb., 35 Fotos, € 17.-

Heft 53 FLORIAN, Andrea-Johanna (1990):

Passagen. Ein Beispiel innerstädtischer Revitalisierung im Interessenkonflikt zwischen Stadtentwicklung und Einzelhandel. 223 S., 72 Tab., 14 Abb., € 15.-

Heft 54 NUTZ, Manfred (1991):

Räumliche Mobilität der Studierenden und Struktur des Hochschulwesens in der Bundesrepublik Deutschland. Eine Analyse des Entscheidungsverhaltens bei der Studienortwahl und der Einzugsgebiete der Universitäten. X u. 191 S., 29 Karten, 10 Tab., 23 Abb., € 16.-

Heft 55 RIETHER, Norbert (1991):

Geomorphologische Prozesse im Lichte von Sedimenten aus dem westlichen Sri Lanka. 236 S., 40 Tab., 104 Abb., € 17.-

Heft 56 WÜRZ, Axel (1992):

Die Vegetation der Moore Südtirols. IX u. 97 S., 54 Tab., 6 Abb., € 16.-

Heft 57 NIPPER, Josef & NUTZ, Manfred (Hrsg.) unter Mitarb. v. Dorothea WIKTORIN (1993):

Kriegszerstörung und Wiederaufbau deutscher Städte. Geographische Studien zu Schadensausmaß und Bevölkerungsschutz im Zweiten Weltkrieg, zu Wiederaufbauideen und Aufbaurealität. VIII u. 228 S., zahlr. Karten, Tab., Abb. u. Fotos, vergriffen.

Heft 58 REUBER, Paul (1993):

Heimat in der Großstadt. Eine sozialgeographische Studie zu Raumbezug und Entstehung von Ortsbindung am Beispiel Kölns und seiner Stadtviertel. X u. 154 S., 7 Karten, 7 Tab., 38 Abb., vergriffen.

Heft 59 WEISS, Günther (1993):

Heimat vor den Toren der Großstadt. Eine sozialgeographische Studie zu raumbezogener Bindung und Bewertung in Randgebieten des Verdichtungsraums am Beispiel des Umlandes von Köln. X u. 176 S., 6 Karten, 20 Abb., € 17.-

Heft 60 SACHS, Klaus (1993):

Ortsbindung von Ausländern. Eine sozialgeographische Untersuchung zur Bedeutung der Großstadt als Heimatraum für ausländische Arbeitnehmer am Beispiel von Köln. XII u. 138 S., 3 Karten, 8 Tab., 16 Abb., € 17.-

Heft 61 GEBHARDT, Hans & SCHWEIZER, Günther (Hrsg.) unter Mitarb. v. Paul REUBER (1995):

Zuhause in der Großstadt. Ortsbindung und räumliche Identifikation im Verdichtungsraum. Mit Beiträgen von H. Gebhardt, P. Reuber, K. Sachs, G. Schweizer, B.-A. Stegmann, G. Weiss, K. Zehner. VIII u. 107 S., zahlr. Karten, Tab. u. Abb., € 17.-

Heft 62 ALISCH, Matthias (1995):

Das äolische Relief der mittleren Oberen Allerniederung (Ostniedersachsen) - spät- und postglaziale Morphogenese, Ausdehnung und Festlegung historischer Wehsande, Sandabgrabungen und Schutzaspekte. IX u. 176 S., 5 Karten teilw. farbig, 13 Tab., 41 Abb., 10 Fotos, € 19.-

Heft 63 BRUNOTTE, Ernst; IMMENDORF, Ralf & SCHLIMM, Reinhold (1994):

Die Naturlandschaft und ihre Umgestaltung durch den Menschen. Erläuterungen zur Hochschulkursionskarte Köln und Umgebung. Mit Beiträgen von A.J. Kalis & J. Meurers-Balke und Chr. Wallossek. VIII u. 123 S., 23 Karten, 1 farbige Kartenbeilage, 11 Tab., 20 Abb., € 18.-

Heft 64 VERJANS, Theo (1995):

Vergleichende vegetationskundlich-ökologische Studien in der alpinen Stufe des Latemar und Rosengarten (Prov. Bozen und Trient) auf der Grundlage pflanzensoziologischer und pedologischer Erhebungen. X u. 98 S., 45 Tab., 70 Abb., 12 Anlagen, vergriffen.

Heft 65 WALLOSSEK, Christoph & WÜRZ, Axel (Hrsg.) (1995):

Studien zur Biogeographie, Geoökologie und Umweltbelastung. VII u. 136 S., zahlr. Karten, Tab. u. Abb., € 17.-

Heft 66 RADTKE, Ulrich (Hrsg.) (1995):

Vom Südatlantik bis zur Ostsee - neue Ergebnisse der Meeres- und Küstenforschung. Beiträge der 13. Jahrestagung des Arbeitskreises Geographie der Meere und Küsten vom 25.-27. Mai 1995 in Köln. VI u. 242 S., zahlr. Karten, Tab., Abb. u. Fotos, € 19.-

Heft 67 MANZ, Hermann Heinrich (1995):

Der Wiederaufbau der Zentren der beiden Städte Magdeburg und Hannover nach dem Zweiten Weltkrieg. Ein Vergleich der politischen Hintergründe, der Aufbauziele, der Planungen und deren Realisation. IV u. 165 S., 67 Abb., 20 Fotos, € 17.-

Heft 68 STEGMANN, Bernd-Achim (1997):

Großstadt im Image. Eine wahrnehmungsgeographische Studie zu raumbezogenen Images und zum Image-marketing in Printmedien am Beispiel Kölns und seiner Stadtviertel. XII u. 219 S., 10 Tab., 19 Abb., 6 Karten, vergriffen.

Heft 69 SOYEZ, Dietrich & BAUER, Jutta (Hrsg.) (1998):

Luftbilddauswertung als angewandte Umweltforschung. VII u. 146 S., zahlr. Karten, Tab. u. Abb., € 18.-

Heft 70 RADTKE, Ulrich (Hrsg.) (1998):

Lumineszenzdatierung äolischer Sedimente. Beiträge zur Genese und Altersstellung jungquartärer Dünen und Löss in Deutschland. VIII u. 124 S., zahlr. Karten, Tab. u. Abb., € 17.-

Heft 71 HÖHMANN, Marc (1999):

Flächenrecycling als raumwirksame Interaktion. Eine politisch-geographische Untersuchung über Entscheidungsstrukturen und Konfliktpotentiale räumlicher Veränderungen am Beispiel von Köln. VIII u. 125 S., 16 Abb., 7 Karten, 7 Fotos, € 17.-

- Heft 72 BUBENZER, Olaf (1999):**
Sedimentfallen als Zeugen der spät- und postglazialen Hang- und Talbodenentwicklung im Einzugsgebiet der Schwülme (Süd-niedersachsen). X u. 132 S., 53 Abb., 7 Karten, 16 Tab., € 18.-
- Heft 73 WIKTORIN, Dorothea (2000):**
Grundeigentum und Stadtentwicklung nach der Wende. Räumliche Wirkungen der Transformation von Grundeigentumsverhältnissen seit 1990 am Beispiel der Innenstadt und Äußeren Neustadt von Dresden. VIII u. 151 S., 20 Abb., 10 Tab., € 18.-
- Heft 74 WALLOSSEK, Christoph (2000):**
Der Buntschwingel (*Festuca varia* agg., *Poaceae*) im Alpenraum. Untersuchungen zur Taxonomie, Verbreitung, Ökologie und Phytosoziologie einer kritischen Artengruppe. XII u. 142 S., 45 Abb., 30 Tab., 19 Fotos, € 18.-
- Heft 75 KNUPP, Marcus (2001):**
Wochenmärkte im Jemen. Ein traditionelles Versorgungssystem als Indikator gesellschaftlichen Wandels. XIV u. 152 S., 11 Abb., 9 Karten, 29 Tab., 16 Fotos, € 18.-
- Heft 76 SOYEZ, Dietrich & SCHULZ, Christian (Hrsg.) (2002):**
Wirtschaftsgeographie und Umweltproblematik. VI u. 118 S., zahlr. Tab. u. Abb., € 18.-
- Heft 77 BOLLIG, Michael, BRUNOTTE, Ernst & BECKER, Thorsten (Hrsg.) (2002):**
Interdisziplinäre Perspektiven zu Kultur- und Landschaftswandel im ariden und semiariden Nordwest Namibia. VI u. 219 S., zahlr. Tab., Abb., Karten u. Fotos, € 25.-
- Heft 78 THÖNNESSEN, Manfred (2002):**
Elementdynamik in fassadenbegrünendem Wilden Wein (*Parthenocissus tricuspidata*). XII u. 113 S., 30 Abb. u. Fotos, 51 Tab., € 18.-
- Heft 79 SPRUNKEL, Elke (2003):**
Vegetationskundlich-ökologische Untersuchungen in Kiesgruben des Kölner Stadtgebietes unter besonderer Berücksichtigung der Naturschutzproblematik im Verdichtungsraum. X u. 188 S., 45 Abb., 47 Tab., Anhang: 34 Tab., 8 Karten. CD-Rom Publikation, € 12.-
- Heft 80 BUBENZER, Olaf (Hrsg.) (2003):**
Studien zur Angewandten Geomorphologie und Landschaftsforschung. VI u. 110 S., 43 Abb., 10 Tab., € 18.-
- Heft 81 SCHELLMANN, Gerhard & RADTKE, Ulrich, with contributions by Franziska Whelan (2004):**
The Marine Quaternary of Barbados. XII u. 137 S., zahlr. Tab. u. Abb., € 30.-
- Heft 82 SCHWEIZER, Günther; KRAAS, Frauke & ZEHNER, Klaus (Hrsg.) (2004):**
Köln und der Kölner Raum. Ein geographischer Exkursionsführer. Teil 1: Stadt und Umland. VI u. 244 S., zahlr. Abb., € 20.-
- Heft 83 SCHWEIZER, Günther; KRAAS, Frauke & ZEHNER, Klaus (Hrsg.) (2004):**
Köln und der Kölner Raum. Ein geographischer Exkursionsführer. Teil 2: Themen-Exkursionen. VI u. 190 S., zahlr. Abb., € 20.-
- Heft 84 HAMHABER, Johannes (2004):**
Streit um Strom. Eine geographische Konfliktanalyse New Yorker Elektrizitätsimporte aus Québec. IX u. 131 S., 33 Abb., 18 Tab., € 18.-
- Heft 85 CHILLA, Tobias (2004):**
,Natur'-Elemente in der Stadtgestaltung. Diskurs, Institutionalisierung und Umsetzungspraxis am Beispiel von Fassadenbegrünung. X u. 123 S., 24 Abb., € 18.-
- Heft 86 BLÄSER, Ralf (2005):**
Gut situiert: Bankwatch-NGOs in Washington, D.C.. XI u. 186 S., 36 Abb., 8 Tab., € 18.-
- Heft 87 HARTMANN, Kerstin (2007):**
Jungquartäre Reliefentwicklung, Substratgenese, Klimageschichte und aktuelle Morphodynamik am Ostrand der Namib in der Region Hartmannstal-Marienusflusstal (NW-Namibia). 204 S., 68 Abb., 23 Tab., 113 Fotos, 11 Karten, € 20,-
- Heft 88 WANG, Hui (2007):**
The forefront of urban China. New Special Development Zones and their impact on the spatial transformation of Chinese cities - A case study of Xi'an. XI u. 148 S., 27 Abb., 23. Tab., € 18,-
- Heft 89 BLÖCHL, Alexander (2010):**
Ökonomische Analyse von Naturrisiken am Beispiel von Hangrutschungen der Schwäbischen Alb. XII u. 114 S., 27 Abb., 19 Tab., € 18,-
- Heft 90 CURDT, Constanze & BARETH, Georg (eds.) (2010):**
Proceedings of the Data Management Workshop, 29.-30.10.2009, Univ. of Cologne, Germany. VII u. 154 S., 97 Abb., 5 Tab., € 18,-
- Heft 91 DITTRICH, Monika (2010):**
Physische Handelsbilanzen. Verlagert der Norden Umweltbelastungen nach Süden? XIII u. 152 S., 44 Abb., 19 Karten, 11 Tab., € 18,-
- Heft 92 Lenz-Wiedemann, Victoria & Bareth, Georg (2011):**
Proceedings of the Workshop on Remote Sensing Methods for Change Detection and Process Modelling, 18.-19.11.2010, University of Cologne, Germany. VII u. 179 S., 123 Abb., 22 Tab., € 18,-
- Heft 93 Kraas, Frauke, Zehner, Klaus & Gelhar, Martina (Hrsg.) (2013):**
Köln und der Kölner Raum. Ein geographischer Exkursionsführer. V u. 108 S., 74 Abb., 6 Tab., € 18,-
- Heft 94 Bendig, Juliane & Bareth, Georg (eds.) (2014):**
Proceedings of the Workshop on UAV-based Remote Sensing Methods for Monitoring Vegetation. VI u. 177 S., 95 Abb., 25 Tab., € 18,-

Bezug: KÖLNER GEOGRAPHISCHE ARBEITEN
Geographisches Institut, Universität zu Köln
Albertus-Magnus-Platz, D - 50 923 K ö l n
Telefax 0221 / 470-4917
E-mail: ade85@uni-koeln.de

At the end of August 2012, the University of Cologne was privileged to welcome over 3,000 guests from all over the world to the 32nd International Geographical Congress 2012. Under the motto *Down to Earth*, Geography was able to present a representative showcase of topics, issues and solutions that illustrated the discipline's contribution to many urgent problems affecting humankind. The congress provided a forum for a focused exchange of ideas within the global scientific community of geographers. Furthermore, the congress became a memorable festival of and for geography, not only during the actual congress meetings but also through a host of other activities outside the lecture halls and during social events, for example the opening ceremony in the Kölner Philharmonie (the Cologne Philharmonic) or the Young Researchers Forum.

The Local Organising Committee of the 32nd International Geographical Congress 2012 here presents the closing report of the congress. The LOC hopes that this will achieve more than simply completing the formal conclusion and documentation of this important event for geography. The eight keynote speeches are documented and a detailed review of the congress is provided. The editors hope that the detailed evaluation and assessment of this significant event, highlighting organisational aspects as well as documenting its phases and activities and providing quantitative data, may be a helpful source for planning such events in the future. This relates not only to positive experiences, but also to aspects of the event that were difficult. Finally, the publication includes the congress DVD with film documents.
