

Urbanity and Human Ecology: Modifying European Urban Life for Sustainability

Conference of the German Society for Human Ecology (DGH) and
the Commonwealth Human Ecology Council (CHEC)

14 - 17 May 2014, Sommerhausen (Main), Germany



In 2009, the German Society for Human Ecology (DGH) played a major role in supporting the joint CHEC and SHE conference in Manchester. This year CHEC supported DGH's annual conference on 'Urbanity and Human Ecology' held in Sommerhausen; a delightful medieval town south of Würzburg. The conference attracted just under 100 delegates, mostly from Germany, but also from Portugal, Switzerland and the UK, as well as Australia, Brazil, India, Iran, and Russia. The friendly conference atmosphere stimulated many lively discussions and helped participants to build new contacts. There was also time to walk in the local vineyards and to taste the excellent wines produced in Sommerhausen.

CHEC was well represented by Donnell Davis (CHEC Australia), Ian Douglas, Morteza Honari and Eva Ekehorn as well as CHEC's communication intern, André Lombard who took the place of Mark Robinson who was unable to

participate. Donnell and Ian were both keynote speakers. Morteza gave a paper on "Health and the Ecology of the Urban: Developing an Interdisciplinary Framework for Studying Health in Urban Ecosystems". Eva gave a short presentation on CHEC at the opening ceremony and she also presented a paper (see below for papers).

There are few places where human ecology is the main subject for discussion and this opportunity to listen, learn and to discuss was most welcome given the current international debate on climate change and sustainable development. The outcomes will help CHEC to further promote the understanding and practical use of human ecology within the Commonwealth and beyond.

The CHEC participants all wish to thank their German colleagues for kindly using English for nearly all the presentations and discussions and for their great hospitality.

Observations from André Lombard, CHEC's Communication Intern:

It was with great pleasure that I accepted the offer to attend the DGH and CHEC conference in Sommerhausen in my role as Communications Officer. I intended to make the most of it: by providing an element of social media to the conference, networking with other students interested in human ecology and contributing to debates. I had varying degrees of success with these aims, for reasons detailed below.

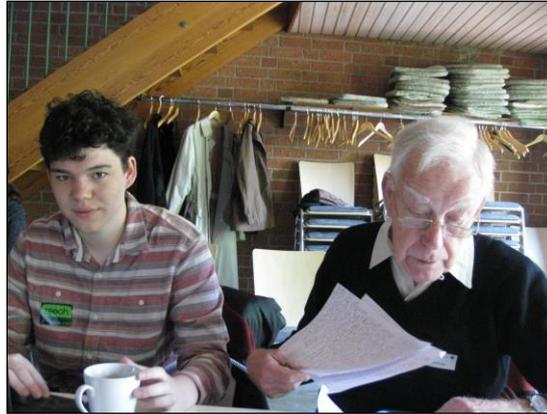
After an extremely comfortable journey I was greeted in Sommerhausen by organiser of the conference, Wolfgang H. Serbser, and his assistant Sarah. They kindly showed me to my accommodation at the local Bahnhof. I then spent the evening at the delightful Weinhaus Düll, meeting fellow conference attendees and enjoying traditional Bavarian food.

Wednesday afternoon saw the conference kick off in earnest in the town church, where we were welcomed by the Mayor and Vicar. Following this, Ian Douglas gave his keynote speech on "Urban Futures: Sustainability and Equity in the Face of Climate Change". I found his ideas of relating geography back to children very interesting: he felt youngsters are more interested in geography when they can relate to the project. He illustrated the example of children doing rainwater projects at school, rather than learning about deserts. I also found the repeated concept of integrated urbanity very interesting, and this was something that Ian expanded on in his next speech. After this, the conference heard a passionate speech by Ernst Ulrich von Weizsäcker on "Sustainable Development Goals: wo gibt's überhaupt noch Chancen?" In this he argued that 10 years after the 8 Millennium development goals we have seen an alleviation of poverty and an increase in the middle class: however, this has been at the expense of the environment which has seen a massive deterioration. He argued that the environment needs to be brought back to the forefront of the

global agenda, and this relies on decoupling economic well-being from resource consumption. There needs to be a relative decoupling in the Southern hemisphere, while the North needs an absolute decoupling. This can be done by making in attractive proposition to citizens by proving that it won't make us poor and unhappy. A five-fold increase in resource productivity would be needed as well. While I believe environmentalism does need to come up higher on the global agenda, I remained unconvinced by this particular argument. I think too many people would regard resource

decoupling as a regression for society, and therefore this idea is unlikely to succeed.

On Thursday I decided to attend the session on "Megapolis and Urban Magic", hosted by Ian Douglas and Ulrich Loening, followed by the inquiry and discussion group after lunch. I enjoyed the example-heavy presentation, and some of the facts that Ian had in his presentation were thought-provoking. The challenge of adapting urbanity to match the increase in human population is an incredible challenge, especially with the rise of million people cities expected to be powered by the third world. I was also interested to see Ian explain the global megalopolises that we are beginning to see and the villages within the megalopolises. Examples of this include Boston and Washington and the Pearl River Delta in Guangdong Province, China (Guangzhou, Shenzhen, Zhuhai, Foshan, Hong Kong, Macau etc.). Having lived in the Pearl River Delta I found this example particularly pertinent. There was also some controversy as several of the megalopolises overrode nation borders. I personally think however that the nation state trumps the megalopolis, and that megalopolis' are constrained by borders. I also think that the idea of these cross-border megacities needs to take more into account human factors, such as culture.



André Lombard and Ian Douglas

Ulrich Loening then presented the second half of the lecture on “the need for the community of a city to develop culture, philosophy and ways of living: the example of Edinburgh, Scotland”. I enjoyed this as it was framed around a city I know well.

After lunch and a vineyard tour, I took part in the discussion about the morning’s lectures. We discussed how transport links, effective water management and effective regional planning can all contribute to global megacities. As the attendees were all members of CHEC, how we can collaborate with UN Habitat, ICLEI, and EAROPH to develop arguments on environmental issues was discussed.

Sandwiched in-between the urban magic lecture and discussion group, I attended Donnell Davis’ keynote speech on “The Social Dimension of Climate Change”. Again, I enjoyed the example-heavy nature of the presentation, even if its content was alarming. Donnell talked about the planet having a fever, and the countries that are at risk from this. The case study she used was Kiribati. Of particular concern was the 30-60 age group, who don’t fit into refugee policy, and would be less likely to move. I fully agreed with Donnell when she stated that we had an ethical compulsion to relocate these people: this is a global problem, and therefore as a global community. The fact that we are set to lose 2 countries in the next 5 years shows that what was one tomorrow’s problem is now today’s.

In the afternoon around 15 others and I attended the opening of the Student Conference. Although the theme of the conference was intended to be “urban campus”, there was no clear agenda set out for the meeting. There was also no obvious chair of the meeting which added to the anarchic feel. Delegates appeared confused of what was expected of them. I was also asked to present a paper on my experiences of the green movement at UK universities the night before the student conference. This did not allow me enough time to gather my thoughts and come up with a satisfactory paper. In the end we did not get around to my presentation. I believe that greater organisation and management, as well as a clear itinerary, are needed for the student conference in future. I also think more space is needed to allow the students to interact with each other. After the student conference I

was graciously invited out to dinner in Wurzburg by 4 of the students, which allowed me more time to network with other environmentally interested young people than the conference did. I feel that students weren’t engaged enough by the conference: this was proved the next morning when less than half of the students who attended on Thursday showed up.

On Friday I attended a Skype session at the local fire station with the remaining students. This allowed us to network and share ideas with people from all over Europe (and potentially the world). I was inspired to hear about grassroots environmentalism that is happening on campuses in the Netherlands and Germany. The Skype conference was an excellent way to involve people who logistically could not make it to Sommerhausen, and I would like to see this incorporated into the main conference in future. It is extremely carbon friendly as well! After this the last of the delegates gave their presentations. I was particularly impressed with a student organisation called REECH (renewable energy challenge). It is a competition, for students at Universities, to design and build their own renewable energy contraptions. I really feel that it is organisations like this which can build the future of the human ecology at the moment, so it was a personal disappointment to me to see the speech attended by only 7 people.

It would have been nice to see more delegates there to help offer advice and expertise to organisations like this.





REECH's website (in German)

<http://www.reech.net/>

In the afternoon I attended the session on Urban Food and Meal Security. I was particularly interested in the distinction between food security and meal security, something I have never really thought of before. The idea of dignity in food during disasters is something that I feel is extremely important in trying to establish normality in the wake of a crisis. I also found Eva Ekehorn's presentation on plastic highly informative and thought provoking. I believe that the reduction of plastic in packaging is something that environmentalists should work towards, as it

is achievable and benefits both parties. Following this presentation, I attended a wine tasting event in the evening.

On Saturday Donnell and I were given the chance to give feedback from the student conference to the general conference. I stated that there needs to be more amalgamation of the two conferences so youth delegates do not feel ignored and can get more advice and help on projects. I also stated that it was important to have Wi-Fi at the conference: the lack of Wi-Fi meant I was unable to tweet from the conference, which would have allowed me to promote the conference further. While this provoked a mixed reaction, I believe having Wi-Fi at the conference is essential for attracting a younger audience, as well as for the sustainability of the conference.

Overall, I thoroughly enjoyed the conference, and I am extremely grateful to have been given the opportunity to go to Germany. I hope I represented CHEC and its interests well. I would also like to thank Wolfgang H. Serbser and the rest of the DGH for being such wonderful and accommodating hosts.

A selection of talks and discussions:

Keynotes

Beside CHEC's own keynote speakers, Donnell and Ian, other outstanding speakers included:

- *Ernst Ulrich von Weizsäcker*, Co-President of the Club of Rome, talked about how we could reach Sustainable Development Goals by dematerialisation and decarbonisation.
- *Christine von Weizsäcker*, President Women in Europe for a Common Future, talked about 'Green and participative cities – But what about their surrounding country side and its inhabitants?' According to this framework cities impose their will on the surroundings and the villages and small cities have to obey the big cities' wishes.
- The keynote address by *Dieter Steiner*, formerly of The Swiss Federal Institute of Technology (ETH) in Zurich and the author of a biography on Rachel Carson. See summary below.
- *Josef Schmid*, Professor of Demography in Bamberg since 1980, spoke in German about population issues.

The Conference ended with a brilliant talk by Prof *Wolfgang Haber* on 'Urban Living: not a Natural State - the Dilemma of Human Ecology' in which he explained the human changes to nature's ecological cycle, which in its natural state uses the sun's energy to allow the plants to take nutrients from the soil, which the animals then consume, eventually returning them to the soil where decomposers break down organic matter and release the nutrients for the plants to use once more. This nutrient cycle is disrupted by urbanisation and modern agriculture, reducing the natural nutrients available for plants and wildlife and increasing the need to recycle organic waste to the land to restore the soil's fertility and to sustain food production. He argued that soil is the key element and it had to be better cared for.

Donnell Davis: Momentum for Change: Social Dimensions of Climate



*Donnell Davis, Iva Pires,
Christine von Weizsäcker*

UN Habitat's map of pressure cooker cities affected by the intensity of climate change impacts shows man's problem locations in Asia and Africa, but also in Australia

and the Pacific. A planetary view of tipping points for many environmental changes, including climate change and biodiversity loss, emphasises that biodiversity loss is already irrevocable. A World Risk Report in terms of risk exposure, susceptibility, ability to cope and to adapt shows the following ranking of those with the most severe problems:

- 1) Vanuatu
- 2) Tonga
- 3) Philippines
- 4) Solomon Islands
- 5) Guatemala
- 6) Bangladesh
- 7) Timor-Leste
- 8) Costa-Rica
- 9) Cambodia

Two Pacific coral reef island countries facing rising sea-levels may have to evacuate their people within two years because monthly spring tides are already undermining buildings, spreading saline water over fields and washing away boats and other equipment. People are already being asked to move from the areas of highest risk, but with no material or financial assistance few can do so. Those over 60 are particularly resistant to leaving their heritage and livelihoods behind. While Australian migration policies would exclude Pacific Islanders, New Zealand would help them. Even so the cool temperate landscape is not very welcoming to equatorial Pacific Islanders. Some assistance in terms of micro-finance and small business development is helping those who remain on the islands, but the long-term prospects for the low reef islands are poor.

Looking at regional government and planning in the Great Brisbane area of SE Queensland, Australia, there are problems of locating new urban development in appropriate places, avoiding contaminated land and poor quality water. Air pollution, blown inland to the Ipswich area, has health impacts and suggests that plans to locate more than 100,000 more people there may be unwise. Regional ecosystem and biodiversity mapping, largely by volunteer scientists, enables the degree of human disturbance and biodiversity loss to be established and helps in deciding where extra ecosystem protection is required.

International organisations, such as the World Council of Mayors and the C40 Cities for climate change, have demonstrated what individual cities can do to mitigate and adapt to climate change. Poorer countries may be able to leapfrog industrialised countries in achieving mitigation as the latter face much greater challenges in reducing per capita emissions of greenhouse gases.

However, Donnell also posed questions to the attendees to take personal responsibility and to recommend a stronger role for Human Ecology Societies. This resulted from a research-based story commencing with raw information from United Nations Habitat of "humanity in urbanity" showing the highest populated and highest risk cities world-wide.

She introduced the Schelling saying "Humans are the only species that can innovate our way out of trouble" and HG Wells' famous statement that "History is a race between education and catastrophe" and invited the group to "win the race" against climate change. Overall, concerted social action to tackle climate change must be twined with innovation. Vulnerable communities, national and local governments, local and international NGOs, multi-lateral institutions and professionals must have the information to make the right decisions for the right reasons. This requires information-gathering on climate change and sustainability, with case studies of successful strategies that ensure safety and well-being for humanity. Together, it is possible to "win the race" against climate catastrophe.

Dieter Steiner: The City and the Wilderness

Dieter Steiner has written books about John Muir and Rachel Carson, two pioneers of nature conservation and ecosystem protection. John Muir is regarded as the founder of the National Parks movement, initiating the declaration of the Yosemite National Park in California. He pledged its landscape to the “University of the Wilderness”. He saw nature as being “at war with civilisation” and once wrote that urban people were “all more or less sick: not a perfectly sane man in San Francisco”. He argued for the protection of wild areas, preservation of pristine landscapes, and conservation as the moderate use of natural resources. To get the National Park created he had to allow visitors to Yosemite. Today four million people a year visit Yosemite, 90 percent of them coming by car. Most however stay in the valley, but some 50,000 using the hiking trails into wilder areas.

This retreat from the urban rat-race to the soothing effect on natural scenery is a form of what E.O.Wilson calls “biophilia”. This notion of socio-biology implies that there is some genetic programming, as in other animals, of our reactions to our environment. However it can also be argued that our upbringing in cities leads to “biophobia”, a fear and loathing of the natural and wild, of dense vegetation and rugged scenery. City children can be frightened in unfamiliar natural environments.

On the other hand Rachel Carson argued that every child has a sense of wonder and seeks to explore and understand nature. However, the urban child tends to lose some of that sense of wonder as she or he grows up. A child needs an adult companion who shows them things in nature, explains what is happening and allows the child to touch and feel as a way of experiencing the environment.

Opportunities for contact with nature in cities are growing. Frankfurt’s green belt contains an old military airfield that has been restored to “nature”. The western part of the airfield is reserved for nature and the ecological evolution back towards a type of “wilderness” is being

studied in detail¹. Dieter Steiner asked whether this is the way to sustain wilderness in the future. He pointed out that while there are 757 designated “wilderness” areas in the USA, there are few in Europe, although European bison can be found in the “Monts d’Azur” refuge in France. He argues that “Western society is approaching a cracking point: if the wilderness without (the real wild environment) is lost, the wilderness within (our human desire for the experience of the wild) will collapse”.

Discussion

Children in urban areas are deprived of some wilderness experience because of the way open spaces are designed and controlled. Urban wilderness has to be made to work as urban children want to interact with nature, to explore, feel and touch wild creatures, from the bugs in the soils and under rotting logs to the birds on lakes and rivers.



¹ See [http://frankfurt.de/sixcms/detail.php?id=2805&_ffmpar_id_inhalt\]=50983](http://frankfurt.de/sixcms/detail.php?id=2805&_ffmpar_id_inhalt]=50983) for more.

Megapolis and Urban Magic

Ian Douglas: *MEGALOPOLIS: Everyone's urban future? The challenge of three billion new urban dwellers by 2050*

Soon more than half the world's urban people will be living in cities of more than one million inhabitants. However, both big and small cities are merging into megapolitan regions, some of which now have populations of over 20 million. Dhaka is the most densely populated city at 44,400 persons per km². In London, the Borough of Kensington and Chelsea reaches almost 14,000 per km², but for Greater London as whole the density is only 4,500 per km². The "normal" city – like Dhaka – is compact; the "sprawl" city is an aberration from the norm. The two types of compact residential living are: 1) slums, favelas, bidonvilles and squatter settlements, and 2) high rise apartment buildings. Many cities are now like Manila and Mexico City, with patches of commercial high rise, of compact poor housing and sprawling middle class housing.

Megalopolises occur in all continents, including Bos-Wash in the NE USA (Boston to Washington) and Vienna-Budapest in Europe and the Pearl River Delta in China. They survive through good infrastructure engineering, ability to attract wealthy entrepreneurs. Others, have an abundant labour force, are foci of excellence in culture and education, become able to concentrate public and private investment (provision of services and property market investment), or even develop the ability to adapt to disaster (including health care provision).

The next three billion urbanites will be in Asia and Africa. Many will be in the poorest sectors of megapolises in those continents. Their lives will be conditioned by the urban environments and societies in which they live. The most energetic, enterprising and educated among them will seek to migrate to megapolises in other continents. Despite geophysical events

driven by human accelerated climate change, megapolises like Boston to Washington will become more resilient. With increasing populations, megapolises will have the human ingenuity and determination to muddle through and adapt.

Discussion

The first question asked about planning issues. In countries where governing political parties frequently change at election times and planning is often constrained by electoral considerations. In other places where single parties remain in government for long periods, planning horizons can be longer term. For infrastructure, utility companies and agencies need to plan for several decades ahead. Many lobbies, such as military-defence industry interests, also make the case for long-term planning.

Possible European megapolises, such as the suggested Munich-northern Switzerland area, were criticised, as actual political connections between separate areas are weak. However, as biophysical forms, these areas of contiguous urbanisation have a reality; in terms of functions, there could be economic and political separations. However, it is important that the way in which built up areas alter biophysical conditions is well understood at the regional and river catchment area scales.

The almost total shut-down of Tehran, Iran for 37 days as a result of extreme air pollution was cited as an example of megapolis vulnerability. Climate change could make it necessary to evacuate parts of many coastal cities. Regional government and planning could help improve preparation for such eventualities.

Ulrich Loening: *Urban Magic. The need for the community of a city to develop culture, philosophy and ways of living: the example of Edinburgh, Scotland.*

Beginning with a reference to the book "Capital of the Mind: How Edinburgh changed the world" by James Buchan, reference was made to the ceiling painting in the Residenz of Wurzburg that shows Wurzburg at the centre of everything. Edinburgh

fulfilled this role in the eighteenth century period of the Scottish enlightenment, really the European enlightenment. People like Adam Smith and James Hutton led new thinking about society, economics and the earth. Associated with this

new thinking was the planning and development of Edinburgh's "New Town" whose architecture, street plan and communal gardens, developed from 1750 to 1820, remain one of the world's greatest cityscapes. It is important to note, however, that Edinburgh's intellectual and urban expansion was financed by commercial enterprises that had appropriated resources from Britain's colonial enterprises. This underpinned Edinburgh's urban culture as well as its scientific and technical development.

Patrick Geddes (1854-1932) was a product of this Edinburgh. One of the first to use the term human ecology, he strongly influenced city planning. He lived among the poor in the old city, creating an urban garden, producing vegetables and cultivating flowers. During the 20th Century the city became concerned with urban improvement and urban greening. Trees have grown up below Arthur's Seat and in Prince's Gardens. The re-establishment of a Scottish Parliament has helped to further this new spirit in the city.

Discussion

Responding to a question as to whether this was a special situation, or could such a city be found in Asia or Africa, Ulrich Loening said that in fact the Scottish Central Lowlands were a megacity with a somewhat elitist Edinburgh at its eastern end. In the past it was where innovation came from. There was no reason why such leadership could not re-occur. Cities might be parasites, living off other ecosystems, but they also had to ensure that their host survived, otherwise they, the parasites would die too!

The Definition of example megalopolises shown in slides at the presentation was debated. Commuting zones were suggested as a good indicator. The example of rail electrification and faster train expanding the commuter zone to 160 km from the city with only a 60 minute journey on

a few routes to London was said to help the expansion of the megacity.

Regional governance in America's Pacific Northwest was cited as an example of action by women, especially professional women with young families, leading sharing of government expertise, better green-space management, and collective leadership getting local governments to jointly plan their city-regions.

Swiss Cantons, ranging in size from 1,500,000 to just 5,000 people, were cited as exemplifying effective regional planning with little Federal (central) government interference. At the national level, Switzerland has the world's best railway system and effective water management.

The role of individuals and community groups in actions to mitigate climate change was demonstrated by the response to a doubling of electricity prices with just three months' notice. Social media helped community groups initiated by young people to purchase solar panel installation components at bulk prices and arrange for mass installation at low cost. Five million people rapidly acquired their own electricity generation capacity. This is an example of the way social media can be used to affect change and to permit young people to take the initiative.

A further discussion took place on how Chinese students and young people generally considered that they were environmentalists, yet still aspired to own a car one day. In Europe it appears that young people are less enthusiastic about car ownership than the elders were at the same age. Reducing the use of the car for taking children to schools was considered to be an almost global problem that could be reduced.

The group also considered how CHEC could collaborate with UN Habitat, ICLEI and EAROPH to develop better arguments for dealing with urban ecological and environmental issues and all their implications for human well-being.

The keynote speeches were constantly referred to in paper sessions and the discussions that followed. Unfortunately even with CHEC's strong representation, not all the paper sessions could be attended. However, here is a selection from the nine sessions:

Urban Nature

Marius Albiez: *Urban forests and sustainable development: Value of urban forests in Karlsruhe*

The urban laboratory of the Karlsruhe Institute of Technology is working to change the 22,000 population community of Karlsruhe Ostatt into a sustainable quarter. The process is an outreach of university science into a public private partnership among a diverse population, including people moving back to the city centre and new migrants into the area. An integrated concept of sustainable development is being applied that includes basic human security; maintaining social productivity and increasing social options. The urban laboratory puts sustainable development into practice through communication, co-operation, participation, education and the use of sustainability indicators, operating as both an active driving force and a passive observer.

In terms of the urban forest, the multiple ecosystem services of street trees are evaluated, including aesthetic values, health benefits, PM₁₀ reduction, thermal comfort and urban runoff rate reduction. A means of calculating the economic value of a tree canopy was demonstrated. Albiez concluded that urban trees bring multiple positive benefits and thereby assist in the promotion of sustainable development.

Discussion:

Questions were raised about the multiple values of beech trees and of trees in cemeteries, with examples being given of old cemeteries that had become significant urban wildlife habitats.

Ilke Marschall: *Nature in (peri-) urban and rural cultural landscapes – antipodes, nuances and perspectives.*

Urban and rural landscapes are interdependent, but suburbanization is creating a lack of nature in our everyday landscapes. This affects our emotional values. Wilderness is important to many people, the biosphere reserve on the island of Vilm being an example of a German wilderness. 65% of German people “like” wild nature. Equally there is a desire for sustainable cultural landscapes reflecting the notion of beauty and food supply in the garden of paradise. Rural landscapes can be seen as symbols of peaceful human-nature relationships, for example in Eastern Thuringia. They are also places and symbols of sustainable food production.

They contrast with most people’s everyday landscapes of trees amongst buildings. However urban gardening, especially vegetable production within the transition town movement, represents a search to resurrect that people-nature harmony in an urban context.

Discussion:

The issue of planning standards for the accessibility of urban green spaces was raised. It was noted that Karlsruhe specified 30m² per inhabitant. Standards were said to exist in Germany, but their enforcement was weak.

Charlotta Kemp: *Wild forest for urban nature*

The forests of central Europe are now mountain forests or riparian forests. The riparian forests have largely been depleted, and remaining mountain forests tend to be managed forests. Some wild forest still exists on the Polish: Byelorussian border. A long-term German sustainable management goal includes reconstructing wild forests. This underpins the

Black Forest National Park development, but key questions remain as to for whom and where such a Park should exist.

Urban forests may be comfortable by day, but dangerous at night. The Leipzig floodplain forest, a new or revived riparian forest, may fall into this category. Peri-urban forests vary, with managed forests usually being short of animals.

Examples of riparian reserves are the Mittelbe river riparian forest reserves and the RAMSAR site of the Rhine Marshes between Strasbourg and Rasstatt. Several mountain national parks, as in the Eifel, Hunsrück and Kellerwald, aim to permit reversion to wild forest.

Rehabilitation of wild forests is a key management issue involving the re-introduction of oak and beech species, keeping out invasive plants and maintaining protected core areas. Some German beech forests have world heritage status. In 2013 the Baden Württemberg government prepared legislation to create the 10,062 ha Black Forest National Park. Opened in May, 2014, this park consists of two sectors of now protected forest surrounded by managed state forest. A multi-sectoral advisory council with 32 members representing a wide range of stakeholders helps to develop policies for land use and annual work programmes within the park.

General discussion

People emphasised the importance of access to nature and the variety of ideas about what constitutes a wilderness. Access to the countryside varies considerably between nations. Examples of both open access (the “right to

roam”) and legally protected footpath networks were cited. 600 km of hiking paths have been established around Berlin and web platform promoting Nordic walking is being established. In places the right of public to have access to, and walk along, lake shores is being established.

While discussants emphasised that urbanism meant a drift away from nature and that there was a need to reconnect humans with nature, it was pointed out that the nature most people first experiences is in the city, in public and private spaces, in accessible parks and in private gardens. Children thus have different experiences of nature and differing ideas about what constitutes the “wild” and the “wilderness”. Nature in cities has to be nurtured, expanded and encouraged by informing, involving and encouraging people. Urban nature affects human well-being, both in terms of the health of individuals as organisms, and in terms of social well-being and human relationships². It is a key element in the human ecology of cities.

² See Milner-Gulland et al. (2013) “Accounting for the Impact of Conservation on Human Well-Being”, *Conservation Practice and Policy*, DOI: 10.1111/cobi.12277

Urban Infrastructure and Water Management

Anna Hakobjanyan: *Water system governance: Polycentric Institutional arrangements*

Asking whether people could have an impact on the management of urban infrastructure and whether there is sufficient local social capital to do so, Anna sought to explore the situation in Yerevan, Armenia. This capital city has a population of about one million and is currently served by a World Bank established public private partnership (PPP) water supply and sanitation scheme established in 1999. Veolia Water is the foreign private partner in Yerevan Jur CJSC, the city water agency. The average availability of water across the city is 21.5 hours per day, 90% of water charges are collected and 379,100 building supply meters have been installed, but water loss is still high.

A detailed study of Paragar, a suburb with 9400 inhabitants in western Yerevan, found that the availability of supply was only 9 hours per day and that much of the waste water infrastructure was broken with waste water escaping into irrigation areas and even into the streets. Interviews with 50 local inhabitants with secondary education and aged 25 to 45 revealed little knowledge of the PPP, little trust in the State, not much more trust in the local authority and a high perception of widespread corruption. Social capital was low, and few people are engaged in voluntary activities. This was seen as a major handicap is endeavouring to get local people to collaborate in trying to get their water supply and drainage improved.

V.S. Saravanan: *Turbulent waters, breeding diseases: spatiality of water problems and health burdens in Ahmedabad City, Gujarat, India*

In 2011, Ahmedabad had a population of 5.6 million with 90 % of dwellings and other premises having access to water supply and sanitation. However the water supply is only available for two hours per day, from 0600 to 0800. Richer people install pumps to maximise the water they store in that two hour period. Inappropriate storage of water can provide a breeding ground for disease vectors. The arrangement of the water supply pipe network across the city tends to mean that the wealthier people get access first, with higher pressure cleaner water. The pressure and quality of water declines as it progresses through the network to the chawls, the poor quality workers housing originally built for the employees of textile companies. In the chawls, numerous illegal connections to the pipe network can be found. There is little information on water supplies to informal settlements, many of which

are not served by the public supply because the occupants do not have legal title to the land on which their dwellings are built.

The city maintains a complaints register which gives the details of all complaints received about the water supply. From this the nature and location of faults can be identified. These faults can be related to the occurrence of jaundice, malaria, gastro-enteritis and other water-borne and water-related diseases. They reveal an association between leakage, water quality and disease. Although faults are dealt with, the general state of the infrastructure is not being improved. Inefficiencies in infrastructure management are exploited by post-colonial elites. Those on high incomes can afford pumps and water treatment facilities in their households enjoy better health.

Englebert Schramm: *The city of the future as a socio-ecological system*

Elinor Östrom wrote about sustainable socio-ecological supply systems as a way of examining the relationships between nature and society. Urban water systems exemplify this relationship. Mediaeval central European cities usually obtained their drinking water from within their walls, usually from wells, and used their liquid wastes to irrigate adjacent fields and their dry waste as manure. The industrial revolution and consequent rapid urban growth led to water being imported to cities by pipelines from rural areas and waste water being taken out of cities, particularly with the adoption for flushing toilet system. By 1838 the City of Hamburg had the first continental sewer discharging treated and untreated water into the river. By the 1860s end-of-pipe water treatment had become well established.

Nowadays urban areas are facing water crises and seeking ways of reducing water consumption. New sanitation systems are beginning to see waste water as a re-usable resource. Water flows are being separated, permitting re-use of grey water. In Frankfurt, the Salvador-Allende-Street House uses greywater after treatment for flushing toilets and irrigation, as it does not contain as much phosphorus as general waste water. Use of grey-water does not require as much energy as conventional water treatment. In Hamburg novel sanitation systems are being tested in 800 households in Jenfelder-Au, while in Qingdao, China the WHE Village development is testing novel sanitation in a community of 11,000 people. Roof gardens can use rainwater directly and may include fish aquaculture as well as food production, thereby working towards a more sustainable urban water supply system.

General Discussion on water systems

Some common issues on urban water and sanitation emerged from a lively discussion. Land tenure issues are fundamental in urban planning and affect the provision of water and

sanitation. For example, slum improvement work in Ahmedabad by the city council only affected 20% of the slums because most of the other informal settlements did not have appropriate

land tenure. The key to upgrading water provision in this case was to increase the security of land tenure.

Separate water systems to deal with rainwater and with sewage can help in water savings. In Germany there is a high fee for discharging rainwater into the sewer. It varies between the Länder, and Hamburg charges for any increase in the impermeable paved area around a building. In Britain, while planning permission is required to add impermeable paving around a dwelling, the charge for drainage is based on the amount of water supplied to the dwelling rather than on the actual volume discharged. In Germany there something aristocratic about owning a large tank to store rainwater: being prosperous enough to hold your own water supply. However rainwater use per capita in Germany has declines from 145 litres per capita in 1980 to 120 litres per capita in 2010.

Urban Food and meal security

Parto Teherani-Krönner: *Food Security and meal cultures in urban settings: A human ecological approach*

The process of transforming food to meals deserves our attention. Meals are ties that bind. They help to structure social relations. Meals can bring people together and strengthen human interactions and our communication systems. It is not only a matter what people eat but how they organize the whole process of preparing and sharing. Thus the meal culture approach can be seen as a challenge to the classic discussions about food security and safety within agri-food studies.

We need a concept of meal culture that is embedded in a human ecological approach. In such a broader context environmental resources as well as social and cultural interactions are important dimensions in this relationship of human beings to nature.

When thinking about 'meals' we will recognize that there are many more components

Eva Ekehorn: *What does plastic mean for our meal security?*

Some 70 years back, many people in northern Europe had a garden and grew vegetables and berries and fruits, which then were preserved by

In terms of developing social capital in former Soviet countries, it was noted that problems in Tashkent were similar to those in Yerevan. However, Women in Europe for a Common Foundation (wecs.eu) had found that women's NGO groups could help in developing social capital with initiatives on decentralised water and sanitation in Georgia and Kazakhstan.

The key messages to emerge were:

- 1) An integrated approach is needed to the foundations of public health in which housing, water and sanitation are essential components.
- 2) Humans changed their role in ecosystems when they started to use the flush toilet. Should they begin to reverse this change?
- 3) Human ecology requires environmental and social justice and equity in access to safe, clean water and sanitation.

necessary to prepare a tasty meal that will fit the habits and preferences of people in different societies and social as well as ecological settings. Food systems and the mode of preparation are diverse and they change from region to region based on ecological, technological, economical as well as political conditions. And last but not least we should not forget the cultural value system that shapes the taste and nutritional taboos. If we focus around the meal, gender is becoming a major issue for inquires. (To read more go to <http://mealcultures.wordpress.com/>)

Parto described collaboration with partners in Kenya on research for old plants that had been used before colonial time but were thought of as weeds by the British. These are now being introduced again, and although they are rather bitter in taste, they are also nutritious.

cooking and kept in glass jars. Root vegetables were kept in dark storage on wooden shelves and were preserved there for most of the winter

months. The 'Hunger month' of April and May were the time when stored vegetables started to rot, but the joy of the new season's fresh produce was great.

Now we mostly buy from the supermarket and the world provides a great variety of fruit, vegetables and wine for our table. A quick look in a local shop enabled fruits from 16 countries, stretching from Peru in the west and Thailand in the east, to be identified. Various vegetables, such as tomatoes and cucumbers, can be bought throughout the year.

There are several reasons for this globalised trade in food produce. One is the GATT Uruguay Round in 1964 which opened up agricultural trade. Better modes of transport with more frequent air traffic carrying perishable foodstuffs and insulated containers keeping produce cool has meant that food can be sent around the world. Tourism and immigration have opened our eyes to new foods, further contributing to making what we eat now different from what our ancestors consumed in the past.

But there is one thing that has been the greatest facilitator in this trade and that is plastic! Plastic is extremely versatile. It is light compared to tin or steel which means that ships and aircrafts can carry larger payloads. It makes stuff lighter to carry. While over 50% of all European goods are packaged in plastic, the plastics account for only 17% of the weight. Plastic protects the food in the store and give it longer life, and the same happens in the kitchen and thus lowers the amount of waste. In agriculture plastic has a wide range of uses, from poly-tunnels to greenhouses, and for wrapping of harvested produce for easy transport. This has increased food production, saves water and stops pesticides spreading too far.

The plastic industry insists that all plastic can be recycled, but some are more difficult to manage than others. If it is not recycled, it can be burnt with other matter to generate electricity. So why is there so much plastic on our beaches, in parks and along the roads?

In Europe, roughly 20 – 30 % is recycled. In eight countries in Europe, mostly in the north, the rest is incinerated for electricity, but in most countries the plastic goes to landfill. There it breaks down and small plastic particles will enter the groundwater and be transported to the sea and the oceans. The litter on the beaches also breaks down and together with other debris forms gyres in several places in our oceans; the most infamous is the north Pacific gyre, as big as the USA. These small plastic particles are eaten by krill and the small creatures that form the base of the ocean's food chain. Plastic particles in krill have been found as far away as Antarctica.

This can and will form a health hazard for human beings too, so what can be done? One way would be to prohibit the use of plastic, which Rwanda is trying to do. The obvious thing would be to lessen the use of plastic, and to recycle more, but that will need an informed public and more information on packaging on how to recycle. Supermarkets try hard to reduce the amount of plastic and in many countries there is a charge for using plastic carrier bags.

One step would be to carry less food around the world and rely more on locally produced food. But the will have consequences for the people, often poor, who produce this food for export.

Or can we grow more food for our own use?



Plastic waste picking in South Africa

Footnote: Affiliations of persons named in this CHEC Points:

Marius Albiez: Since 2013, he works as A scientific staff member of the Institute for Technology Assessment and Systems Analysis (ITAS since 2013).

Donnell Davis: Founder of Envirobusiness, a sustainability consultancy, registered in Australia and operating internationally since 2000. She is also a member of CHEC Governing Board

Ian Douglas: Emeritus Professor of Physical Geography at the University of Manchester, UK.
He is also a Trustee of CHEC

Eva Ekehorn: A Human Ecologist from Gothenburg University, Sweden, and also a Trustee of CHEC

Wolfgang Haber: Since 1991 Member (1991-2003 Speaker) of the German Council of Land Use Management. Visiting Professor in Austria, Switzerland, Spain, Japan, and China. Many honorary positions, awards and prizes.

Anna Hakobjanyan: Master's student studying Integrated Natural Resource Management at the Humboldt University of Berlin.

Morteza Honari: Educated at the University of Tehran and received his Ph.D. in Human Ecology from the University of Edinburgh. Member of CHE Governing Board

Charlotta Kempf: She teaches ecology and environmental communication at KIT (Karlsruhe, Germany), where she acts as co-director of an MSc study program for water resources engineering.

Ulrich Loening: Became the Director of Centre for Human Ecology (CHE) at Edinburgh University in 1984 and retired in 1995.

Ilke Marschall: Professor of Landscape Planning in the Faculty of Landscape Architecture, Horticulture and Forestry at the University of Applied Sciences in Erfurt since 2009.

Iva Pires: Ph.D. in Human Geography and teaches at the Sociology Department, Universidade Nova de Lisboa, Portugal

V.S. Saravanan: Senior researcher at University of Bonn, Germany, specializing in the analysis of the implications of water resource institutions for human health.

Dieter Steiner: ETH Zurich (retirement 1998)

Parto Teherani-Krönner: In the early 90s she established the field of Women and Gender Studies in Rural Areas at the Faculty of Agriculture and Horticulture at Humboldt University of Berlin,

Christine von Weizsäcker: President of Ecoropa, president of Women in Europe for a Common Future (WECF),

Ernst Ulrich von Weizsäcker: Co-Chair, International Resource Panel, Co-President of the Club of Rome.

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