

IASS NEWSLETTER 1/2016

Institute for Advanced Sustainability Studies (IASS) | Potsdam, January 2016

Dear readers,

For Mark G. Lawrence, IASS Managing Scientific Director, the Paris Climate Agreement sends an unmistakeable message: "The only realistic possibility we have of limiting global warming to less than 2°C is a rapid decarbonisation of the industry, energy and transport sectors, combined with extreme reductions of warming pollutants – black carbon, methane and ozone. Climate policy will only succeed if it does both, in a coordinated way." This Newsletter gives an overview of our activities. In the New Year we are looking forward to welcoming Ortwin Renn, Professor of Environmental Sociology and Technology Assessment at the University of Stuttgart, as a Scientific Director starting in February. And the IASS, together with the University of Potsdam, has offered a joint directorship and professorship to Patrizia Nanz, Head of Research Area Culture of Participation at the KWI Essen. More to follow in the next newsletter.

With best regards, IASS Press & Communications Team

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NEWS FROM THE IASS



COP21: The Role of Clean Air for Climate, Health, and Sustainable Development

The message stressed by IASS Managing Scientific Director Mark Lawrence at several side events during the Paris Climate Summit in December was clear: "The only realistic possibility we have of limiting global warming to less than 2°C is a rapid decarbonisation of the industry, energy and transport sectors combined with an extreme reduction of warming pollutants like black carbon, methane and ozone." [Read more...](#)



Healthy Soils and Climate Protection: Global Landscapes Forum on the Sidelines of COP21

The role of healthy soils in climate protection and food security was a major focus of the COP21 international climate summit in Paris. More than half of the 158 Intended Nationally Determined Contributions (INDCs) submitted by governments prior to the summit ascribed importance to the agricultural sector. [Read more...](#)



Crack it! New Technology Produces Energy from a Fossil Fuel without Carbon Dioxide

The production of energy from natural gas without generating any CO₂ emissions could fast become a reality, thanks to a novel technology developed by researchers of the Institute for Advanced Sustainability Studies (IASS) in Potsdam and the Karlsruhe Institute of Technology (KIT).

[Read more...](#)

NEWS FROM THE IASS

Energy

Superconductivity: Sustainable Power Transmission with Higher Public Acceptance

Integrating an increasing amount of renewable energy into the power supply is a challenge, especially as global energy demand is growing. This makes it necessary to upgrade and expand the electric grid. But transforming grids has an impact on people's lives and the environment. So there is an urgent need to develop new sustainable technologies that are acceptable for all stakeholders involved. [Read more...](#)

Economics

More Growth! Really? On the Development of a Key Concept in Journalism

Among politicians and journalists, economic growth tends to be considered a prerequisite for a functioning society, and gross domestic product (GDP) is seen as an indicator of successful policies. "Journalists who call for more growth and politicians who design policies for growth don't need to justify that," says IASS fellow Ferdinand Knauß. [Read more...](#)

Ecology

IASS Survey: What Motivates Farmers to Conserve Nature?

It sounds paradoxical: while prices for agricultural products are falling and farmland is becoming increasingly scarce, there is a growing expectation that farmers should be more environmentally conscious in their work as well as preserving the cultural landscape. That's why state governments in Germany are funding environmental protection measures in the farming sector, including the planting of 'buffer strips' on the margins of agricultural land.

[Read more...](#)

Soils

First Ethiopian Soil Week Highlights Significance of Small Farmers for Food Security

Land degradation is a major problem in Ethiopia. It results in low agricultural yields as well as food insecurity and poverty among the rural population. Inspired by the IASS Global Soil Week, the first Ethiopian Soil Week in Addis Ababa in November focussed on the issue of soil protection in Ethiopia and other parts of the world.

[Read more...](#)

Climate

COP21: The Role of Clean Air for Climate, Health, and Sustainable Development

Further cooperation at international level, particularly in view of the UN Assembly (WHA) and UN Environment Assembly (UNEA) on air pollution and the upcoming discussions at the 'Rethinking Climate and for Europe' Conference which take as one of its two topics air quality for a better environment and human health.



In the agreement on combatting global warming adopted by 195 nations on 12 December, the international community committed itself to reducing its CO₂ emissions and keeping the rise in temperature below 2°C. For Lawrence, this consensus decision was a promising sign that global societies will support each other in making these difficult transformations.

Despite its emphasis on rapid action as the top priority if catastrophic global warming is to be avoided, the Paris Climate Agreement also highlights additional opportunities for addressing climate change in a holistic manner, including the avoidance of short-lived climate-forcing pollutants (SLCPs) like black carbon (soot), methane, hydrofluorocarbons and ground-level ozone. To this end, it is essential that we transform not only global energy and transport systems, but also our individual lifestyles. As Mark Lawrence explained, “There is no way around this – climate engineering techniques cannot be expected to contribute significantly in the coming few decades, if ever.”

At a side event jointly organised by the IASS and the United Nations Economic Commission for Europe (UNECE), UNECE Executive Secretary Christian Friis Bach called for ways to “address air pollution and climate change together.” He said that the global goals formulated in the new Paris Agreement and the 2030 Agenda should be pursued with vigour, but the goals of national governments regarding the health impacts of air pollution must not be neglected. Mark Lawrence demanded “more focus on implementing than investigating”. He argued that the scientific evidence is clear on where action is needed to achieve a triple-win effect for climate, health and development. Although many individual aspects require further research, he stressed that multiple benefits can be achieved by reducing SLCPs.

Panel at the side event "Reduce air pollution to save lives and combat climate change"
 - (from left to right) Mark G. Lawrence (Managing Scientific Director, IASS), Tomasz Chruszczow (Deputy Head, Polish Delegation to COP 21), Teimuraz Murgulia (Deputy Minister of Environment and Natural Resources Protection of Georgia), Christian Friis Bach (Executive Secretary, UNECE), Ibrahim Thiaw (Deputy Executive Director, UNEP), Hanne Bjurstrøm (Special Envoy, Ministry of Climate and Environment of Norway), Maria Neira (Director, Public Health, Environmental and Social Determinants, WHO)

© UNECE



■ **Long-term climate goals:**
Decarbonisation, carbon neutrality, and climate neutrality,
 IASS.

Hanne Bjurstrøm, Norway's Special Envoy for Climate Change and currently co-chair of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC), as well as political representatives from Poland and Georgia shared their countries' approaches to reducing SLCP emissions, in particular black carbon pollution from the home heating and transport sectors. The deputy head of Poland's COP21 delegation, climate negotiator Tomasz Chruszczow, summarised the convictions of the panel when he said that to protect both air quality and the global climate, we need synergies not only between various actors, but also between UN institutions.

At a side event co-organised by the IASS and the CCAC, action on SLCPs was also the order of the day. Ministers from Uruguay and Peru spoke about their initiatives to reduce black carbon and other harmful pollutants from their diesel bus fleets, and ministers from Cote d'Ivoire and Nigeria reported on their national action plans to reduce SLCPs. Moreover, Bangladesh reported that 50 per cent of its polluting brick kilns have been retrofitted with clean technologies in order to reduce emissions from both black carbon and CO₂. With reference to the seven million premature deaths caused by air pollution each year, Mark Lawrence pointed to concrete examples of how effective measures can be implemented through cooperation between civil society actors and scientists. Such cooperation exemplifies the transdisciplinary approach favoured by the IASS.

At another side event at the Climate Summit hosted by the Institute for Global Environmental Strategies (IGES), which focused on "Making an Integrated Approach to Air Pollution and Climate Change a Reality in Asia", Lawrence showcased the IASS project Sustainable Atmosphere for the Kathmandu Valley (SusKat). This project is aimed at reducing black carbon pollution from the brick-making, transport, and waste sectors in the Himalaya region to reduce the associated extreme health burden and regional warming.

Further information:

- [The 2015 Paris Climate Change Agreement – UN Climate Conference in Bonn Brings Clarity for Legal Architecture](#)



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- [Kathleen Mar: Impressions from a First-Timer at COP21](#)
- [Birgit Lode: "Well below 2°C" – A First Response to the Paris Agreement on Climate Change](#)

Healthy Soils and Climate Protection: Global Landscapes Forum on the Sidelines of COP21



IASS researchers discuss questions of land use at the Global Landscapes Forum in Paris. From left to right: Hannah Janetschek, Anne Flohr, Keerthi Kiran Bandru, Larissa Stiem, Ivonne Lobos Alva and Girum Getachew Alemu.

© IASS/Carolin Sperk

If soils are treated with care, they absorb carbon from the atmosphere and store it, thereby helping to prevent global warming. In particular African and Asian countries are aiming for more sustainable use of soils and land. At the same time, population growth is putting pressure on many of them to increase their productivity in order to ensure food security. This dilemma was highlighted by Ravi Prabhu, Deputy Director of the World Agroforestry Centre (ICRAF) during a discussion organised by the French think tank IDDRI and the IASS as part of the Global Landscapes Forum. This platform for exchanging ideas on land use questions took place on the sidelines of the COP21 summit in Paris on 5 and 6 December. It brought together 2,500 players from many different sectors, including agriculture and forestry, water, energy, law and finance.

Involving small farmers is a must

Soil degradation and the accompanying loss of fertile topsoil present a serious threat to food security, especially in countries in Asia and Africa. The extent of the problem was illustrated by Stefan Schmitz, head of the special initiative "One World, No Hunger" at the Federal Ministry for Economic Cooperation and Development (BMZ): "A recently published study on the economics of land degradation shows that in the next ten years alone the worsening situation of the world's arid regions will affect 50 million people." Initiatives to protect natural resources lead to immediate improvements in the quality of life of rural populations.

Several speakers emphasised that while involving small farmers in planning and policy formation is important, it is not always easy to achieve in practice. According to Ravi Prabhu, scientists and politi-

cians need to understand the mindsets of the people who work the land. Sébastien Treyer from IDDRI added that the difficulties experienced in implementing the much-discussed triple wins – i.e. mitigation, adaptation and food security – should not be underestimated.

Land rehabilitation: major financing shortfall for smallholder families

Andrew Wardell, Senior Manager at the Centre for International Forestry Research (CIFOR) pointed out that the question of financing soil rehabilitation projects is also difficult. Public investment in land rehabilitation is not sufficient and it is highly unlikely that private investment can close this gap, since existing business models are simply not attractive enough for private investors. Private investors do, however, play a role in the land sector. According to Wardell, in the period from 2000 to 2014, 32 million hectares of agricultural land were sold to investors worldwide, especially in countries with weak institutions. These investors went on to dispossess the farmers living there, and only 2.7 million hectares of that land are currently used for cultivating crops.

New institutions and instruments necessary for implementation

Ivonne Lobos Alva, a project coordinator at the IASS, underlined the importance of involving small farmers not only in project development but also in the monitoring of progress: “In developing the 2030 Agenda for Sustainable Development, it became clear that involvement and the level of participation must be a criterion of success for the whole process, including implementation.” Furthermore, land rehabilitation measures should be viewed as long-term processes rather than projects.



■ Global Soil Forum – Knowledge for Change- Our Thematic Priorities, IASS.



■ LAB2: Different Urbanisations. Critical Dialogues Series: the New Urban Agenda 'on the ground', IASS.

Energy

Crack it! New Technology Produces Energy from a Fossil Fuel without Carbon Dioxide



Solid black carbon is a by-product of methane cracking.

© KIT

In a joint project initiated by Nobel Laureate and former IASS Scientific Director Professor Carlo Rubbia, the two institutions have been researching an innovative technique to extract hydrogen from methane in a clean and efficient way. After two years of intensive experiments the proof-of-principle has now been provided. With the experimental reactor running reliably and continuously, the future potential of this technology has become apparent.

The combustion of fossil fuels to produce electricity, power car engines or generate heat is a major source of harmful carbon dioxide emissions. In particular methane – the main component of natural gas – is a widely used fossil fuel whose worldwide production is forecasted to rise dramatically in the coming decades. Left unchecked, this continued reliance on conventional fossil fuel technologies will greatly hamper our efforts at mitigating climate change. This is why researchers at the IASS and KIT have decided to investigate an alternative and more sustainable approach: what if we could extract the energy content of methane, in the form of hydrogen, without generating any carbon dioxide in the process?

Instead of burning methane (CH_4), its molecular components, hydrogen (H_2) and carbon (C), can be separated in a process called ‘methane cracking’. This reaction occurs at high temperatures (750° C and above) and does not release any harmful emissions.

The first product, hydrogen, is an energy vector best known for its clean combustion and high energy density per unit mass. In fact, many view it as an important component of a future, sustainable energy system. Envisaged applications include fuel cells, electricity generation and hydrogen-powered vehicles. But hydrogen is already today

an important industrial commodity, used in large quantities for the production of ammonia – a key precursor for the fertiliser industry. Yet most of the world's hydrogen production is currently based on conventional technologies like steam methane forming (SMR), which also uses natural gas as feedstock but releases significant amounts of carbon dioxide in the process.

While hydrogen is the main output of methane cracking, its by-product, solid black carbon, is also an increasingly important industrial commodity. It is already widely employed in the production of steel, carbon fibres and many carbon-based structural materials. The black carbon derived from the novel cracking process is a particularly pure powder. Its value as a marketable product therefore enhances the economic viability of methane cracking. Alternatively, black carbon can be stored away, using procedures that are much simpler, safer and cheaper than the storing of carbon dioxide.

Methane cracking itself is not an entirely new idea: in the last two decades, many experiments in different institutions have been carried out that have proven its technical feasibility. But these past attempts were limited by issues such as carbon clogging and low conversion rates. The IASS and KIT have decided to build on this knowledge base and go one step further, setting up an experimental reactor that could demonstrate the potential of methane cracking and overcome previous obstacles. The starting point is a novel reactor design, as proposed by Carlo Rubbia and based on liquid metal technology. Fine methane bubbles are injected at the bottom of a column filled with molten tin. The cracking reaction happens when these bubbles rise to the surface of the liquid metal. The innovative reactor is resistant to corrosion, and clogging is avoided because the microgranular carbon powder produced can be easily separated. The reactor thus guarantees the technical preconditions that would be needed for the continuous operation of an industrial-scale reactor.

While these remain laboratory-scale experiments, researchers can extrapolate from them to gain insights into how methane cracking could be integrated into the energy system and, more specifically, what its contribution to sustainability could be. In the next phase of the process, the IASS and KIT will focus on optimising some aspects of the reactor design, such as the carbon removal process, and progressively scaling it up to accommodate higher flow rates.

Superconductivity: Sustainable Power Transmission with Higher Public Acceptance



TEPCO/Sumitomo 66 kV alternating current (AC) HTS test station at Asahi substation in Yokohama/Japan. The photo shows the cryostat that connects the standard conductor at ambient temperatures with the superconducting cable at much lower temperatures of around 70 Kelvin.

© Heiko Thomas

Further information:

- [Website dossier on superconductivity](#)

To the article:

Thomas, H., Marian, A., Chervyakov, A., Stückrad, S., Salmieri, D., Rubbia, C. (2016):

- [Superconducting transmission lines – Sustainable electric energy transfer with higher public acceptance? – Renewable and Sustainable Energy Reviews, 55, pp. 59–72.](#)

If renewable energy generation capacity grows faster than the electric grid can support, the goals of the Energiewende might not be achieved. With regard to public acceptance of grid extensions, superconducting transmission and distribution lines can be an alternative option that addresses many ecological, social and economic points of contention.

A recently published article by IASS researcher Heiko Thomas (lead author) and colleagues informs about the progress in this field. “Despite extensive investment in research and development, political decision-makers as well as the general public still know too little about superconducting (SC) lines and their potentially positive impacts,” says Thomas. The analysis highlights the characteristics that give superconducting lines an advantage over established options in terms of public acceptance with regard to sustainability, capital costs, health, and environmental concerns. Risks and disadvantages like the use of a coolant and the need for an uninterrupted electric supply are also discussed.

Superconductivity is the term used to describe what happens when special electrical conductors are cooled below a certain temperature to allow the transmission of electricity without resistive losses – a significant advantage. Superconducting cables are installed underground and can be designed so as to not generate any electromagnetic fields. The space required by high-capacity transmission lines is much smaller than for any other transmission technology, making it possible to replace old power lines in existing corridors with superconducting transmission lines whose capacity rating is 10 times or even 100 times greater.

The lower power transmission losses of SC lines would translate into increased profitability and less wasted energy, as well as lower associated greenhouse gas emissions. In the case of Germany, the paper compares the greenhouse gas emissions due to power losses for a number of transmission technologies and finds that they are generally lower for SC lines – in particular when compared with standard High-Voltage Direct-Current (HVDC) cables. However, the comparison does hinge on the average load, which impacts losses and therefore associated greenhouse gas emissions. This is also an important factor when conducting lifecycle assessments and calculating energy amortisation times, i.e. the time it takes to generate or transfer the amount of electric energy used in construction.

From a technical point of view, the higher transmission efficiency of SC lines and the possibility of using lower operating voltages while still preserving the total capacity are their main advantages. However, from the perspective of communities affected by new transmission line projects, the lower visual impact might be the more appealing aspect of SC lines. Finally, estimated costs suggest that SC lines can compete with standard cables and even with overhead lines in the future. The results of the paper are partly based on the findings of a more comprehensive IASS study that investigated the socio-economic aspects of superconducting transmission lines.

Superconducting transmission lines are now being tested and accepted by a growing number of operators and utilities as part of the electric distribution grid (for example, the AmpaCity project in Essen/Germany and the LIPA project in the New York State). In Japan, the Tokyo Electric Power Company (TEPCO) is investigating the potential of superconducting cables for a planned upgrade of power lines in the densely populated coastal lowlands where strict right-of-way limitations are in place. A demonstrator project connected to the real grid has been set up at a substation in Yokohama. TEPCO has stated that they were able to remotely operate this special cable from Tokyo with no problems.

To facilitate the grid extension and ensure greater public acceptance, the Energy Line Extension Act (EnLAG) has recently been changed. It now stipulates that underground cables must be used for HVDC corridors in Germany unless overhead lines are shown to have distinct advantages. This development bodes well for SC lines.



■ Superconducting Electric Lines, Alexander Chervyakov, Michele Ferrari, Adela Marian, Stefan Stückrad, Heiko Thomas.

SOLUTIONS FOR THE FUTURE ELECTRICITY GRID – EU FP7 BEST PATHS PROJECT HOLDS FIRST DISSEMINATION EVENT

The IASS is part of a consortium of 40 leading European organisations from science and industry that launched the BEST PATHS project in October 2014 and held its first dissemination event in November 2015 in Paris. Supported to the tune of 35 million euro by the EU's 7th Framework Programme, the project explores technological innovations that could facilitate the integration of renewable energy sources into the electricity infrastructure. The IASS is in charge of the scientific coordination of the demonstrator project dedicated to superconducting electric lines, which aims to show the operation of a full-scale 320 kV MgB₂ cable system that can transfer up to 3.2 GW. The research and development work carried out in the first year of activities will continue throughout 2016, whereas the assembly and finalising of the demonstrator installation will take place in 2017, and testing will begin in 2018.

The other demonstration areas of the BEST PATHS project deal with HVDC offshore connections, the interoperability of HVDC converters, upgrading existing multi-terminal links, and repowering AC corridors.

Further information:

- [To the Workshop](#)
- [Press release](#)
- [Website news about 2014](#)
- [CERN experiment](#)

Economics

More Growth! Really? On the Development of a Key Concept in Journalism



How did growth make it into the papers? In his book, IASS fellow Ferdinand Knauß critically examines a key concept in politics and journalism.

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The WirtschaftsWoche correspondent is working on this topic during his ten-month fellowship in Potsdam. Knauß presented his analysis of how and why growth made it into the newspapers at a workshop on 7 December, where participants included the former governor of the Federal State of Saxony Kurt Biedenkopf, the former head of the business desk at the German broadcaster ZDF Michael Jungblut, and the former federal minister and founding director of the IASS Klaus Töpfer.

GDP – a powerful number

According to Knauß, the ‘growth paradigm’ is a relatively new phenomenon. After 1945, the Americans demanded that the Germans follow their example by instituting gross domestic product as a measure of German economic performance. They were preaching to the converted: even in the interwar period, German journalists had moaned the lack of reliable economic data and noted that the United States was far more advanced in that regard. Journalists accepted the new benchmark for the value of all produced services and goods without further ado – and without encouraging reflection on it. As Knauß stated, “Apart from a brief interlude in the early 1970s when the growth paradigm faltered, the fixation of politicians and journalists on the concept of growth has been remarkably stable.” This has been accompanied and supported by narratives of the unlimited potential for innovation, concerns about the competitiveness of the German economy, and – more recently – the narrative of the migrant as a saviour of growth.

Kurt Biedenkopf was one of the few politicians who was sceptical about exponential economic growth at an early stage because he considered it to be incompatible with the notion of stability. At the workshop he told participants that he often uses a comparison to make the

problem clearer to ordinary citizens and experts: "I ask them whether the forest grows. Then I ask them why it doesn't get bigger and bigger, and that makes them sit up. In the natural world something is always being lost, but in our society taking something away from people is seen as politically impossible. That's why the entire redistribution mass has to keep growing." Yet nowadays distribution problems can no longer be ignored, and it's wealthy industrial nations in particular that are affected by that, since they have the most to lose.

Who can bring about a rethink?

Meinhard Miegel, Chairman of Denkwerk Zukunft – Foundation for Cultural Renewal, claimed that even today, the discussion of growth is different from what it was a few years ago. The fact that the German parliament established a Select Committee on "Growth, Economics, Quality of Life" in 2011 is itself an indication of change, "even if the ultimate result was disappointing." The Committee did not find a clear answer to the question of whether too much significance is attached to GDP or whether there are better indicators of quality of life. Klaus Töpfer pointed out that the parties were at least continuing these discussions in working groups, and a lively debate on what constitutes a 'good life' is taking place in the media. "There is an underlying acknowledgement that there's something wrong with the way things are. The conventional economy is in crisis because there is a gradual recognition that quantifying every aspect of our lives is not the solution," claimed the founding director of the IASS.

However, as Kurt Biedenkopf pointed out, the question of who can drive a change is difficult: "Where is the pressure coming from, and what is going to force these changes? Because nothing will happen if there is no pressure. The ecology is exerting pressure, but it's a long way from the ecology to a new economic theory."

In Ferdinand Knauß's view, journalists have become part of the political class to an excessive degree. And business journalists are too focussed on the academic mainstream economy. Knauß demanded that journalists once again question what politicians want to sell to citizens. Business journalists should forge new alliances with their colleagues in the features section, who have a more historical and sociological perspective. Knauß's book contains detailed discourse analyses of business reporting in the German media, including DIE ZEIT, DER SPIEGEL and the FAZ, and is due to be published in spring 2016.

Ecology

IASS Survey: What Motivates Farmers to Conserve Nature?



Field margins foster biodiversity.

© istock/Hramovnick

These field margins are supposed to be cultivated without the use of herbicides and pesticides so that wild herbs and indigenous animal species whose habitats are increasingly threatened can thrive there. In most federal states, farmers who plant such strips are offered financial compensation as an incentive. But no such scheme exists in Brandenburg. What do Brandenburg's farmers think about schemes to plant field margins? To what extent are they worried about weeds and pests, and how important is biodiversity for them? What, in their view, can politicians do better? This is what IASS researchers are trying to find out with a survey they developed and sent to 1,000 farmers in Brandenburg in November 2015.

"We spoke to farmers in Brandenburg in the preparatory phase of the survey. It became clear that there was a huge gap between their opinions on agricultural policy in general and on buffer strips in particular. We want to understand why that is the case and how buffer strips can be promoted more effectively in future," said Moritz Remig, the project leader. The aim of the survey is to provide an overview of how many farmers have already planted field margins, their opinions on such measures, and what incentives regional governments could provide to encourage the planting of such strips.

Nowadays there is a general turn away from subsidies bound to production volumes in European agricultural policy. Instead, incentive systems are increasingly being developed to encourage more sustainable cultivation practices. So-called 'greening' has now become a precondition of any direct payments. Within economics, the field of ecological economics investigates the links between societal, ecological and economic developments. As Remig explains, the survey is grounded in the insights of ecological economics as well as behavioural psychology: "Such payments for ecosystem services are currently a favoured political instrument among practitioners and scientists alike. In the survey, we're broadening the perspective by paying more attention to

behavioural and psychological aspects, especially the ideas of Martin Fishbein and Icek Ajzen. Attitudes, norms and behavioural control are all important elements here.”

The deadline for the completion of the survey was 15 December. Once they have analysed the results, IASS researchers will meet with farming organisations and the Brandenburg Ministry for Agriculture among others to discuss whether the planting of field margins should be funded and what incentives could be an option for Brandenburg.

Soils

First Ethiopian Soil Week Highlights Significance of Small Farmers for Food Security



Around 100 scientists, politicians and representatives of development and civil society organisations discussed different aspects of sustainable land use. Central topics included composting and nutrient management as well as the identification of knowledge gaps, for example in the case of soil quality mapping and fertiliser recommendations. The IASS Global Soil Forum, which organised the first Global Soil Week in Berlin in 2012, was an official partner of and active participant in the Ethiopian Soil Week.

Small farmers should be more involved in the politics of sustainable land management

Anne Flohr, coordinator of the accompanying research project on Soil Protection and Rehabilitation for Food Security at the IASS, stressed that protecting soils and ensuring sustainable land use and security of tenure would help to achieve several of the sustainable development goals (SDGs). “Despite the large number of goals in the 2030 Agenda, this should motivate people to champion soils and focus on opportunities for synergies rather than the challenges posed by potential trade-offs,” she said. Tewolde Ezizabher, former director general of the Ethiopian Environmental Protection Authority, reported that Ethiopia was endeavouring to reverse land degradation in order to protect livelihoods based on food production, support climate change adaptation and contribute to climate protection. He pointed out that small farmers were playing a pivotal role here: “The system of self-governance favoured by local communities for the management of local resources has contributed significantly to releasing creative energy for sustainable land management!”

Look, feel and taste! Even the Global Soil Week could not trump this representation of soils for its sheer appeal. The Earthcake baked by German baker Münch was not the first, but by far the tastiest highlight of the opening of the Ethiopian Soil Week in Addis Ababa.

© IASS

Ethiopia is affected by a severe drought induced by the weather phenomenon El Niño. In the country on the Horn of Africa, around 82 per cent of the population live in rural areas and the vast majority is engaged in both tillage and livestock farming. Small farmers produce 94 per cent of Ethiopia's food crops and 98 per cent of its coffee. The participants all agreed that they are the country's most important 'resource' for sustainable land management and need to be more involved. Their knowledge must be better integrated in processes towards the development of sustainable land management measures that often take place at a far spatial and political remove.

Circular economy and stronger role for women proposed as solutions

This topic was also addressed in a session organised by the IASS. With a view to implementing the SDGs in Ethiopia, especially with regard to land management and food security, participants discussed the role of women in land management, but also the need to learn from completed projects such as Millennium Villages – 12 groups of villages with around 80 villages in Africa, where the UN's Millennium Goals were implemented in an exemplary way. The necessity of making the agricultural sector and especially small farmers more resistant to changing climatic conditions was also emphasised.

In the concluding discussion, several participants expressed the view that the exchange of ideas with small farmers should be intensified in order to link research and policy debates more to farming practice. To this end, it would be wise to establish an Ethiopian Soil Forum – like the IASS Global Soil Forum – where representatives of science, government, local authorities and farmers would come together to discuss needs and solutions.

The Global Soil Week is a multi-stakeholder platform and process for transformative change towards more sustainable soil management and more responsible land governance in our world. It brings together experts, scientists and policymakers who play an active role in environmental and developmental issues, as well as representatives from local and regional organisations who report on developments on the ground. Through collaboration with a range of internationally prominent partner organisations and an open call for contributions, the Global Soil Week encourages the active participation of a wide array of participants with diverse perspectives. The unique format bridges different stakeholder communities and translates into engaging sessions with an international perspective.

Further information:

■ **Global Soil Week**

SELECTED PUBLICATIONS

Selected publications by IASS researchers in peer-reviewed journals
(4th quarter of 2016)

■ IASS Publications

Abánades, A., Rathnam, R. K., Geißler, T., Heinzel, A., Mehravar, K., Müller, G., Plevan, M., Rubbia, C., Salmieri, D., Stoppel, L., Stückrad, S., Weisenburger, A., Wenninger, H., Wetzel, T. (2015 online): Development of methane decarbonisation based on liquid metal technology for CO₂-free production of hydrogen. – *International Journal of Hydrogen Energy*.

■ Link

Beckh, C., Gärtner, E., Windfuhr, M., Munro-Faure, P., Weigelt, J., Müller, A. (2015): Taking stock after three years of adoption: Experiences and strategies for implementation and monitoring of the UN Voluntary Guidelines on Tenure (VGGT). – *International Soil and Water Conservation Research*, 3, 4, pp. 324–328.

■ Link

Geißler, T., Plevan, M., Abánades, A., Heinzel, A., Mehravar, K., Rathnam, R. K., Rubbia, C., Salmieri, D., Stoppel, L., Stückrad, S., Weisenburger, A., Wenninger, H., Wetzel, T. (2015): Experimental investigation and thermo-chemical modeling of methane pyrolysis in a liquid metal bubble column reactor with a packed bed. – *International Journal of Hydrogen Energy*, 40, 41, pp. 14134–14146.

■ Link

Gienke, S., Irvine, P. J., Lawrence, M. G. (2015): The impact of geoengineering on vegetation in experiment G1 of the Geoengineering Model Intercomparison Project (GeoMIP). – *Journal of Geophysical Research: Atmospheres*, 120, pp. 10,196–10,213.

■ Link

Heyen, D., Wiertz, T., Irvine, P. J. (2015): Regional disparities in SRM impacts: the challenge of diverging preferences. – *Climatic Change*, 133, 4, pp. 557–563.

■ Link

Kim, B. M., Park, J.-S., Kim, S.-W., Kim, H., Jeon, H., Cho, C., Kim, J.-H., Hong, S., Rupakheti, M., Panday, A. K., Park, R. J., Hong, J., Yoon, S.-C. (2015): Source apportionment of PM10 mass and particulate carbon in the Kathmandu Valley, Nepal. – *Atmospheric Environment*, 123, Part A, pp. 190–199.

■ Link

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NEW PROJECT

Supporting the Implementation of the Agenda 2030 for Oceans and Coasts

The project “Supporting the Implementation of the Agenda 2030 for Oceans and Coasts” was launched in the Sustainability Governance Programme on 20 November 2015. It is being carried out with the support and cooperation of the Federal Ministry for Economic Cooperation and Development (BMZ) and the German Agency for International Development (GIZ) as part of the Partnership for Regional Ocean Governance (PROG). This partnership was initiated by the Ocean Governance research group together with the United Nations Environmental Programme (UNEP) and the French Institute for Sustainable Development and International Relations (IDDRI) with the aim of supporting states in the implementation of the Agenda 2030 for oceans and coasts and bolstering the role of regional organisations in this context. In dialogue with stakeholders, the project strives to analyse the role that regional organisations should play in the implementation of the Agenda 2030 with regard to oceans and coasts, to identify innovative governance instruments in pioneer regions, and to assess the potential of partnership approaches to contribute to this process.

For more information,
contact

■ **Sebastian Unger**

IASS PEOPLE

Dr Girum Getachew Alemu has been a research associate in the accompanying research to the global programme on “Soil Protection and Rehabilitation for Food Security” since November 2015. He holds a PhD in geography and an MA in development studies. Before joining the IASS, he worked as a Participatory Land use Planning (PLUP) consultant for GIZ in Ethiopia as part of the special global initiative “One World, No Hunger”. As part of an interdisciplinary doctoral degree programme at the Bayreuth International Graduate School of African Studies (BIGSAS), Dr Alemu conducted research on risk management and livelihood security at the interface of state-society-environment interaction in rural Ethiopia using a political ecology approach. He also gained experience in research and outreach while working as a research assistant for the Global Livestock-Pastoralists Risk Management (GL-PARIMA) project based at the International Livestock Research Institute (ILRI) in Addis Ababa, Ethiopia.

Miranda Boettcher joined the IASS in November 2015 as a project scientist with the Emerging Technologies and Social Transformations in the Anthropocene programme. She completed a Masters in political science at the Ruprecht-Karls-Universität in Heidelberg. Originally from Australia, she has

worked as a research analyst in both Germany and the USA. Her research interests include climate engineering governance and the interplay of language, knowledge and power in political decision-making.

Dr Sylvia Borbonus has been working as a research associate for the IASS Transdisciplinary Panel on Energy Change (TPEC) since mid-November 2015. Borbonus holds a diploma in regional studies with a focus on Latin America and gained her doctorate in economics and social sciences at the University of Osnabrück in 2011. Prior to starting her PhD, she also completed post-graduate studies in development cooperation at the Swiss Federal Institute of Technology (ETH) in Zurich. She was a member of the research group on future energy and mobility structures at the Wuppertal Institute from 2007 to 2015. She enhances TPEC’s profile with her research focus on sustainable energy systems in developing and emerging countries, the socio-economic effects of renewable energies, and international cooperation in the field of technology.

Dr Aline Jaeckel joined the Ocean Governance team as a project scientist in November 2015. Prior to that, she taught international (marine) law and completed her PhD on the precautionary principle and deep-sea mining at the University of

New South Wales in Sydney, Australia. As a member of the Ocean Governance team, she’s working on the “Ecological Guardrails for Deep-Sea Mining” project. This project aims to develop proposals for measures that can limit or prevent the ecological consequences of deep-sea mining in areas beyond national jurisdiction. Parallel to the project, she will work as a research fellow at Macquarie University in Sydney.

Dr Oliver Putz joined the IASS as a senior fellow in January 2016. The holder of a PhD in theology and biology, he will work on the subject of religion and climate change during his time at the institute. Before coming to the IASS, he was Professor of Theology and Natural Sciences at Santa Clara University in California. As a member of the working group on Emerging Technologies and Social Transformation, he will focus on investigating the role of religions in decision-making on the issue of climate change. Putz is especially interested in the question of how religions can contribute to transformation towards sustainability at the level of both individuals and society.

Pankaj Sadavarte joined the SusKat project in January 2016 to contribute to developing an emissions inventory for Nepal, which will improve our

understanding of the sources of emissions there. He holds a PhD in atmospheric sciences from the Indian Institute of Technology in Bombay. As part of his doctoral research, he worked on developing a technology-linked speciated emissions inventory for India for the years from 1996 to 2015, taking account of aerosols (PM_{2.5}, BC, OC and SO₂), ozone precursors (NO_x, CO and NMVOC) and greenhouse gases (CO₂, CH₄ and N₂O). More recently, he was involved in the Global Burden of Disease – Major Air pollution Sources (GBD-MAPS) project to provide present-day emissions data for India. His research interests lie primarily in the development of regulatory tools that link energy use and technology adoption to changes in emissions and in the effects of such tools on air quality and climate change at regional and global scales.

Daniela Setton joined the Transdisciplinary Panel on Energy Change (TPEC) at the IASS as a research associate in December

2015. Her main focus at TPEC will be on the future of coal in Germany ('coal consensus') and related structural changes at regional and national levels. Daniela holds a diploma in political science. Prior to joining the IASS, she worked for over a decade for several environmental and development non-governmental organisations and alliances on climate and energy policy. She is particularly interested in the international financing of energy projects and issues relating to the regulation of the international financial and trading system.

Vilena Valeeva is a PhD student at the University of Potsdam and a member of the SMART (Sustainable Modes of Arctic Resource-driven Transformations) team at the IASS since November 2015. Her research activities for the SMART project focus mainly on international cooperation in the Arctic, the interrelationship of socio-economic, climatic and environmental changes in the Russian Arctic as well as stakeholders' perceptions of these

changes. Before joining the IASS, Valeeva worked as a researcher at the Global Climate Forum (GCF) and took part in the EuRuCAS project (European-Russian Centre for Cooperation in the Arctic and Sub-Arctic Environmental and Climate Research, St. Petersburg, Russia).

Dr Wera Wojtkiewicz has been working as the academic officer of IASS Managing Scientific Director Professor Dr Mark G. Lawrence since 1 January 2016. Prior to that she coordinated the acquisition process and was responsible for strategic business development at adelphi. Wojtkiewicz was also a research associate at the TU Berlin, where she earned her PhD in landscape development in Germany in the context of a DFG research project. Parallel to that, she also undertook research on problems in relation to nature conservation in Russia.

JOB ADVERTISEMENTS

Scientific positions:

Research Assistant (Outreach) (m/f) for the research programme “Air Quality in the Context of Global Change”

This position is initially foreseen for the period until 31 December 2016.

The deadline for applications is 31 January 2016.

Research Associate (m/f) for the Economics & Cultures research programme

This position is initially foreseen for the period until 31 December 2016.

The deadline for applications is 31 January 2016.

■ [To the job advertisement](#)

■ [To the job advertisement](#)

UPCOMING EVENTS

January 2016

20 January 2016

Public lecture: “Climate Engineering – Plan B im Kampf gegen den Klimawandel?” – Lecture as part of the lecture series on “Schon heute an morgen denken”.

Venue: Gundling Room at the Wissenschaftsetage (4th floor) in the Bildungsforum, Potsdam;
Time: 17.30 to 19.00

Organised by: IASS, Bildungsforum Potsdam

In German. Admission free. Prior registration is required:
0331 289-4562, -65 or via
vhsinfo@rathaus.potsdam.de

20. – 21. January 2016

Workshop: PROG Steering Board Meeting & PROG Project Kick-off
Venue: IASS, Potsdam
Organised by: IASS
(By invitation only)

■ [To the IASS Calendar of Events](#)

February 2016

7 – 9 February 2016

Workshop: KLASICA-IASS WORKSHOP on Collective Behaviour Change for Sustainable Futures; Venue: IASS, Potsdam ; Organised by: IASS (By invitation only)

11 February 2016

Workshop: Methane Emissions in Europe: Exploring Threats and Opportunities; Venue: IASS, Potsdam; Organised by: IASS (By invitation only)

15 – 16 February 2016

Closing conference:
DEMOENERGY – The Transformation of the Energy System as a Driver of Democratic Innovations

At the closing conference of the **DEMOENERGIE** project, the IASS and the Institute for Advanced Studies in the Humanities (KWI) in Essen will present their findings and insights and discuss them with practitioners, policy-makers and representatives from academia, industry and civil society. The event will start with contributions from Professor Klaus Töpfer and Professor Patrizia Nanz.

Venue: IASS, Potsdam
Organised by: IASS
Attendance is limited to 50 guests. If you wish to attend this event, please contact **Ina Richter**.

17 – 19 February 2016

Workshop: Assessing the Health and Ecosystem Impacts of Future Global Air Pollution Scenarios
Venue: IASS, Potsdam; Organised by: IASS (By invitation only)

24 – 25 February 2016

Workshop: Smart Energy Systems
Venue: IASS, Potsdam; Organised by: IASS (By invitation only)

April 2016

13 April 2016

Public lecture: "Boden: Viel mehr als Dreck unter unseren Füßen"
– Lecture as part of the lecture series on "Schon heute an morgen denken"; Venue: Gundling Room at the Wissenschaftsetage (4th floor) in the Bildungsforum, Potsdam; Time: 17.30 to 19.00
Organised by: IASS, Bildungsforum Potsdam; In German. Admission free. Advance registration is required: 0331 289-4562, -65 or via vhsinfo@rathaus.potsdam.de

May 2015

2 – 4 May 2016

Conference on the 2030 Agenda and the Sustainable Development Goals (SDGs); Location: Berlin, Germany; Organised by: IASS, BMEL, SEI, Rio+, IDDRI
Information at:

SDGconference@iass-potsdam.de

IASS-BLOG
Join the Discussion!

Join the discussion: how sustainable are the sustainable development goals? How can we meet the increasing demand for water and energy across the globe? What is the City of Potsdam doing to support sustainable urban development? Read the latest blogs penned by IASS researchers!



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