IASS NEWSLETTER 3/2016

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

Dear readers,
While the energy transition continues to gain ground, it is now clear that the environmental legacy of lignite coal mining in Germany will haunt us for decades. As a recent study published by the Forum Ökologisch-Soziale Marktwirtschaft and the IASS shows, there is an urgent need for political action to ensure that the energy industry pays its share of the cost of restoring damaged landscapes.
IASS researchers have also called for greater transparency to address concerns around the controversial issue of deep seabed mining. In a new IASS Policy Brief, they recommend that the International Seabed Authority adopt a presumption of public accessibility to the information and data that it gathers. The work of IASS scientists around ocean governance was also commended in May by Federal Minister for Economic Cooperation and Development Gerd Müller (CSU) at the presentation of the BMZ's 10-Point Plan for Marine Conservation and Sustainable Fisheries. Other parties have also taken an interest in our work: in June we were delighted to receive a visit from Anton Hofreiter, the Chair of the Green Parliamentary Group.

With best regards,
the IASS Press & Communications Team

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Opencast Lignite Mining: Study Urges Political Action to Secure Funding to Address Long-term Impacts

Vattenfall, RWE, and MIBRAG are failing to set aside the financial reserves necessary to remedy the environmental impacts of opencast lignite mining. Unless authorities act, tax payers and federal states could be left to foot the bill for the long-term impacts of opencast lignite mining. This is the key message of a new study prepared by Green Budget Germany (FÖS) and the IASS. **Read more...**

Business

Business Journalism on Trial: New Book by Ferdinand Knauß

Why do so many business journalists still promote growth as the solution to all our problems? In his new book, journalist Ferdinand Knauß (Wirtschafts-Woche) takes a closer look at the growth paradigm and its long-standing popularity in business journalism. *Wachstum über alles?* was written during during his fellowship at the IASS. **Read more...**

Ocean

Turning Commitment into Action: Experts Highlight Options for Implementing SDGs for the Oceans and Coasts

The United Nations have made "Life Below Water" the focus of one of its Sustainable Development Goals (SDGs). The German Federal Ministry for Economic Cooperation and Development (BMZ) and the IASS, together with their partners, invited interested parties to a Parliamentary Evening on 11 May 2016 to discuss concrete steps towards the implementation of this global agreement. **Read more...**

NEWS FROM THE IASS

SDGs

Strengthening Global Partnerships and Societal Involvement: How to Make the SDGs a Reality

With the adoption of the 2030 Agenda in September 2015, the UN member states agreed upon 17 Sustainable Development Goals to be achieved by 2030. But how can these goals be implemented nationally and internationally? This question was the focus of a conference of experts held in Berlin on 2 – 4 May 2016. **Read more...**

Climate

Benefits for People and Climate: Low-Emission Brick Manufacturing in Focus at UN Environment Assembly

Brick kilns are significant sources of air pollution in many countries. According to recent studies, introducing new technologies could reduce emissions of black carbon and other short-lived climate-forcing pollutants by ten to fifty per cent. What could we do to kick-start this "climate detox"? Experts from the fields of science, policy, and civil society came together on 26 May 2016 to discuss this question at a Green Room Event on the subject of "Mitigating black carbon and other pollutants from brick production" at the second United Nations Environment Assembly. **Read more...**

Politics

Chair of the Green Parliamentary Group, Anton Hofreiter, Discusses Societal Transformation and Climate Change with IASS Directors

The chair of the Green parliamentary group in the German parliament, Anton Hofreiter, was briefed at the IASS on the latest research results on societal transformation and climate change. During his visit he spoke with scientific directors Patrizia Nanz and Mark G. Lawrence about citizen participation in political processes and the implementation of the Paris Agreement, among other things. **Read more...**

IASS PUBLICATIONS

- Ferrari, M., Marian, A., Thomas, H. (2016): **Technological Options for the Future European Grid.** IASS Working Paper, May 2016.

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NEWS FROM THE IASS

Resources

Policy Brief Recommends Greater Transparency on Deep Seabed Mining

The International Seabed Authority (ISA), which is responsible for managing the seabed and deep-sea mineral resources in areas beyond national jurisdiction, is developing a legal framework for deep seabed mining. As these resources are a "Common Heritage of Mankind" under international law, the ISA must also create a framework to ensure that any benefits derived from their exploitation are shared by all. Ensuring greater transparency, the authors of the new IASS Policy Brief "Towards Transparent Governance of Deep Seabed Mining" argue, should be among the ISA's priorities. **Read more...**

Energy

The Grid of the Future: Tests on New Superconducting Material Deliver Promising Results

European scientists are currently testing a variety of options to connect superconducting direct current lines made of magnesium diboride (MgB_2) to the existing electricity grid as part of the EU-funded research project Best Paths. The project, which runs from October 2014 to September 2018, aims to develop technology for future electricity transmission solutions. Participants at a meeting of the partner institutions (including research institutes, industrial and engineering companies, energy providers and grid operators) in early May were positive about the progress made so far. **Read more...**

Air quality

Farm Fresh? IASS Fact Sheet Tackles Agriculture's Role in Air Pollution

Emissions from agriculture are significant contributors to particulate air pollution. The recently published IASS Fact Sheet "Agriculture, Ammonia, and Air Pollution" offers a brief overview of the impacts of agriculture on overall air quality. **Read more...**

- Kiragu, S. W., Flohr, A. (2016): **Sustainable Land Management in Western Kenya: Lessons Learnt and Future Directions; Insights from stakeholder workshops.** IASS Working Paper, June 2016.

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Energy

Opencast Lignite Mining: Study Urges Political Action to Secure Funding to Address Long-term Impacts

Who will pay for the long-term impacts of opencast lignite mining? Unless policy-makers act, tax payers and the affected states could be left to foot part of the bill, a new study warns.

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Commissioned by Climate-Alliance Germany, Friends of the Earth Germany (BUND), the Heinrich Böll Foundation, and the Rosa Luxemburg Foundation, the study highlights the lack of transparency surrounding the companies' calculations of the costs associated with clean-up operations and the financial reserves that will be necessary and notes that these calculations have not been subjected to an independent review. Companies like RWE and Vattenfall could potentially fail to set aside sufficient funds as a consequence.

The fact that the mine operators are not required to ring-fence financial reserves set aside for land reclamation also poses a risk. Downturns in their performance could result in shortfalls of the funding necessary to reclaim land and address environmental harms following the closure of mining operations – and the current outlook for these coal companies is anything but promising. RWE is in deep financial trouble and Vattenfall is seeking to sell off its lignite mining operations to investment company EPH. Given these recent developments, there is a considerable risk that energy companies will be unable to cover the full cost of remedying the harms that they have caused. "Particularly in the light of the sale of Vattenfall's lignite operations, we must ensure that corporations, if they enter into insolvency, will still be held liable over the longer term", said FÖS energy expert Swantje Fiedler.

The authors of the study are calling for an independent report to investigate potential risks and assess the probable cost of restoring, monitoring and managing the sites of former opencast mines. "The

long-term cost of lignite mining must be the subject of a detailed and independent report and the companies' financial reserves subjected to a transparent and public review", said Dominik Schäuble from the IASS.

One measure that states could immediately undertake to safeguard against funding shortfalls would be to instruct mining authorities to retain reclamation bonds from operators. These bonds could be secured in the form of bank guarantees or appropriate insurance, both of which are protected against insolvency. In addition, the study recommends that operators be required to pay into a public fund to be established for the special purpose of financing the costs of reclamation and follow-up measures. The establishment of a public fund would ensure transparency and guarantee the security of the deposits.

The organisations that commissioned the study warned that coal mining companies are attempting to evade their responsibilities. Under current legislation, taxpayers could well be left to foot the bill if coal companies were forced to restructure their operations or were facing severe financial difficulties or bankruptcy. With RWE choosing to abstain from distributing shareholder dividends and Vattenfall compelled to inject 1.7 billion euros into its lignite operations in order to secure their sale, Germany's federal and state governments would be unwise to ignore this issue. In some instances, public funds are already being used to cover the cost of mine reclamation operations. The broader implications and financial costs associated with long-term impacts such as water contamination or unexpected damage caused by rising groundwater have not been precisely quantified or studied in depth to date. The federal government and state governments in North Rhine-Westphalia, Brandenburg and Saxony must take appropriate steps to safeguard against funding shortfalls.

Link:

- Wronski, R., Schäuble, D., Setton, D., Fiedler, S. (2016): Study **"Financial Foresight in the Lignite Sector"** (Available only in German), Berlin/ Potsdam Forum Ökologisch-Soziale Marktwirtschaft e. V./ IASS Potsdam Institute for Advanced Sustainability Studies e. V., 80 p.

Further Information:

- What steps will government, industry, and society need to undertake to reduce electricity generation from lignite and bituminous coal-fired power plants? Transformative sustainability research will be crucial to overcoming this challenge, scientists at the IASS argue in a recent article:

Setton, D., Helgenberger, S. (2016): **Den Kohlekonsens befördern: Zum aktuellen Beitrag der transformativen Nachhaltigkeitsforschung.** – GAIA – Ecological Perspectives for Science and Society, 25, 2, p. 142–144.

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Business

Business Journalism on Trial: New Book by Ferdinand Knauß

Providing public scrutiny is among the noblest duties of journalism. But when it comes to matters of the economy, journalists tend to reserve their criticism for the nuts and bolts of policy and rarely question its designated goal of achieving ever greater economic output with each passing year. Policy that fails to deliver growth is deemed to have failed. But what political and business news desks present to us as a natural given is in fact a paradigm – an historically determined constellation of values and convictions. Available from booksellers from 7 July 2016, the new book by historian and journalist Ferdinand Knauß – *Wachstum über alles? Wie der Journalismus zum Sprachrohr der Ökonomen wurde.* [Growth above all. How journalism became a mouthpiece for economists] – explores how and why the growth paradigm took root in business journalism and survived into the present day.

The origins of the symbiosis of economists, politicians, and business journalists – made possible by a fundamental shift in economic thinking – can be traced back to the crises-stricken decade of the 1920s. The growth paradigm had its decisive breakthrough in business journalism in the three decades following World War II, as Ferdinand Knauß shows in his historical analysis of leading German news media institutions DIE ZEIT, DER SPIEGEL, and FRANKFURTER ALLGEMEINE ZEITUNG. Business journalism, Knauß argues, has not maintained the necessary critical distance to conventional economic thinking. In its absence, they have failed to notice that the conditions that originally underpinned the growth paradigm have long since dissipated.

Complemented by interviews with leading journalists, this study of historical and contemporary newspaper articles makes a strong case for critical thinking in contemporary business journalism.

Ferdinand Knauß will present his book in Berlin on 21 September. Further information: **www.stratum-consult.de/events**

Ferdinand Knauß (*1973) is a journalist for *WirtschaftsWoche*. He grew up in Saarland and studied history in Düsseldorf, Nantes, and Tokyo. Knauß has written for German business newspaper *Handelsblatt* and was a press officer for the Federal Ministry of Education and Research. *Wachstum über alles?* was written during during his fellowship at the IASS.

© **privat**

- Ferdinand Knauß **„Wachstum über alles? Wie der Journalismus zum Sprachrohr der Ökonomen wurde“**, 192 pages, Paperback, ISBN 978-3-86581-822-5, €24.95 (DE)/€25.70 (A). Also available as an e-book.

- Knauß, F. (2015): **Wirtschaftsjournalismus und Wachstumsparadigma**. IASS Working Paper, November 2015.

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Ocean

Turning Commitment into Action: Experts Highlight Options for Implementing SDGs for the Oceans and Coasts

Alexander Müller (Council for Sustainable Development) spoke with Jan Olsson (Swedish Ambassador for the Environment), Tania Rödiger-Vorwerk (BMZ), Mette Wilkie (UNEP) and Luc Bas (IUCN) at the Parliamentary Evening.

© IASS/Thomas Ecke

The Parliamentary Evening was followed by the third Potsdam Ocean Governance Workshop on 12 – 13 May. Attended by over fifty international experts and representatives from governments, international organisations, research institutes and civil society organisations, the workshop focussed on innovative approaches to the implementation of SDG 14. On 18 May, Federal Minister for Economic Cooperation and Development Gerd Müller presented a new 10-Point Plan for Marine Conservation and Sustainable Fisheries in Kiel, which will provide support to regional implementation processes through the Partnership for Regional Ocean Governance initiated by the IASS, IDDRI and UNEP. This international initiative will support the development of new approaches to good ocean governance at the research-policy interface.

Ministry calls for sustainable use and protection of oceans and coasts

State Secretary Hans-Joachim Fuchtel (BMZ) opened the Parliamentary Evening on 11 May by outlining Germany's efforts to date in support of the protection of the world's oceans. "With respect to the protection of the seas and coasts, the BMZ's efforts are directed towards establishing and safeguarding marine protected areas and supporting sustainable fishing practices, not least of all with a view to combating hunger. At present we provide 180 million euros in funding to projects," he said. State Secretary Fuchtel named several examples, including the establishment of effective monitoring systems to combat illegal fishing in Mauritania and the development of a sustainable management programme for mangrove forests combined with income-generating opportunities for local populations in Vietnam.

Several speakers at the workshop highlighted the need to consider all 17 goals as a unified whole and warned against focussing efforts on the implementation of a single target. It is important that the highly industrialized countries lead from the front and seize on the SDGs as an opportunity to forge their own sustainable development pathways. Mark Lawrence, Managing Scientific Director of the IASS, emphasised: "Oceans are integral to sustainable development. In order to find solutions to existing problems and resolve issues around ocean governance, we need to combine the best research with the best insights available from the field and from different interest groups – in other words, our response must be transdisciplinary."

Key challenges: capacity building, regional approaches, and monitoring and assessing the implementation of the SDGs

The workshop hosted by the IASS in Potsdam contributed to efforts to strengthen regional approaches and focussed on key challenges such as capacity building – in particular the development of individual, public and institutional expertise in all countries – follow-up and monitoring of progress towards achieving the SDGs, and the role of regional approaches to marine and coastal conservation. Participants at the workshop agreed that regional partnerships were important for the effective implementation of the Sustainable Development Goals relating to the oceans and coasts. The high-level UN Conference to Support the Implementation of SDG 14, which will be jointly hosted in Fiji on 5 – 9 June 2017 by Sweden and Fiji, could mark an important milestone. The conference could facilitate the identification of potential synergies between SDGs – such as the role of oceans in ensuring food security (SDG 2) – provide support to countries pioneering the implementation of SDGs, and strengthen new partnerships.

According to several participants, efforts to implement the SDGs would benefit from greater involvement on the part of both interest groups and civil society actors. Heike Vesper, the director of the WWF International Centre for Marine Conservation, suggested that the German Federal Government establish a national platform for ministries and associations working towards the implementation of SDG 14. Participatory processes are not enough however, argued another participant, who suggested that a radical change in thinking was required: "Why aren't SDGs the new GDP?" Gross domestic product, they argued, is not a useful benchmark for measuring successful policy-making. Instead, indicators relating to sustainability provide a better measure of a country's long-term prosperity. Policymakers stressed their need for clear recommendations for action from the science community.

What is Germany doing to strengthen ocean governance? BMZ State Secretary Hans-Joachim Fuchtel (f.l.t.r.) in discussion with the Institute's founding director, Klaus Töpfer, and its current managing scientific director, Mark Lawrence.

© IASS/Thomas Ecke

Wrapping up the workshop, presenter Alexander Müller, a member of the Council for Sustainable Development, concluded that we must "act at the local, report at the national, coordinate at the regional, and monitor at the global level" to implement SDG 14. The science community has a key role to play in developing the operative knowledge necessary to achieving this goal. The outcomes of this workshop will be reviewed with the participants and published in the form of clear recommendations for policymakers (Policy Briefs) and more extensive scientific analyses.

Further information:

- **"The High Seas as Global Commons"**: blog by Carole Durussel
- **"The Protection of the Oceans is a Central Task for the G7"**: blog by Sebastian Unger

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SDGs

Strengthening Global Partnerships and Societal Involvement: How to Make the SDGs a Reality

The more than 300 conference participants invited by the Federal Ministry of Food and Agriculture and the IASS debated how to implement the Sustainable Development Goals.

© Piero Chiussi/IASS

The IASS and the Federal Ministry of Food and Agriculture invited more than 200 German and international experts from government, business, civil society and science to elaborate suggestions and principles for implementing the SDGs. It was the first international event on the SDGs held in Germany since their adoption in September 2015. Titled "Jump-starting the Sustainable Development Goals (SDGs) in Germany: Natural Resources and Sustainable Consumption and Production", the conference focused on how to protect and sustainably manage natural resources and bring about changes in consumption and production patterns.

Germany: an SDG first mover

One main goal of the conference was to establish and strengthen partnerships between countries working to implement the SDGs. German Minister of Agriculture Christian Schmidt stressed that Germany intends to fulfil its responsibility and do its part both nationally and internationally as one of nine "First Mover" countries in an initiative headed by Sweden. "Together with other trailblazers we will report on the progress towards the implementation of the 2030 Agenda as part of the High-Level Political Forum in July 2016 in New York", Schmidt announced.

Conference chair Alexander Müller, member of the German Council for Sustainable Development (RNE) and former IASS Secretary General, noted that national strategies for implementing the SDGs need to be based on a participatory approach. He outlined the "three-pronged approach" adopted by Germany:

- The goals must be implemented *in* Germany: this includes activities directed towards development within Germany as well as political measures taken by Germany which affect other countries as well (for example, the import of raw materials). Germany must be sensitive to the negative impacts that its prosperity has abroad.
- The goals must be implemented *by* Germany: Germany's bilateral and multilateral development cooperations will play an important role in the diverse partnerships formed to implement the 2030 Agenda.
- The goals must be implemented together *with* Germany: highly developed countries must take the lead in developing innovations for sustainable development and carry the financial costs of the initial R&D. New technological solutions, for example, need to be financially viable for all, not just for prosperous countries.

Klaus Töpfer: countries should pledge commitments in process similar to COP21

Klaus Töpfer, founding director of the IASS and former Federal Minister for the Environment, proposed proceeding with the SDGs in the same manner as the successful negotiations at the Climate Change Conference in Paris at the end of 2015: each country should outline the commitment that it can afford and indicate what kind of support it needs to implement the SDGs.

In the discussions about partnerships, participants pointed out challenges such as the lack of collaboration with civil society organizations, the existence of problematic power structures, and the global competition for resources. The most promising plans for implementation, speakers found, were those that integrated participation of civil society, had clearly defined responsibilities and timelines, and effective monitoring processes. It is important that civil society be engaged in the SDG process so that governments receive feedback from their citizens. The value of each individual actor needs to be acknowledged, a variety of participatory platforms need to be formalized, and the interdependencies between different interest groups need to be recognized and respected.

Researchers working in this field at the IASS are considering how processes to monitor the implementation of the SDGs can be designed to encourage the involvement of civil society.

Further information:

- **Conference website**
- **Web-coverage of the conference** by IISD Reporting Services
- **Strengthening Civil Society to Influence the Implementation of the 2030 Agenda:** A guest article for IISD by Ivonne Lobos Alva and Jes Weigelt
- **Dossier on the Sustainable Development Goals**

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Climate

Benefits for People and Climate: Low-Emission Brick Manufacturing in Focus at UN Environment Assembly

Birgit Lode (IASS/CCAC), Sunday A. Leonard (CCAC), and Romina Picolotti (Institute for Governance & Sustainable Development) before the opening of the side event at UNEA-2 in Nairobi. The event was organised by the IASS together with the CCAC and key partners of the CCAC's Bricks Initiative.

© Birgit Lode

"In order to achieve the goals of the Paris Agreement on climate change, we have to reduce our emissions of both CO_2 and SLCPs such as black carbon, ozone, and methane. Accomplishing this task calls for a comprehensive approach, as both of these contribute significantly to climate change", said the Managing Scientific Director of the IASS, Mark G. Lawrence. Reducing emissions and improving the efficiency of brick production, the participants agreed, would not only benefit the global climate but could also hold huge potential for local development within affected regions – for human health, the environment, and economic development.

Generating acceptance for new technologies and ensuring their successful implementation requires the involvement of industry representatives, local engineers, and scientists from the start, said Lawrence: "Scientists cannot develop solutions in isolation. And likewise, the major challenges of our time cannot be addressed without input from science. So let's continue our efforts to bring all of the relevant actors together and to overcome silos so that we can develop in cooperation the knowledge-based solutions that we need to bring about a sustainable world."

Immaculate Simiyu from Kenya's National Environment Management Authority (NEMA) emphasised that improvements in the brick production sector could provide an impetus for further development in Africa. In the light of this, it is crucial that the international community makes sufficient funding available to implement measures and provide subsequent technical support. In her presentation, Simiyu also raised the issue of efforts to regulate emissions from the brick production sector. While most of the affected countries have already adopted

Further information:

Dhuwa (Smoke): This film was produced for Nepalese broadcasters by the International Centre for Integrated Mountain Development (ICIMOD) and the IASS in cooperation with Nepalese comic duo MaHa Sanchar. At once entertaining and educational, the film explores the issues around air pollution in Nepal.

- **Link**

suitable guidelines, their implementation and enforcement is lacking. Simiyu called for the creation of better incentive systems to ensure compliance with regulations.

Helena Molin Valdés, who heads the secretariat of the Climate and Clean Air Coalition (CCAC), explained that the CCAC is currently expanding its activities in the brick sector in different regions around the world. "Eighty per cent of people living in urban areas are exposed to levels of air pollution that exceed the limits defined by the World Health Organisation. The initiatives of the CCAC target the most important sources of air pollution, including the brick production sector", she explained. Supported by the IASS research projects SusKat – A Sustainable Atmosphere for the Kathmandu Valley and ELIAS – Environmental Law and Institutions for Air, Climate and Sustainability, the CCAC Bricks Initiative is working in Nepal to support the introduction of new kilns to produce higher quality, more earthquake-safe bricks in a less polluting and more energy efficient manner than their predecessors.

The CCAC's work in this area is important to fostering the development of a cleaner brick industry, said moderator Birgit Lode, who represents the IASS on the CCAC Steering Committee. Lode also noted that it was important to strengthen support for research on the effects of SLCP emissions on local and regional ecosystems and to heighten awareness among politicians and citizens of the implications of these emissions for human health, food security, and global climate.

Further information:

- Research project: **SusKat – A Sustainable Atmosphere for the Kathmandu Valley**
- Research project: **ELIAS – Environmental Law and Institutions as Drivers of Sustainable Environmental and Climate Policy**

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Politics

Chair of the Green Parliamentary Group, Anton Hofreiter, Discusses Societal Transformation and Climate Change with IASS Directors

Mark G. Lawrence and Anton Hofreiter.

© IASS

A conversation also evolved on how individuals can adopt a more sustainable lifestyle, particularly when it comes to mobility and food.

Our discussions were very stimulating and provided plenty of input for our own work. I was struck in particular by the facts and figures on human CO_2 emissions, which show just how much needs to be done," said Hofreiter. He concurred with the assessment of the Institute's directors that technical solutions alone would not suffice to protect the climate. Instead, fundamental change in the form of a societal transformation is needed.

As a research institute tasked with bringing diverse societal actors together to identify pathways to sustainable development, the IASS is visited regularly by representatives from politics, the business sector, and society.

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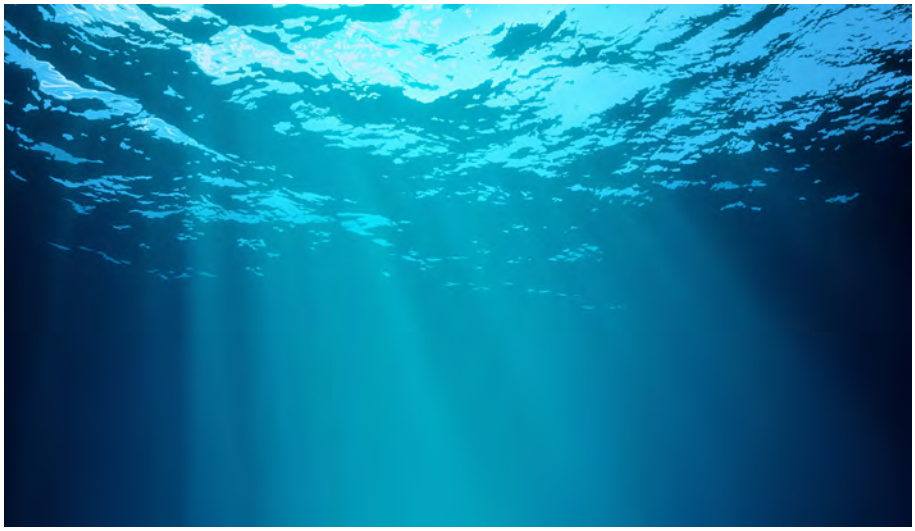
Resources

Policy Brief Recommends Greater Transparency on Deep Seabed Mining



The International Seabed Authority should improve its information policies and involve the public in decision-making around deep seabed mining, recommends a new IASS Policy Brief.

© istock/tolokonov

The deep sea is the largest and least understood ecosystem on Earth. The exploitation of deep-sea mineral resources has long been the subject of debate. Recent developments suggest that the various technical, scientific, political and economic challenges that have prevented their exploitation might soon be overcome. But the potential impact and consequences of deep seabed mining are unclear.

The authors of a new IASS Policy Brief recommend that information and data held by the ISA – especially environmental data – be made available to the public. They have also called on the ISA to make a greater effort to consult with the public and non-state organisations. In order to ensure that efforts to protect the marine environment contribute to achieving the Sustainable Development Goals adopted by the United Nations, the Policy Brief recommends that the ISA convene an advisory body to support its efforts to address environmental issues.

The public has a right to access information held by the International Seabed Authority, emphasises Sabine Christiansen, who leads the research project on deep seabed mining at the IASS: "As the 'owners' of these resources, we should be informed as to how and when they are exploited. Access to information is crucial to ensure public participation, facilitate transparent decision-making, and to enable the public to form an opinion on the potential economic benefits and long-term harms to the marine environment."

The IASS Policy Brief will be presented at the Annual Session of the International Seabed Authority in Jamaica on 16 July at a workshop titled "Enhancing Stakeholder Participation and Transparency in the ISA Process". The IASS is a co-organiser of this event.

Further information:

- **"Deep-sea Mining: Possible but is it Permissible?"**: blog by Sabine Christiansen
- **"Gold at the Bottom of the Sea: Ours for the Taking?"**: blog by Jeff Ardron

- Christiansen, S., Ardron, J., Jaeckel, A., Singh, P., Unger, S. (2016): **Towards Transparent Governance of Deep Seabed Mining.** IASS Policy Brief, 2016, 2.

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Energy

The Grid of the Future: Tests on New Superconducting Material Deliver Promising Results

A compact solution with superconducting qualities.

© RTE/Frédéric Lesur

Physicist, Nobel Laureate and former IASS director Carlo Rubbia was among the first to recognise the potential application of MgB_2 for underground superconducting cables. Developing the material to full maturity is the goal of one of five areas of research addressed in the Best Paths project. The technical coordination of this area is assumed by Nexans France, with the IASS managing its scientific coordination. "We are very satisfied with the material's performance," said Christian-Eric Bruzek of Nexans France.

Superconductors are materials notable for their complete lack of electrical resistance when cooled to extremely low temperatures. According to Bruzek, experiments carried out in Genoa at a facility operated by wire manufacturer Columbus have shown that MgB_2 is suitable for use in large-scale production. "Over the last few months we have manufactured a number of wires using MgB_2 in which we experimented with different compositions and designs. These experiments have already enabled us to raise the performance of the wires by 25 per cent, and there is a high probability that we will double this performance over the next months", explained Bruzek. Building on the knowledge gained in this process, the roughly 40 participating scientists and technicians are now working to develop a complete cable system.

The greatest challenge will lie in connecting the new cables to the existing grid system, explained Adela Marian, a scientist with the IASS. "At ten kilo-amperes, the amperage of these superconducting cables is five times greater than that of conventional cables; meanwhile, their operating temperatures are significantly lower at -250° C. This makes it especially challenging to connect them to conventional high-voltage cables, which operate at ambient temperatures." However, solutions

Link to article:

- Ballarino, A., Bruzek, C. E., Dittmar, N., Giannelli, S., Goldacker, W., Grasso, G., Grilli, F., Haberstroh, C., Holé, S., Lesur, F., Marian, A., Martínez-Val, J. M., Martini, L., Rubbia, C., Salmieri, D., Schmidt, F., Tropeano, M. (2016): **The BEST PATHS Project on MgB_2 Superconducting Cables for Very High Power Transmission.** – IEEE Transactions on Applied Superconductivity, 26, 3, 540/705.

to this challenge already exist and need to be implemented over the coming months. A demonstrator model featuring a 20-metre-long section of superconducting cable is to be built in 2017 and a final test phase is scheduled for 2018. The participating researchers have outlined their work in a recently published paper.

Superconductors can help to integrate the growing share of energy from renewable sources into the European energy mix. As these cables can be laid underground, require only small corridors and are capable of transporting large amounts of electricity, they have a small environmental footprint and disrupt landscapes to a far lesser extent than conventional high-voltage transmission infrastructure. By 2050, the majority of Europe's electricity will come from renewable energy sources and transmission grids will need to be geared to both transporting large quantities of offshore wind-generated electricity and integrating it into existing grids. The challenge of integrating large volumes of renewable energies into the grid hinges on their intermittent nature and uneven geographical distribution. Major development of the European grid infrastructure is thus considered critical to maintaining a reliable power supply.

Further information:

- **"Research in focus"** – a dossier on superconductivity
- Website: **Best Paths Project**

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Air quality

Farm Fresh? IASS Fact Sheet Tackles Agriculture's Role in Air Pollution

Cows are unable to process protein in feedstock effectively, leading to ammonia emissions when their urea and faeces mix. The appropriate use of low-protein feedstock can reduce ammonia emissions without harming the health or welfare of farm animals.

© shutterstock/Gary Blakeley

An important contributor to concentrations of atmospheric particulate matter, ammonia is released during the decomposition of manure and other organic matter. A recent report on air quality within EU Member States attributed around 400 000 premature deaths to long-term exposure to particulate air pollution. In Germany, emissions of ammonia exceeded the official emission ceiling every year between 2005 and 2013. A range of measures has been developed to reduce ammonia emissions from agriculture, but they are not applied consistently across the sector.

Agriculture is the source of more than 90% of ammonia emissions in Europe. The Fact Sheet outlines how farming practices result in ammonia emissions, how these emissions contribute to fine particulate matter, and how particulate matter harms human health. The authors also explain how farm operators could bring their emissions into line with legal limits through the use of low-protein feedstock and improved manure storage and application techniques.

A broad effort to reduce agricultural emissions of nitrogen oxide and sulfur dioxide as well as ammonia, the authors argue, will be crucial to combating particulate air pollution. These three species are key precursors to secondary organic aerosols, which are a significant factor in particulate matter air pollution.

The six-page IASS Fact Sheet was developed in cooperation with the Deutsche Umwelthilfe (DUH), Freie Universität Berlin (FU Berlin) and the Netherlands Organisation for Applied Scientific Research (TNO).

- von Schneidemesser, E., Kutzner, R., Münster, A., Staudt, E., Saar, D., Schaap, M., Banzhaf, S. (2016): **Agriculture, Ammonia, and Air Pollution.** IASS Fact Sheet, 2016, 1.

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SELECTED PUBLICATIONS

Selected publications by IASS researchers in peer-reviewed journals (2nd quarter, 2016):

Ballarino, A., Bruzek, C. E., Dittmar, N., Giannelli, S., Goldacker, W., Grasso, G., Grilli, F., Haberstroh, C., Holé, S., Lesur, F., Marian, A., Martínez-Val, J. M., Martini, L., Rubbia, C., Salmieri, D., Schmidt, F., Tropeano, M. (2016): The BEST PATHS Project on MgB2 Superconducting Cables for Very High Power Transmission. – IEEE Transactions on Applied Superconductivity, 26, 3, 5401705.

- **Link**

Boettcher, M., Gabriel, J., Low, S. (2016): Solar Radiation Management: Foresight for Governance. Project Report. – IASS Working Paper, April 2016.

- **Link**

Bonn, B., von Schneidemesser, E., Andrich, D., Quedenau, J., Gerwig, H., Lüdecke, A., Kura, J., Pietsch, A., Ehlers, C., Klemp, D., Kofahl, C., Nothard, R., Kerschbaumer, A., Junkermann, W., Grote, R., Pohl, T., Weber, K., Lode, B., Schönberger, P., Churkina, G., Butler, T. M., Lawrence, M. G. (2016): BAERLIN2014 – the influence of land surface types on and the horizontal heterogeneity of air pollutant levels in Berlin. – Atmospheric Chemistry and Physics, 16, 7785 – 7811.

- **Link**

Dovern, J., Harnisch, S., Janich, N., Maas, A., Uther, S. (2016): Die Struktur der CE-Debatte. – In: Herausforderung Climate Engineering – Bewertung neuer Optionen für den Klimaschutz, (Kieler Beiträge zur Wirtschaftspolitik; 8), Kiel: Institut für Weltwirtschaft, p. 31 – 34.

Huang, C., Wu, T., Renn, O. (2016): A Risk Radar driven by Internet of intelligences serving for emergency management in community. – Environmental Research.

- **Link**

Lode, B., Schönberger, P., Toussaint, P. (2016): Clean Air for All by 2030? Air Quality in the 2030 Agenda and in International Law. – Review of European, Comparative & International Environmental Law, 25, 1, p. 27 – 38.

- **Link**

Ma, S., Churkina, G., Gessler, A., Wieland, R., Bellocchi, G. (2016): Yield gap of winter wheat in Europe and sensitivity of potential yield to climate factors. – Climate Research, 67, 3, p. 179 – 190.

- **Link**

Naims, H. (2016): Economics of carbon dioxide capture and utilization — a supply and demand perspective. – Environmental Science and Pollution Research.

- **Link**

Prank, M., Sofiev, M., Tsyro, S., Hendriks, C., Semeena, V., Vazhappilly Francis, X., Butler, T. M., Denier van der Gon, H., Friedrich, R., Hendricks, J., Kong, X., Lawrence, M. G., Righi, M., Samaras, Z., Sausen, R., Kukkonen, J., Sokhi, R. (2016): Evaluation of the performance of four chemical transport models in predicting the aerosol chemical composition in Europe in 2005. – Atmospheric Chemistry and Physics, 16, p. 6041–6070.

- **Link**

Renn, O. (2016): Systemic Risks: The New Kid on the Block. – Environment, 58, 2, p. 26–36.

- **Link**

Setton, D., Helgenberger, S. (2016): Den Kohlekonsens befördern: Zum aktuellen Beitrag der transformativen Nachhaltigkeitsforschung. – GAIA – Ecological Perspectives for Science and Society, 25, 2, p. 142–144.

- **Link**

Shakya, K. M., Rupakheti, M., Aryal, K., Peltier, R. E. (2016 online): Respiratory Effects of High Levels of Particulate Exposure in a Cohort of Traffic Police in Kathmandu, Nepal. – Journal of Occupational and Environmental Medicine.

- **Link**

Werner, K., Fritz, M., Morata, N., Keil, K., Pavlov, A., Peeken, I., Nikolopoulos, A., Findlay, H. S., Kędra, M., Majaneva, S., Renner, A., Hendricks, S., Jacquot, M., Nicolaus, M., O'Regan, M., Sampei, M., Wegner, C. (2016): Arctic in Rapid Transition: Priorities for the future of marine and coastal research in the Arctic. – Polar Science.

- **Link**

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NEW PROJECTS

Digitalisation and Natural Capital Accounting

The aim of this project is to help evaluate the potential of digital technologies to support corporate environmental reporting methods in the context of "Industry 4.0". The research will focus on Natural Capital Accounting, a method for companies to track and manage their actual environmental costs. The project will begin by establishing a network of sustainability officers from within industry, and lead to the planning, conducting and analysis of in-depth qualitative interviews. The project is to conclude with the documentation of findings, and possibly their publication in a scientific journal.

Contact:

- **François Pougel**

Development of an Instrument to Assess the Health Impacts of Air Pollution

According to World Health Organisation (WHO) estimates, air pollution is responsible for 400 000 premature deaths in Europe every year. Treating patients for illnesses caused by poor air quality costs millions of euros annually.

The health impacts and cost to our health systems as well as the effects of more stringent EU regulations on air quality could be assessed better through the use of special tools and processes. Doing so will require the collection of a range of information, including data on affected populations and the concentration of air pollutants in particular areas (through modelling or actual measurements), and the technical adaptation of this data. Applying protocols recommended by WHO and the European Commission, simulations can be conducted to estimate the costs of air pollution.

In a first step, this project will identify a range of suitable and freely available instruments. One of these instruments will be adapted to the local and regional conditions. The results of the simulation will then be discussed with experts before further adjustments are made. The project's overall aim is to develop an effective method to determine the health and economic impacts of air pollution.

Contact:

- **Karolina Tomiak**

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CALL FOR PAPERS

A Decade of Climate Engineering Research – Special Issue of Earth's Future

2016 marks the tenth anniversary of Nobel laureate Paul Crutzen's seminal work on climate engineering. In his essay "Albedo enhancement by stratospheric sulfur injections: A contribution to resolve a policy dilemma?", Crutzen noted that efforts to reduce greenhouse gas emissions and limit global warming had thus far been "grossly unsuccessful." Crutzen suggested that global warming might be addressed through a technical intervention in which sulfate particles would be deployed into the stratosphere to scatter solar radiation back into space in order to alleviate some of the phenomenon's effects. Crutzen's paper in the journal *Climatic Change* sparked an unprecedented surge of academic, public, and political interest in the subject of climate engineering (also referred to as geo-engineering).

Over the last decade, climate engineering has developed into a broad and interdisciplinary field of research. To celebrate the tenth anniversary of Crutzen's essay, scientists at the IASS are preparing a special issue of Earth's Future, the journal of the American Geophysical Union. Experts in the field of climate engineering are invited to contribute a brief commentary (2 – 5 pages, approx. 2 000 words) on the development of this field over the past ten years and the outlook for the coming decade. This special issue will feature contributions from a wide range of authors from both within and beyond the scientific community, reflecting the diverse nature of the debate around climate engineering. The organisers invite authors to submit contributions that examine climate engineering through the lens of a particular field of research, discipline, community (scientific, civic, political, media, etc.) or geographical area.

Papers should be submitted by 31 August 2016 through the Earth's Future GEMS portal. To find out more about the submission process, please contact: **earthsfuture@agu.org**.

For more information on this special issue of Earth's Future, contact IASS researchers Miranda Böttcher and Stefan Schäfer: **miranda.boettcher@iass-potsdam.de** and **stefan.schaefer@iass-potsdam.de**

The complete Call for Papers is available here:

- **Link**

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IASS PEOPLE

Check Abdel Kader Baba joined the IASS in June to coordinate research as part of the "Soil Protection and Rehabilitation for Food Security" project in Benin, to which the IASS is a partner organisation. He holds a Master's degree in Tropical Forestry from Technische Universität Dresden. Kader Baba has gathered experience in community facilitation working for NGOs Plan International Benin and APIC, as a project coordinator for the Unidea Foundation, and as a technical consultant with GIZ/ProAgri. His research interests include the integrated management of agro-pastoral reservoirs, ecosystem services quantification and valuation methods and frameworks, and trade-offs analysis between multiple ecosystem services. His thesis examines trade-offs between crop production and soil protection.

Natasha Aruri gained her Ph.D. in urban systems from the University Duisburg-Essen. She also holds an M.Arch in housing, urbanization and sustainability in development contexts from the International University of Catalunya in Spain and an M.Sc. in international cooperation and urban development from the Technical University Darmstadt. Natasha is an urbanist, architect, and activist. She has worked in diverse Mediterranean countries as a consultant, researcher, planner, and manager. Her research interests include more complex aspects of urban development, the spacio-politics of and resistance to (neo)colonialism, the use of dynamic strategies to address uncertainties in spatial planning, design, and community mobilization. Natasha Aruri will provide communication support and contribute to strategy development processes for the Global Soil Week and other regional soil weeks in cooperation with partner organizations and planning committees.

Elena Evers joined the Global Soil Forum team in June 2016 as a Programme Associate. She holds a Master's in European business from the Ecole Supérieure de Commerce de Paris – ESCP Europe (Berlin-London) and a diploma in English philology from Simferopol State University (Crimea). Her professional background spans the fields of finance, administration, and project management (incl. third-party funding administration). She has worked for public and international organizations (incl. the OSCE) in different capacities and for private companies in Armenia, Germany, Ukraine, and the UK. Before joining the IASS, she audited EU-funded projects at LASA GmbH (Investment Bank of the Land of Brandenburg).

Viola Gerlach joined the IASS in May as an Academic Officer under Scientific Director Prof. Dr Ortwin Renn. The focus of her work lies on the development of concepts to facilitate the implementation of sustainability research in society. In addition to this, she coordinates and facilitates transdisciplinary dialogue and contributes to efforts to strengthen cooperation between the IASS and national and international research institutes and organisations. She also researches and publishes on contemporary issues in risk research and on transdisciplinary approaches in sustainability research. Viola Gerlach studied political science and sociology in Stuttgart and Florence, and previously worked as a research associate for the non-profit institute for communication and cooperation research DIALOGIK gGmbH.

Nora Hofstetter joined the IASS in July as an Academic Officer under Scientific Director Prof. Dr Patrizia Nanz. She studied sustainability studies and social sciences at the University of Basel, Jacobs University Bremen, and the Institut d'Etudes Politiques in Toulouse. Her Master's thesis examines power as a factor in deliberative processes in transnational environmental governance. She has over five years of experi-

ence as a facilitator of group processes and as a trainer in the fields of anti-racism, gender awareness, and power-sensitive communication.

Henrike Knappe joined the IASS in May 2016. As a political scientist, her research interests include the representation of future generations, (micro-)practices of participation, normative democratic theory, and feminist political theory. Henrike wrote her doctoral thesis on democratic practice in transnational NGO networks, exploring the networks of Friends of the Earth and the Clean Clothes Campaign. Prior to joining the IASS, she worked as a Research Associate at the Institute for Advanced Study in the Humanities (KWI) Essen.

Amanda Machin has joined the IASS as a Fellow for three months, to research citizenship in the Anthropocene. She holds a Ph.D. in political theory from the University of Westminster, London (supervised by Chantal Mouffe) and is currently based at Zeppelin University, Friedrichshafen. She is interested in democracy, citizenship, agonism, embodiment, knowledge and environmental politics. She is the author of *Nations and Democracy: New Theoretical Perspectives* (Routledge, 2015) and *Negotiating Climate Change: Radical Democracy and the Illusion of Consensus* (Zed Books, 2013). Amanda Machin has published in peer-reviewed journals such as *Environmental Politics* and *Democratic Theory*.

Grace Mbungu joined the IASS in May 2016 as a Fellow and Ph.D. candidate under the supervision of Ortwin Renn and Ilan Chabay. Her thesis project focuses on understanding what motivates rural households to adopt and maintain sustained use of improved cook stoves. She holds a Master of Public Administration (MPA) with a focus on international development and human rights and a BA with a dual major in political science and women´s studies from Bowling Green States University, Ohio (USA). Before joining the IASS, she was a junior researcher at DIALOGIK, Stuttgart, where she worked on the EU-funded project "Engaging Society in Horizon 2020: Tools and instruments for a better societal engagement in *Horizon 2020*". At the IASS, Grace supports the KLASICA Alliance team and is currently part of the organizing team of the International Case Studies Symposium on Collective Behaviour Change Towards Sustainable Futures in Asia and Isolated Communities to be held in Taipei, Taiwan later this year.

Dr Frank Meissner joined the IASS in May as a Research Associate with the Economics & Culture programme. The focus of his work lies on "green business models" and "green finance". Frank Meissner holds a doctoral degree from the University of Potsdam and has gathered experience at the Potsdam Institute of Climate Impact Research (PIK) and as a researcher at University of Potsdam's Chair of Public Economics. He has worked as a policy consultant for seven years and was involved in a variety of projects focussing on socioeconomic aspects of renewable energies, clean technology, energy efficiency, climate and environmental policy, and alternative traffic systems in Germany and Eastern Europe.

Dr Wanxia Ren joined IASS in April 2016 to work on co-benefits assessment and multi-level governance of climate change in the field of renewable energy. Dr Ren is an associate professor at the Institute of Applied Ecology, Chinese Academy of Sciences. Her research interests include environmental management and environmental policy assessment, in particular air pollution prevention policy and climate change mitigation policy.

Christian Schwägerl is a science and environmental journalist and the author of several books. After reporting on the environment, energy, science, technology and biomedicine from 1997 to 2012 as a staff correspondent for German daily newspapers *Berliner Zeitung* and *Frankfurter Allgemeine Zeitung*, as well as *DER*

SPIEGEL magazine, he now freelances for *GEO*, *Cicero magazine*, *ZEIT Wissen*, and other leading German media. He has won a number of awards, including the Georg von Holtzbrinck Prize for Science Journalism – Germany's leading award for science journalists – and the Econsense Journalism Award of the Forum for Sustainable Development of German Business. Christian Schwägerl's first book *Menschenzeit (The Anthropocene: the human era and how it shapes our planet)* inspired the "Anthropocene Project" staged at the Haus der Kulturen der Welt in Berlin and the special exhibition "Welcome to the Anthropocene" at the Deutsches Museum in Munich. He is working at the IASS in June and July on "Journalism in the Anthropocene" and other related topics.

Dr Stefan Skrimshire lectures at the School of Philosophy, Religion and History of Science, University of Leeds in the United Kingdom. He is particularly interested in the relationship between the philosophical and theological expressions of apocalyptic thought and various forms of environmental activism. He will be working as an IASS Fellow at the Institute from mid-June through to late August on a book on the Anthropocene and the relationship between narratives of human and Earth history and how this impacts on modern theologies and 20th-century critical theory. His book will also consider whether longer term thinking does indeed benefit efforts to secure the immediate future of humankind.

Eva Söderman joined the IASS in July as the new Head of Press & Communication. With a background in political science, she has previously worked as a TV journalist in Berlin and Munich. In 1999 she shifted the focus of her career to public relations and managed the press and communications department at the Jewish Museum Berlin for almost a decade. Following this, she was the head of communications at German environmental association NABU. Most recently, she has worked as a freelance public relations consultant, lecturer, and press and public relations officer for the German Climate Consortium.

Dr Guillermo Villena Tapia joined the IASS in July as a Research Associate with the research programme Air Quality in the Context of Global Change. He holds a BSc from Universidad de Santiago de Chile and obtained his Ph.D. from the University of Wuppertal. In his doctoral thesis he examined the development and application of a new long path absorption photometer (LOPAP) for the sensitive detection of nitrous oxide (NO_2). He has worked in interdisciplinary groups on numerous projects in Europe and worldwide. His research interests include environmental analytical chemistry, air quality, atmospheric chemistry, multiphase processes in the atmosphere, and environmental management.

Zack Walsh joined the IASS in May 2016 as a Research Fellow of the AMA project. He is a Ph.D. student in process studies at Claremont School of Theology, a teaching assistant, a member of the steering committee for Toward Ecological Civilization, a scientific committee member of Wise and Smart Cities, and a Research Fellow at the Institute for the Postmodern Development of China. His research engages process studies, contemplative studies, engaged Buddhism, critical theory, radical ecology, post-capitalism, and China.

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JOB ADVERTISEMENTS

Scientific positions:

Academic Officer for Research and Evaluation

The position is initially foreseen for the period until 31 December 2020.
Deadline for applications: 15 August 2016

■ **To the job advertisement**

APPOINTMENTS

Prof. Dr Ilan Chabay, a Senior Fellow at the IASS, has been appointed to the Scientific Advisory Board of the Center for Environmental Systems Research (CESR) attached to the University of Kassel.

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UPCOMING EVENTS

August 2016

9 August 2016
Anthropocene Lecture:
Whose Deep Future? Critiquing the moral presumptions of longer term thinking in Anthropocene discourse
Delivered by Stefan Skrimshire, University of Leeds, currently an IASS Senior Fellow. Commentary: Whitney Bauman, Florida International University, currently a Humboldt Scholar at Friedrich Schiller University of Jena.
Begin: 5.00 p.m.
Venue: IASS Potsdam, Ballroom

September 2016

1 September 2016
World Water Week, Stockholm:
Making sound energy choices today to achieve water security tomorrow
Organised by: China Water Risk (CWR), Global Water Partnership (GWP) and IASS

Fore more information on World Water Week, please visit:
■ **Link**

■ **To the IASS Calendar of Events**

1 – 2 September 2016
Workshop:
SLCP Mitigation from Brick Production in Africa
Organised by: IASS and other partner organisations in the CCAC Brick Initiative
Venue: Ministry of the Environment, Morocco (closed event)

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5 – 14 September 2016
Potsdam Summer School:
Dealing with the Impacts of Climate Change

41 participants (by invitation), all events are closed to the public, interested colleagues may register with **a.borowski@iass-potsdam.de** to attend individual lectures as guests.

For further information on the programme, please visit:
- **Link**

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7 – 8 September 2016
Workshop:
Low Environmental Impact SRM Experiments
Organised by: IASS Potsdam
Venue: IASS Potsdam
(closed event)

20 – 22 September 2016
Workshop:
Carbon Dioxide Removal Model Intercomparison Project
Organised by: IASS, GEOMAR, University of Edinburgh
Venue: IASS Potsdam
(closed event)

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21 September 2016
Book presentation
„Wachstum über alles? Wie der Journalismus zum Sprachrohr der Ökonomen wurde“, with Ferdinand Knauß (author and *Wirtschaftswoche* journalist) and Prof. Ortwin Renn (Scientific Director IASS)
Begin: 7.00 p.m.
Venue: stratum lounge Berlin

For more information on this event and for registrations, please visit:
- **Link**

October 2016

12 – 14 Oktober 2016
Climate Think Tank Workshop
Organised by: IASS Potsdam
Venue: IASS Potsdam
(closed event)

Join the discussion: What's behind the coal protests in Germany's Lausitz region? How is the consumption of natural resources related to the culture of relationships within human society? Should a state fund be established to replace surcharges on electricity prices to finance renewables? Read the latest posts penned by IASS researchers on our blog!

Follow us on Twitter!
We keep you informed on a daily basis and tweet live from important events.

CONTACT AND IMPRINT

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