

## 20160930 动态快讯（第 1 期）

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## News

### 1. Connecting data scientists with regional challenges

September 28, 2016

Today, the National Science Foundation (NSF) announced \$10 million in awards to 10 "Big Data Spokes" projects to initiate research on specific topics identified by the Big Data Regional Innovation Hubs (BD Hubs).

Project topics range from precision agriculture to personalized education. The data spokes reflect the unique priorities and capabilities of the four BD Hubs, which represent consortia from the Midwest, Northeast, South and West of the country.

"The BD Spokes advance the goals and regional priorities of each BD Hub, fusing the strengths of a range of institutions and investigators and applying them to problems that affect the communities and populations within their regions," said Jim Kurose, assistant director of NSF's Computer and Information Science and Engineering Directorate. "We are pleased to be making this substantial investment today to accelerate the nation's big data R&D innovation ecosystem."

NSF is also making available an additional \$1 million toward planning efforts and Early-Concept Grants for Exploratory Research (EAGER) awards in support of the nation's big data innovation ecosystem.

In March 2012, the Administration launched the Big Data Research and Development Initiative to improve the ability to solve some of the nation's most pressing challenges by extracting knowledge and insights from large, complex collections of digital data. The BD Hubs, announced last year, are one way NSF is addressing this need by fostering multi-sector collaborations among academia, industry and government, and bringing together a wide range of stakeholders to solve regional challenges.

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The 10 BD Spokes projects are:

- NORTHEAST: A Licensing Model and Ecosystem for Data Sharing (MIT, Brown University, Drexel University)
- NORTHEAST: Grand Challenges for Data-Driven Education (University of Massachusetts, Amherst; Worcester Polytechnic Institute; University of Pennsylvania)
- NORTHEAST: Integration of environmental factors and causal reasoning approaches for large-scale observational health research (Harvard University, Columbia University, University of Pittsburgh, Pennsylvania State University)
- SOUTH: Large-scale Medical Informatics for Patient Care Coordination and Engagement (Emory University)
- SOUTH: Smart Grids Big Data (Texas A&M, Temple University, Georgia Institute of Technology)
- SOUTH: Using Big Data for Environmental Sustainability: Big Data + AI Technology = Accessible, Usable, Useful Knowledge (Georgia Institute of Technology, Smithsonian Institution)
- MIDWEST: Advanced Computational Neuroscience Network (University of Michigan, Indiana University, Ohio State University, Case Western University)
- MIDWEST: Digital Agriculture - Unmanned Aircraft Systems, Plant Sciences and Education (University of North Dakota)
- WEST: Accelerating and Catalyzing Reproducibility in Scientific Computation and Data Synthesis (Arizona State University)
- WEST: MetroInsight: Knowledge Discovery and Real-time Interventions from Sensory Data Flows in Urban Spaces (University of California, San Diego; University of California, Los Angeles; Arizona State University)

[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=189864&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=189864&org=NSF&from=news)

## **2. NSF invests \$72 million in innovations at nexus of food, energy and water systems**

September 28, 2016

To help secure the future of food, energy, and water systems while maintaining vital ecosystem services, the National Science Foundation (NSF) has awarded more than \$72 million for fundamental science and engineering research.

The investments are part of the NSF Innovations at the Nexus of Food, Energy and Water Systems program, known as INFEWS.

"Demands on food, energy and water will increase in the future as a result of population growth, migration patterns and urbanization in a changing climate," says Roger Wakimoto, assistant director for NSF's Geosciences Directorate. "NSF recognized the challenge ahead of us by creating the INFEWS initiative, which supports research on these interconnected needs. The results from these awards will benefit all of us."

While the complex relationship between energy and water systems has been studied for decades -- and agricultural diversions of water date back much farther -- how these systems interact has become an area of frontier research. Drought and the depletion of aquifers. Shifts in farming between food and fuel crops. Concerns about food waste and the relentless demand for energy for food production. Food processing and transportation. All of these areas have prompted a deeper and broader examination of the linked food-energy-water system.

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INFEWS projects are designed to address one or more of the following four goals:

- ♦ Advance our understanding of the food-energy-water system through quantitative and computational modeling, including support for relevant cyberinfrastructure.
- ♦ Develop real-time, cyber-enabled interfaces that improve understanding of the behavior of food-energy-water systems and increase decision-making capabilities.
- ♦ Enable research that will lead to system innovations and technological solutions to critical food-energy-water problems.
- ♦ Grow the scientific workforce capable of studying and managing food-energy-water systems through education and other professional development opportunities.

[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=189898&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=189898&org=NSF&from=news)

## **3. NSF commits more than \$60 million to Smart Cities Initiative**

September 26, 2016

From autonomous vehicles to flash flood alert systems, technology transforms how people lead their daily lives and how local cities and communities function.

Last September, the Administration launched the National Smart Cities Initiative to help communities tackle local challenges and improve city and municipality services. Today, the National Science Foundation (NSF) -- the lead federal agency in the effort -- announced more than \$60 million in Smart Cities-related grants for Fiscal Year (FY) 2016, with additional investments planned for FY 2017. This new funding adds to the nearly \$40 million the agency awarded last year to support researchers working to design, adapt and manage the smart and connected communities of the future.

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NSF has long supported the fundamental research that underlies smart and connected communities. This research has included advanced networking and connectivity, sensing, real-time data analytics, control, automation and decision-making. The agency has also been instrumental in transitioning these technologies to widespread use. For example, since 2012, the US Ignite initiative seeded the development of numerous new "gigabit application prototypes," capable of processing large amounts of information in real-time, which has improved regional radar systems, autonomous vehicle management, and more.

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[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=189882&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=189882&org=NSF&from=news)

#### **4. NSF awards \$15.9 million to foster new understanding of biological systems on regional to continental scales**

September 22, 2016

Have you looked closely at a stream, lake or woodland and observed changes in it over time? That's exactly what scientists are trying to do on a larger, regional-to-continental scale -- a macrosystems biology scale.

Macrosystems biology might be called biological sciences writ large. To better detect, understand and predict the effects of climate and land-use changes on organisms and ecosystems at these large scales, the National Science Foundation (NSF) Directorate for Biological Sciences has awarded \$15.9 million for 12 new MacroSystems Biology and Early NEON (National Ecological Observatory Network) Science projects.

Early NEON Science grants go to projects that don't otherwise fit into the macrosystems biology focus on regional- to continental-scale questions, but use or leverage NEON data and/or NEON samples and specimens to address innovative ecological or other biological questions, or develop analytic or computational tools that enhance the use and value of NEON data.

How will the biosphere respond to natural and human-induced changes across a range of time and space scales? What is the pace and pattern of these responses? What are the effects on ecosystem services -- such as the availability of freshwater -- across regions and continents?

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How are regional-scale processes in plant and animal invasions, and in disease transmission, shaped by continent-wide environmental and land-use patterns? How can continent-wide data lead to better forecasts of disease outbreaks? How do invasive species and infectious diseases arrive at new locations, sometimes across great distances?

MacroSystems Biology and Early NEON Science investigators are seeking answers.

Among the topics awardees will address are: forest function from genes to canopies; how local and migratory foraging affects networks of plants, pollinators and pathogens; alternative ecological futures for the "American Residential Macrosystem" (our homes and lawns) in six study cities from Boston to Los Angeles; and "mice-o-scapes": understanding the effects of climate and landscape change on small mammal ecology over the past 100 years.

The projects crisscross regions and continents, and bring together scientists from biological sciences, geosciences and other fields in an effort to find out what makes Earth's biosphere tick.

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[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=189865&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=189865&org=NSF&from=news)

#### **5. NSF awards \$13 million in third set of coastal sustainability grants**

September 21, 2016

At a time when sea-level rise is flooding cities in the U.S. Southeast, harmful algae blooms are threatening seashore communities, and climate change is affecting fisheries just offshore, how do we coexist with our coastlines?

To answer that question, the National Science Foundation (NSF), through its Coastal SEES (Science, Engineering and Education for Sustainability) program, has funded a third set of awards totaling \$13 million to study coasts in the U.S. and around the world.

The program is largely supported by the Division of Ocean Sciences in NSF's Directorate for Geosciences. It funds research on the sustainability of coastal systems, the swaths of land closely connected to the seas -- including barrier islands, wetlands, mudflats, beaches and estuaries, as well as coastal cities, towns, recreational areas, maritime facilities -- as well as the continental seas and shelves and the atmosphere.

"Coastal systems are crucial to regional and national economies, and to human safety and sustainability," says Rick Murray, director of NSF's Division of Ocean Sciences. "This third set of Coastal SEES awards will help us preserve our coasts at a time when they're under pressure from all sides, including sea-level rise, changes in storm intensity and frequency, ocean acidification, and development of coastal lands."

We've left a large footprint in coastal sands. In the year 2000, more than half the world's

human population lived in coastal areas. By 2025, that number is expected to rise to 75 percent. By 2020, if current population trends continue, the crowded U.S. coast is projected to see its population grow from 123 million people to nearly 134 million.

NSF's new Coastal SEES projects address topics such as: apex predators, ecosystems and community sustainability in Alaska; climate change, management decisions and ecological functions in Chesapeake Bay; climate change effects on fisheries in the California Current ecosystem; new modeling tools to predict ocean acidification effects on coastal ecosystems; and landscape dynamics, mass balance and network connectivity for a sustainable Ganges-Brahmaputra Delta.

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[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=189824&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=189824&org=NSF&from=news)

## **6. Golden Goose Award Honors Innovative Research However Obscure**

23 September 2016 Juan David Romero

AAAS, the Association of American Universities, and the founding organizations of the Golden Goose Award honored 12 scientists whose odd-sounding or obscure federally funded research has had a major impact on society.

At the fifth annual Golden Goose ceremony held on 22 September at the Library of Congress three teams of recipients were formally presented with Golden Goose Awards during an event that drew a bipartisan group of members of Congress and other representatives of science, academia and business, including Rush Holt, AAAS CEO and executive publisher of the Science family journals.

"The Golden Goose Award is a wonderful way for us to tell the stories of how scientific breakthroughs happen. How even research that might seem odd or frivolous at first can go on to change the lives of millions of Americans," said Holt, who also announced that going forward, AAAS would be taking a larger role in supporting the award by bringing it under AAAS' stewardship "and working to secure its future for many years."

The 2016 award recipients – comprised of three teams of scientists, engineers and medical professionals – were named winners in three separate announcements throughout this year:

14 September: A team of five interdisciplinary researchers was honored for developing the "Honey Bee Algorithm." The team transformed honey bee foraging behaviors into an algorithm that is now used to streamline internet services for web-hosting companies.

22 June: Two researchers were posthumously honored for their early work on the mating practices of the screwworm fly that led to the creation of an innovative technique used to eradicate the screwworm fly from North and Central America. The screwworm fly had long ravaged the cattle industry.

31 March: A team of five social science researchers was honored for its longitudinal study of adolescent health that has changed the way doctors approach everything from AIDS to obesity by illuminating the impact of social and environmental factors on the health of those of all ages.

<http://www.aaas.org/news/golden-goose-award-honors-innovative-research-however-obscure>

## **7. Over Texas Oilfields, Satellites Track Ground Changes Connected to Quakes**

21 September 2016 Meagan Phelan

In the first study of its kind, satellites show how wastewater disposal from oil and gas operations in eastern Texas may have deformed the ground to trigger the region's largest-ever quake — a magnitude 4.8 event in 2012.

The study published in the 23 September issue of Science also provides insights into why wastewater injection causes earthquakes near some wells, but not others.

Such observations that unequivocally link wastewater injection and seismicity are scarce, and these results suggest that satellites could be an important new tool in tracking the impact of wastewater injection in regions prone to induced temblors.

"We need to better understand why induced seismicity happens, and how to minimize it,

and our approach opens up new possibilities for understanding the risk in ways that can reduce earthquake hazard," said Manoochehr Shirzaei, assistant professor in the department of Earth and space exploration at Arizona State University.

Scientists have known for decades that earthquakes can be induced by industrial processes. Since 2008, however, when seismicity in the central U.S. began to surge, earthquakes induced by the underground fluid injection processes have become a major focus. Fluid injection can occur with conventional oil and gas extraction methods, which extract fuel from underground pools, and with unconventional methods like fracking, which recover oil and gas from small voids in rocks.

At the end of oil and gas drilling, water that was used to create small fractures in deep rock to retrieve the fuel is injected back into the ground. This type of injection happens in 90% of cases, spanning both conventional and unconventional extraction processes. To avoid polluting fresh water supplies, the water is introduced between impermeable layers of rocks. Pumping large volumes of it deep into the earth increases the fluid pressure on earthquake faults, which decreases their strength, bringing them closer to slippage.

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<http://www.aaas.org/news/over-texas-oilfields-satellites-track-ground-changes-connected-quakes>

## **8. New President Should Quickly Appoint Science Adviser**

15 September 2016 Andrea Korte

The nation's incoming president needs to move quickly to appoint a respected scientist or engineer to serve as the next science adviser to ensure immediate input on issues related to science, according to recommendations laid out in a report from Rice University's Baker Institute for Public Policy released on 14 September.

"As soon as the president arrives, he or she is going to be met with a whole slew of issues: unresolved matters that have to do with science and technology," said Neal Lane, senior fellow of science and technology policy at Houston's Baker Institute, at a press conference announcing the recommendations.

Lane, who served as science adviser to President Bill Clinton and director of the White House Office of Science and Technology Policy (OSTP) from 1998 to 2001, said the next president will confront issues requiring scientific and technological advice immediately after the 8 November elections.

"Science and technology are embedded in almost every issue that the president deals with," said Rush Holt, chief executive officer of AAAS and publisher of the Science family of journals, who also spoke at the 14 September event at the National Press Club in Washington, D.C.

Holt said the incoming president's science adviser needs to be quickly integrated into the administration's decision-making and not just on topics with an obvious science connection like infectious disease response, environmental stewardship, and energy security. Contrary to what many may think, the purpose of the science adviser is not to serve the "science constituency," reasoned Holt.

"What is often forgotten is that science and technology are embedded in issues of justice and diplomacy and social welfare and agriculture," added Holt. The science adviser and the OSTP should be involved in decisions under consideration in any of those areas, he said.

The incoming president should tap the next science adviser soon after the election, Lane said, adding that the person holding the post should be given the title assistant to the president for science and technology, a position that reports directly to the president, and be nominated to be director of the OSTP – a position that requires Senate confirmation.

The OSTP is responsible for advising the president on issues of science and technology, collaborates with other White House offices, informs Congress on the state of science and technology, and manages both the cabinet-level National Science and Technology Council (NSTC) and the President's Council of Advisors on Science and Technology (PCAST), an advisory group of external science and engineering experts.

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<http://www.aaas.org/news/new-president-should-quickly-appoint-science-adviser>

## **9. Managing climate and social risks key to hydropower development**

02 Sep 2016, Stockholm, Sweden

The Hindu Kush Himalayan (HKH) region has nearly 500 GW hydropower potential, but only a fraction of it has been developed. As countries in the region gear up for increased hydropower production to alleviate energy poverty, they find themselves grappling with increasing climatic and social risks. A seminar convened by the International Centre for Integrated Mountain Development (ICIMOD), Stockholm International Water Institute (SIWI), FutureWater, and Statkraft on 1 September 2016 at Stockholm World Water Week discussed these risks and the way forward.

“There is a need to manage risks so that the mountains and the plains derive sustainable benefits from the region’s rich hydropower potential”, said David Molden, ICIMOD, stressing the importance of the HKH as a global asset.

The hydropower sector is facing major challenges as a result of climate change-induced glacier melt. Glaciers across the region are retreating, leading to changes in future hydrological regimes. At the same time, the risk of glacial lake outburst floods (GLOFs) and landslides is increasing, putting both existing and planned hydropower plants at risk.

“Changes in hydrological regimes means that there will be more water in the near future as glaciers melt, but it will decline after 2100”, said Arthur Lutz from FutureWater, a water management research organization.

Martin Honsberg, from the hydropower company Statkraft, added, “The only feasible way to manage this risk is to be better informed about the impacts of climate change on glaciers and river regimes, which can be done by setting up long-term monitoring systems.”

ICIMOD and FutureWater are studying glaciers across the HKH to understand the impacts of climate change in the mountains and the possible downstream consequences. The results of these studies were presented during the seminar.

The societal risks of alienating local people in areas where hydropower projects are constructed are nearly as important to consider as climate risk. These projects are mostly in mountain areas, and local people often perceive that the benefits accrue to people in the plains who get electricity, while people in the mountains bear the environmental and social costs. To manage this risk, hydropower companies need to provide direct and tangible benefits to local communities.

Aditi Mukherji, ICIMOD, discussed successful benefit sharing mechanisms in Nepal and India, concluding that good and responsible governance at the local level is needed to ensure that local communities derive commensurate benefits from hydropower projects.

At World Water Week this year, ICIMOD convened various seminars and hosted a booth to draw attention to a range of water-related issues and their impact on the ecosystems and people of the Hindu Kush Himalayan region.

<http://www.icimod.org/?q=24019>

## **10. Global climate deal could enter into force in 2016**

Posted on 21 September 2016

GLAND, Switzerland – The impossible is now inevitable. The global climate deal approved in Paris last year will come into force in 2016, according to UN Secretary-General Ban Ki-moon.

Today the agreement reached – in record time – one target required for implementation; and the other target is in sight by the end of this year.

The secretary-general said that 60 countries representing about 48 per cent of global greenhouse gas emissions have ratified the agreement. Ratification by 55 countries representing 55 per cent of global greenhouse gas emissions is required for entry into force of the agreement.

“It is remarkable to see what political will can achieve. And now the real work must begin,” said Regine Guenther, WWF Interim Leader for Climate and Energy. “The agreement must be turned into actions on the ground for real change because, as we head toward the end of what is likely to be the hottest year in recorded history, we know we have a brief window of opportunity to make a difference. We must not lose that by delaying action. We need the funds, the capacity,

the programmes, the plans and the authority to immediately implement and scale-up efforts to combat climate change, and we need to see country climate pledges scaled-up.”

The next immediate steps are that countries must now move to adopt measures in the International Civil Aviation Organization, the International Maritime Organization and support the amendment to the Montreal Protocol that will see further global action on capping and reducing greenhouse gas emissions.

“We expect nothing less from them,” said Guenther.

[http://wwf.panda.org/wwf\\_news/?278810/Paris-climate-agreement-ratification-2016](http://wwf.panda.org/wwf_news/?278810/Paris-climate-agreement-ratification-2016)

## **11. Drying Doñana in danger of losing World Heritage status**

Posted on 15 September 2016

Europe’s historic Doñana National Park could be added to UNESCO’s List of World Heritage in Danger unless immediate action is taken against multiple threats to the wetland, according to a new analysis by WWF.

Doñana faces the prospect of drying out completely after years of poor management and water over extraction. The World Heritage site, located in southern Spain, supports the regional economy and provides habitats for as many as six million migratory birds each year, as well as for the endangered Iberian lynx year round.

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Harmful industrial activities, including intensive agriculture and river modifications, have decreased the water reaching the wetland by 80 per cent. An estimated 1,000 illegal wells and 3,000 hectares of illegal farms are also contributing to unsustainable water use and should be closed, the analysis finds.

Despite Doñana being protected by several international agreements, including the World Heritage Convention, the Spanish government has failed to safeguard the site from harmful industrial activities that threaten its outstanding natural value, while lacking a water management plan that maximizes conservation of the wetland complex and estuary.

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Since the beginning of the 20th century, Doñana has lost over 80 per cent of its natural marshes. In recent years, illegal and unsustainable water use have severely impacted its natural value resulting in reduced biodiversity and dried out lagoons.

This damage also has affected the region’s ability to provide jobs and generate income, including for the vital berry industry. Seventy per cent of the strawberries produced in Spain, the fifth largest producer in the world, are from Doñana.

Despite Doñana’s significance and the fragile condition highlighted in the analysis, there is a proposal to further dredge the Guadalquivir River. Dredging would worsen existing damage to the park and estuary, and could trigger the site’s inscription on UNESCO’s List of World Heritage in Danger in June 2017.

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Known as one of Europe’s greatest conservation areas, Doñana is home to over 4,000 species, including threatened birds and the world’s rarest feline species, the Iberian lynx. In addition to its environmental value, Doñana provides jobs for the region’s 200,000 inhabitants from fishing, farming, research and ecotourism.

Doñana is protected by almost every conservation designation, including national park, Ramsar site, Natura 2000 site, UNESCO Biosphere reserve, and World Heritage site. WWF has been involved in the park for over 50 years, purchasing more than 6,700 hectares of Coto Doñana in 1963 to save the site from destruction and to help transform the region into the first biological reserve of Spain.

[http://wwf.panda.org/wwf\\_news/?278091/Donana%2Din%2Ddanger](http://wwf.panda.org/wwf_news/?278091/Donana%2Din%2Ddanger)

## **12. Declining ice pressures Arctic wildlife**

Posted on 15 September 2016

The Arctic's summer sea ice may already have hit a near-record low extent, putting pressure on the region's wildlife. According to figures from the US National Snow and Ice Data Centre, the ice hit a low of just over four million square kilometres on September 11th, well below the average. Although ice extent now appears to be edging back up, the official low has not yet been called. The low occurs as a new paper shows that all 19 of the world's polar bear subpopulations are facing trends of declining ice coverage.

"It is difficult to predict how Arctic ecosystems will respond to decreasing sea ice extent, but we are seeing more species moving in to take advantage of warming Arctic waters, and specialized Arctic species such as polar bears showing signs of stress in some regions," says Melanie Lancaster of WWF's Arctic Programme. "Conservation action to preserve the Arctic is urgently needed to keep up with these rapid changes".

The Arctic is particularly vulnerable to extreme heat - the region is warming at twice the rate of the rest of the world. Globally, the past 16 months have each broken consecutive heat records, with July and August 2016 tied as the hottest months ever recorded, and 2016 may go down as the hottest year ever recorded.

The continued warming trend turns up the heat on national governments to speed up ratification of the Paris agreement on tackling climate change. To enter into force, the agreement must be ratified by at least 55 countries representing at least 55 per cent of global greenhouse gas emissions. WWF believes urgent and accelerated implementation of the Paris deal is necessary in order to prevent the worst impacts of climate change. Next week, a United Nations special event in New York is aimed at securing the early entry into force of the Paris Agreement.

[http://wwf.panda.org/wwf\\_news/?278274/Declining-ice-pressures-Arctic-wildlife](http://wwf.panda.org/wwf_news/?278274/Declining-ice-pressures-Arctic-wildlife)

## **13. IUCN Oceania responds to the unique and evolving demands of the region**

Thu, 29 Sep 2016

The IUCN Oceania Regional Office (ORO) Energy Programme recently participated in the IUCN World Conservation Congress and provided support for the Pacific Ocean Summit, sponsoring the Moana Pasifika Voyage and contributing key staff to attend the event. The summit served as a moment in time to commemorate the journey all people of the Pacific are on together.

Key areas of the Energy Programme's policy guidance were raised by Pacific Leaders during their various opportunities to address the audience at the Moana Pasifika vaka arrival ceremony and the Pacific Ocean Summit as well as in the media.

At the Pacific Ocean Summit, Director General of the Pacific Community (SPC), Dr. Colin Tukuitonga, moderated a discussion panel for the thematic area: Action on Climate Change – Reducing Emissions, Increasing Renewable Energy, which featured the President of the Republic of Marshall Islands H.E. Dr Hilda Heine, Prime Minister of Tuvalu, Hon. Enele Sopoaga, and Tonga's Deputy Prime Minister, Hon. Siaosi Sovaleni.

While President Heine took a leading stance on the transport sector, announcing a partnership with the German government to launch a regional sustainable sea transport centre, as well as advocating for PICTs to engage with the International Civil Aviation Organization (ICAO) in setting ambitious and progressive emissions targets for the air transport industry, Prime Minister Sopoaga discussed Tuvalu's unique opportunity within the region in relation to their approved Green Climate Fund (GCF) proposal, which will build technical capacity to handle climate change adaptation and mitigation through a variety of project activities over the coming years. Deputy Prime Minister Sovaleni was able to elaborate upon Tonga's role setting a precedent for Renewable Energy targets amongst the PICTs through development of its National Energy Road Map.

So what does this mean for the people of the Pacific?

As a unified body, the leaders of the Pacific have put their names behind a collective understanding of the need to place the health of our Ocean as central to integrated efforts, both within sectors of national planning, and in building a regional outlook beyond the island nations to include the leadership living around the Pacific Rim. A unified voice was assembled to resonate

outward for the rest of the world to hear. It is up to all of us to act in response, and the IUCN ORO Energy Programme will continue to respond to the unique and evolving demands of the region to create a sustainable outlook for our shared future.

<https://www.iucn.org/news/iucn-oceania-responds-unique-and-evolving-demands-region>

#### **14. Gross Ecosystem Product (GEP) Workshop took place at Hawai'i**

Fri, 23 Sep 2016

September 5, Honolulu, Hawaii - "GEP-Valuing and Mainstreaming Ecosystem Services Into National Decision-Making and Accounting System" workshop took place during the IUCN World Conservation Congress (WCC). The workshop was jointly convened by International Union for Conservation of Nature, China (IUCN China), Research Center for Eco-environmental Sciences, Chinese Academy of Sciences (RCEES-CAS), China Biodiversity Conservation and Green Development Foundation (CBCGDF), and State Forestry Administration (SFA). Experts from multiple nations and organizations shared their insights and experiences. Case Study Report of Gross Ecosystem Product and Ecological Assets in Inner Mongolia, Tonghua City in Jilin, and Xishui County in Guizhou, respectively. The report suggests that the nature in these municipalities produce ecosystem goods and services annually amounting to 212 billion CNY, almost 2 times of their annual GDP. Edmund Barrow, Global Director of IUCN Ecosystem Management Programme, chaired the entire workshop.

As a new ecological accounting system that measures the ecology status, GEP is to evaluate the ecosystem conditions and ecological benefits, to assess the effectiveness of ecological protection, as well as to appraise the ecological connection between different regions. GEP can also be applied as a scientific basis for the assessment of eco-civilization development and improvement of ecological compensation policy.

IUCN China will continue GEP assessments in Xing'a League, Tonghua City, Xishui County and Ordos City, and will also develop more GEP pilots in other regions and countries jointly with key partners. Moreover, IUCN will explore the practicability and implemental plan of developing and implementing GEP statistics and accounting system, and propose the idea of adopting GEP as one of the development indexes to China and other countries.

<https://www.iucn.org/news/gross-ecosystem-product-gep-workshop-took-place-hawai%E2%80%99i>

#### **15. Learning and Best Practice in Coastal Resource Management**

Fri, 23 Sep 2016

The project aimed to create synergies from existing best practices in coastal resource management both in terms of sharing lessons and building networks. The key outputs at country level, in Fiji, PNG and the Solomon Islands were increased participation of practitioners in developing national best management practices guidelines.

IUCN convened two regional learning meetings to coincide with the Pacific Nature Conservation Roundtable meetings in 2014 and 2015. These were very beneficial for the countries who discussed shared challenges and lessons learned which they then integrated into their subsequent coastal resource management efforts. Lessons were documented at these meetings.

In addition, country-specific manuals were produced: the iTaukei Affairs Conservation Handbook for Government Officers dealing with environment management and conservation; the PNG manual was entitled the Code of Good Practice in Community Conservation and Resource Management in Papua New Guinea and local approaches to promoting spread of community-based resource management from village to village: Lessons from Mararo Community Based Organization, East 'Are'are, Solomon Islands.

<https://www.iucn.org/news/learning-and-best-practice-coastal-resource-management>

## 16. Maximising Wastewater Use Requires More Knowledge

2016•09•28

Although wastewater is a valuable resource that can be used to improve human and ecosystem health, understanding the difference between safe use and risky use is key.

At World Water Week 2016 that took place in Stockholm from 28 August to 2 September, the UNU Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) organised two seminars and a book launch focusing on reusing wastewater as a resource.

The first seminar, “Wastewater Reuse for Enhanced Food and Non-Food Value Chains”, looked at the opportunities for using wastewater within multifunctional land-use systems in urban transition zones in sub-Saharan Africa. UNU-FLORES co-convened the session with the Center for Environmental Systems Research of the University of Kassel, the German Development Institute (DIE-GDI), the Food and Agriculture Organisation of the United Nations (FAO), and the United Nations Environment Programme (UNEP).

After brief statements from Marlos De Souza (FAO), Ines Drombrowsky (DIE-GDI), Birguy Lamizana (UNEP), and Tamara Avellán (UNU-FLORES), the moderator, Eduardo Mansur (FAO), collected questions and comments via a live Twitter stream (#4WastewaterReuse), engaging the audience to understand more about financing mechanisms and constraints.

Following the seminar, UNU-FLORES launched a new book, *Safe Use of Wastewater in Agriculture: Good Practice Examples*, which focuses on opportunities for capacity development. It is intended to be a useful resource for national governments interested in learning from existing ventures.

The second seminar, organised by UNU-FLORES and UNEP, highlighted the value of wastewater as a resource for food production (irrigation, fertilisation), employment, and electricity generation. It focused on the role of wastewater in implementing integrated water resource management approaches in developing countries.

The session began with a presentation from Stephan Uhlenbrook (UNESCO World Water Assessment Programme), who discussed the connection to the implementation of the SDG6, Target 6.3. This was followed by presentations from actors working on wastewater-related projects in Cabo Verde, Mauritius, Georgia, and Morocco, under the umbrella of the UNEP/UNDP/GEF Atlantic and Indian Ocean SIDS Integrated Water Resources Management Project. UNU-FLORES Director Reza Ardakanian concluded the session by outlining the research and education landscape in the field.

<http://unu.edu/news/news/maximising-wastewater-use-requires-more-knowledge.html>

## 17. New Data Visualisation Platform Reveals the World’s Most Fragile Cities

2016•09•14 TOKYO

For the first time in history, more than half of the world’s population lives in cities. But how well are cities equipped to cope with current and future (often intertwined) crises including natural disasters, poverty, violence and conflict?

The United Nations University has been working with the Igarapé Institute, the World Economic Forum, and 100 Resilient Cities to clarify the risks that contribute to urban fragility. Following comprehensive research and analysis to isolate the factors that make some cities more fragile than others, the project has launched a global data visualisation platform exploring the distribution, dimensions and dynamics of urban fragility around the world.

Presenting relative rankings for 2,100 cities with populations of 250,000 or more, the visualisation includes 16 maps that illustrate overall city fragility as well such factors as unemployment, inequality, homicide rates, terrorism, and conflict.

While some cities are coping successfully, far too many are not. For the latter, the gap between what city residents need/expect and what municipal governments can deliver is leading to increasing fragility. In extreme cases, fragile cities may have “no go” zones or experience extreme volatility, with militia groups or gangs substituting for urban authority.

The project assembled its shortlist of instability indicators into a composite scale of 0–4 (low to high fragility). Roughly 14% of all cities were rated by the project as having a high level of fragility, while 67% were rated as having medium levels of fragility. Geographically, 44% of African

cities have high fragility.

While all cities are fragile to some degree, city fragility is a dynamic set of properties. Cities that invest now in pinpointing and mitigating key vulnerabilities can reduce their fragility and its impacts.

<http://unu.edu/news/news/new-data-visualisation-platform-reveals-the-worlds-most-fragile-cities.html>

## **18. Fragile Infrastructure Increases Disaster Risk, Warns *World Risk Report 2016***

2016•08•25      BERLIN

Fragile infrastructure and weak logistics chains substantially increase the risk that an extreme natural event, such as an earthquake or a flood, will become a disaster. Inadequate transport routes, unreliable electricity grids, and dilapidated buildings can impede humanitarian aid from overseas as well as delay the provision of crucial assistance to victims.

The *World Risk Report 2016* — the sixth in a series of annual reports by the United Nations University Institute for Environment and Human Security (UNU-EHS) and Bündnis Entwicklung Hilft — analyses the role that infrastructure and logistics play in determining a country's disaster risk. The report was released on 25 August at a launch event in Berlin.

“We currently focus too much on short-term relief after disasters, and pay too little attention to ensuring that resilient infrastructure is in place before hazards occur”, warns Dr Matthias Garschagen, Lead Scientist at UNU-EHS and Scientific Director for the report. “Sufficient, high-quality infrastructure ... can not only prevent the often-catastrophic consequences of natural hazards, such as flooding or storms, but can also play a crucial role in the distribution of humanitarian aid supplies” if the hazard becomes a disaster.

An important component of the report is the World Risk Index. Through the combined analysis of natural hazards and societal vulnerabilities, the index assesses the risk of disaster in 171 countries.

The 2016 World Risk Index ranks the Pacific island states of Vanuatu and Tonga as 1 and 2 in terms of facing the greatest risk, followed by the Philippines. All three nations have high scores regarding both their “exposure” (to natural hazards) and “vulnerability” (the combination of “susceptibility”, “lack of coping capacities”, and “lack of adaptive capacities”).

Japan, despite a comparatively high “exposure”, ranks lower at 17 (though still in the top ten) because of its much lower “vulnerability” (due to the nation's excellent infrastructure and coping/adaptive capacities).

In 2015, the United Nations recorded 346 disasters worldwide, affecting almost 100 million persons and causing more than 22,000 deaths and economic damage of US\$66.5 billion. The *World Risk Report 2016* provides a stark reminder that urgent action is needed to help prevent natural hazards from becoming disasters, and to mitigate the human consequences when they do.

<http://unu.edu/news/news/fragile-infrastructure-increases-disaster-risk-wrr-2016.html>

## **19. Scientists gear up to battle invasive species**

16/08/16      Inga Vesper

A research programme to tackle invasive species that kill plants and sicken animals is getting under way at the United Kingdom's Centre for Agriculture and Bioscience International (CABI).

The programme, worth US\$50 million, aims to find scientific solution that help farmers to either defeat or adapt to the presence of invasive species. The goal is to tackle the devastating economic impact of such species, estimated to be around \$183 billion in lost crops and revenue in Sub-Saharan Africa, South Asia and South-East Asia every year.

Species falling into the programme include the tuta absoluta moth — which destroyed crops on 80 per cent of Nigerian tomato farms last year — as well as the parthenium weed, which has invaded grazing lands in Tanzania and Uganda, poisoning livestock and afflicting local people with dermatitis.

“To tackle the global threat of invasive species we need to use proven approaches based on

solid science,” said Trevor Nicholls, the chief executive officer of CABI.

“[The programme] will help in the early detection of invasive species.”

Nicholls added that, in areas where invasive species are already common, CABI would look for scientific solutions that are environmentally friendly and affordable for poorer communities.

The CABI programme will consist of a three-pronged approach, including spending on research to tackle invasive species, partnerships that put these solutions into practice and the development of a so-called “knowledge bank” to share experiences and research results.

At the launch event for the programme, which took place in London on 26-27 July, CABI representatives said the programme is crucial to support economic and social development in poorer regions.

Scientists estimate that in Africa alone, each rural woman spends about 200 hours per year weeding out invasive species from family farms. The same study showed that in rural regions around 70 per cent of school children miss lessons during peak weeding times as they are drafted in to help control invasive species.

According to CABI members at the event, controlling invasive species will play a crucial part in achieving the second Sustainable Development Goal, which aims to end hunger, achieve food security and improve nutrition.

“It’s up to us to make something of the SDGs,” said Ruth Oniang’o, a professor of nutrition at the University of Nairobi and CABI board member. “We need partnerships. We need scientists, the private sector, literate farmers, the media, and we can actually make it happen.”

[http://www.scidev.net/global/farming/news/scientists-gear-up-to-battle-invasive-species.html?utm\\_source=link&utm\\_medium=webfeed&utm\\_campaign=en](http://www.scidev.net/global/farming/news/scientists-gear-up-to-battle-invasive-species.html?utm_source=link&utm_medium=webfeed&utm_campaign=en)

## Publications

### 1. World Social Science Report 2016

Challenging Inequalities: Pathways to a Just World

Social Sciences Studies series

Ce titre est disponible.

45,00 € €

Livre, 364 pages, figures, tables, boxes, notes, annexes, glossary, bibliography

Format: 21.5 x 28 cm (paperback)

2016, 978-92-3-100164-2

UNESCO Publishing / International Social Science Council (ISSC)

This Report draws on the insights of over 100 social scientists and other thought leaders from all over the world, across various disciplines, to emphasize transformative responses to inequality at all levels, from the grass roots to global governance. It concludes that:

- Unchecked inequality could jeopardize the sustainability of economies, societies and communities;
- Inequalities should not just be understood and tackled in terms of income and wealth. They involve economics, politics, social, cultural, environmental, spatial and knowledge-related issues;
- The links and intersections between inequalities need to be better understood to create fairer societies;
- A step change towards a research agenda that is interdisciplinary, multiscale and globally inclusive is needed to inform pathways toward greater equality.

Too many countries are investing too little in researching the long-term impact of inequality on the sustainability of their economies, societies and communities. Unless we address this urgently, inequalities will make the cross-cutting ambition of the Sustainable Development Goals (SDGs) to ‘leave no one behind’ by 2030 an empty slogan.

[http://publishing.unesco.org/details.aspx?=&Code\\_Livre=5160&change=E](http://publishing.unesco.org/details.aspx?=&Code_Livre=5160&change=E)

## 2. Global Education Monitoring Report 2016

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Second edition

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In May 2015, the World Education Forum in Incheon (Republic of Korea), brought together 1,600 participants from 160 countries with a single goal in mind: how to ensure inclusive and equitable quality education and lifelong learning for all by 2030?

The Incheon Declaration for Education 2030 has been instrumental to shape the Sustainable Development Goal on Education to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. It entrusts UNESCO with the leadership, coordination and monitoring of the Education 2030 agenda. It also calls upon the *Global Education Monitoring* (GEM) Report to provide independent monitoring and reporting of the Sustainable Development Goal on education (SDG 4), and on education in the other SDGs, for the next fifteen years.

The ultimate goal of this agenda is to leave no one behind. This calls for robust data and sound monitoring. The 2016 edition of the GEM Report provides valuable insight for governments and policy makers to monitor and accelerate progress towards SDG 4, building on the indicators and targets we have, with equity and inclusion as measures of overall success.

This Report makes three messages starkly clear.

Firstly, the urgent need for new approaches. On current trends only 70% of children in low income countries will complete primary school in 2030, a goal that should have been achieved in 2015. We need the political will, the policies, the innovation and the resources to buck this trend.

Secondly, if we are serious about SDG4, we must act with a sense of heightened urgency, and with longterm commitment. Failure to do so will not only adversely affect education but will hamper progress towards each and every development goal: poverty reduction, hunger eradication, improved health, gender equality and women’s empowerment, sustainable production and consumption, resilient cities, and more equal and inclusive societies.

Lastly, we must fundamentally change the way we think about education and its role in human wellbeing and global development. Now, more than ever, education has a responsibility to foster the right type of skills, attitudes and behavior that will lead to sustainable and inclusive growth.

The 2030 Agenda for Sustainable Development calls on us to develop holistic and integrated responses to the many social, economic and environmental challenges we face. This means reaching out beyond traditional boundaries and creating effective, cross-sectoral partnerships.

A sustainable future for all is about human dignity, social inclusion and environmental protection. It is a future where economic growth does not exacerbate inequalities but builds prosperity for all; where urban areas and labour markets are designed to empower everyone and economic activities, communal and corporate, are green-oriented. Sustainable development is a belief that human development cannot happen without a healthy planet. Embarking upon the new SDG agenda requires all of us to reflect upon the ultimate purpose of learning throughout life. Because, if done right, education has the power like none else to nurture empowered, reflective, engaged and skilled citizens who can chart the way towards a safer, greener and fairer planet for all. This new report provides relevant evidence to enrich these discussions and craft the policies needed to make it a reality for all.

Irina Bokova

Director-General of UNESCO

## Meeting

### **1. ILTER Open Science Meeting 2016 9-13 October 2016 in the Kruger National Park, South Africa**

The International LTER Network is pleased to announce its first global Open Science Meeting to be held from 9-13 October 2016 in the Kruger National Park, South Africa. Registration will be open to all experts involved in LTER, interested researchers and stakeholders. Topical research themes will be addressed in plenary, break-away sessions and workshops. Experience from site-based to global LTER in one conference at a world-class biodiversity destination, and take advantage of ample opportunities for networking and coordination across ecosystems. ILTER will also use the opportunity to engage a range of powerful international partners of LTER in global change research and policy. Various field trips to South African LTER sites will be organized.

The park is home to approximately 2000 plants, (404 woody, 224 grasses), 53 fishes, 34 amphibians, 118 reptiles, 517 birds and 147 mammals (still counting the insects). Everyone with a strong interest in ecosystem science, social-ecology, environmental science and environmental policy is most welcome to join and contribute to this unique global meeting of ecosystem scientists and global programs - in a world-renowned African nature reserve, larger than many countries.

<https://www.ilternet.edu/>

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2016年9月30日