FORUM ON
SCIENCE, TECHNOLOGY & INNOVATION
FOR SUSTAINABLE DEVELOPMENT

JUNE 11 to 15 2012
RIO DE JANEIRO, BRAZIL

Organized by: ICSU

In partnership with:

Hosted by: NIMA

O Foro de Ciência Tecnologia e Inovação para o desenvolvimento sustentável – o legado de um evento da ciência universal

FAPESP
2º Workshop Conjunto dos Programas BIOEN-BIOTA-Mudanças Climáticas FAPESP
23/08/2012 - FAPESP - São Paulo

Alice Abreu

O futuro que não queremos - uma reflexão sobre a RIO+20

FAPESP São Paulo, 23 de agosto de 2012

- Organizado pelo ICSU, o *International Council for Science*, com seus parceiros institucionais, UNESCO, *World Federation of Engineering Organizations*, o *International Social Science Council*, o Ministério de Ciência Tecnologia e Inovação do Brasil e a Academia Brasileira de Ciências
- Mais de 1000 pessoas circularam pelo evento e outras 1000 participaram pela internet, vendo as sessões on line e participando do blog e das redes sociais
- Todas as sessões bem como os eventos paralelos foram gravadas e puderam ser vistos em tempo real. Todo este material está disponível no:

http://puc-riodigital.com.puc-rio.br/cgi/cgilua.exe/sys/start.htm?sid=179

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- A programação central constou de 11 sessões temáticas onde cerca de 110 cientistas de 75 países discutiram temas centrais para o desenvolvimento sustentável
- 24 eventos paralelos congregaram cerca de 100 palestrantes para discutir e aprofundar temas e perspectivas complementares ao programa central
- A sessão inaugural apresentou as atividades do ICSU que levaram à organização do Foro e teve uma Conferência Magna do Ministro de CTI do Brasil
- A sessão de encerramento foi um diálogo de alto nível entre ciência e política, com a participação do Ministro de CTI do Brasil e outras autoridades brasileiras e internacionais

SESSÕES TEMÁTICAS

- Bem estar humano e tendências populacionais
- Produção e consumo sustentáveis,
- Mudanças climática e outras mudanças ambientais
- Segurança alimentar
- Segurança hídrica
- Bem estar urbano,
- Biodiversidade e serviços de ecossistemas
- Conhecimento tradicional
- Riscos e desastres naturais,
- Energia
- A Economia Verde e novos modelos econômicos e sociais

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EVENTOS PARALELOS

		MONDAY 11 JUNE	TUESDAY 12 JUNE	WEDNESDAY 13 JUNE	THURSDAY 14 JUNE	FRIDAY 15 JUNE
12:30 - 14:00	ANCH		2.1 FAPESP research programmes on bioenergy, biodiversity and climate change	3.1 Unanswered key questions for biodiversity conservation	4.2 Co2: A raw material for an industrial revolution, energy storage and chemical products	5.1 To cross a widening gulf: new patterns and practices of science for sustainability
	RDC		2.2 The science and governance of solar geo-engineering	3.4 STI for the sustainable development of Amazonia	4.1 Engineering for sustainable development	5.3 Governing international science, technology, and innovation co-operation
	AMEX		2.3 Food security & sustainable Agriculture	3.3 Technology transfer platform for sustainable development	4.3 The role of global population in sustainable development	5.2 Global environmental change research, the Swedish model
	B8		2.4 From Communication to collaboration	3.2 Science and technology R&D roadmap to address sustainable development	4.4 Sharing and stewardship of scientific data for improved decision making	5.4 Science for decision-making – the role of IPCC assessments (12:00 - 14:00)
18:00 - 20:00	ANCH	1.1 Belmont forum collaborative research actions	2.5 Water resources challenges for the 21st century			
	RDC		2.6 E-Extension (or ICT): transforming & scaling agricultural extension			
	GYM	**1.2 Global change and social transformation**	**2.7 Oceans in focus**	**3.5 Women in science for sustainable development**	**4.5 Future Earth launch**	**5.5 Youth Event**

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O Foro também foi palco do lançamento de **FUTURE EARTH**

Uma nova iniciativa international de pesquisa interdisciplinar do sistema terreste para a sustentabilidade global.
O objetivo é prover, nos próximos dez anos, o necessário conhecimento para que as sociedades possam enfrentar of riscos da mudança ambiental e desenvolver transições adequadas para uma sustentabilidade global.

www.icsu.org/future-earth

PRINCIPAIS RESULTADOS

- Recomendações de todas as sessões temáticas que podem compor uma agenda de pesquisa para os próximos anos: **http://www.icsu.org/rio20/science-and-technology-forum/programme/forum%20recommendations**
- Uma iniciativa concreta (Future Earth) para um programa interdisciplinar de persquisa para os proximos 10 anos

Duas recomendações centrais:

- **Maior colaboração entre ciencias naturais e sociais**
- **Um polítca científica mais integrada**

BIODIVERSIDADE E SERVIÇOS DE ECOSISTEMAS

*1. Biodiversity is a **key component of well-being and sustainable development.** Science can greatly help and underpin action to foster biodiversity. The 2010 Target 'lesson' indicates that a new strategy to deal with the biodiversity crisis is needed, as reflected in the Strategic Plan for Biodiversity and its Aichi Targets. This new strategy encompasses the **contribution of biodiversity science**, as reflected in Target 19 of the Strategic Plan.*

2. Biodiversity science needs to become more solution-oriented and policy relevant. Dialogues and networking efforts involving scientists and other stakeholders (policy-makers, public authorities, the private sector, etc.) provide an important tool to improve the biodiversity policy-making process. Ultimately, biodiversity science should be driven by societal needs and become an integral part of a new contract between science and society as exemplified by the Future Earth initiative.

3. There are already measures at our disposal that can be implemented effectively in order to ***conserve biodiversity and maintain ecosystem services for human well-being and sustainable development.*** *Ecosystem restoration provides a means of reducing CO2 concentrations and also enhancing biodiversity conservation and should be promoted actively. Biodiversity science can greatly assist biodiversity-friendly production systems as exemplified by agroforestry systems.*

4. In order to better inform society's choices, biodiversity science needs to improve its capacity to: ***(i) develop a strong social science component to*** *deal with public attitudes and behaviors, governance and other social sciences dimensions of biodiversity and ecosystem services; (ii) achieve an appropriate and effective level of* ***integration between the natural and social components of biodiversity science****; (iii) observe: rely on an* ***integrated global observing system for biodiversity and ecosystem services with global coverage****; (iv)* ***predict occurrence of thresholds and tipping points and build models to predict future biodiversity and ecosystem changes*** *as a function of various societal choices; and (v) 'respond': biodiversity science can and should inform appropriate development interventions and* ***provide the scientific knowledge, including on the value of ecosystem services, needed to design the 'wise policies'*** *necessary to avoid, limit or mitigate thresholds and tipping points while reflecting acceptable trade-offs among ecosystem services.*

5. Opportunities for synergies between STI policies and biodiversity science and policies do exist and should be capitalized upon, ***including education and capacity-building measures aimed at reducing the uneven distribution of sustainability science world-wide.*** *Together with effective STI policies, biodiversity science can contribute significantly to poverty reduction, which is a top priority of the sustainable development agenda.*

RISCOS E DESASTRES NATURAIS

1. RESEARCH: ***Promote and advance research on natural, social, engineering and technology aspects of disaster risk in an integrated environment****. Enhance team efforts in hazard and disaster risk research, building on existing research networks and initiatives, and integrating various stakeholder needs at all levels.*

2. INTEGRATION: Ensure that disaster risk research programs and policies are ***integrated across disciplines, and contribute to enhancing policy-making and capacity building*** *for reducing risk in the face of natural hazards.*

3. EDUCATION: Promote ***a holistic approach in natural hazards and disasters risk education*** *and training by promoting integration of risk into various curricula.*

4. GLOBAL STANDARDS: Develop and coordinate ***globally standardized open source information, disaster loss and vulnerability data****, event documentation and analysis procedures. Include standard scales of measuring risk and preparedness, as well as guidelines and frameworks for integrated and effective disaster risk management.*

5. AWARENESS RAISING: ***Raise awareness of decision-makers, scientists and the public*** *by promoting effective, integrated, demand-driven, evidence-based disaster risk initiatives and increased advocacy.*

6. INCREASE FUNDING: ***Motivate funding sources*** *(public, private, humanitarian, development, scientific, etc.) to allocate priority funding to address the urgent need for applied integrated research on disaster risks.*

7. ***Halve the population without protection from hydro hazards*** *below the 10 year return period.*

8. ***Halve the population without access to the basic early warning*** *for extreme hydro hazards.*

CIÊNCIA DO SISTEMA TERRESTRE

- *Societies are demanding that policymakers take* ***proactive positions towards respecting the sustainable use and management of natural resources and mitigate the impacts of global warming****. In the next 10 years, social pressure will encourage policymakers to reach agreements regarding limits on carbon emissions and set up planetary boundaries for other anthropogenic impacts.*
- *The global change research community should build the required* ***scientific capacity to design, help develop, and advocate for sustained global observations of the climate system****, and to use observation and Earth/climate system models to provide the best science-based climate information for decision makers.*

- *To ensure relevance and enhance the use of climate information,* ***scientists and decision makers should work together to co-design and co-generate the required information and knowledge. This requires a transdisciplinary approach*** *to challenges and opportunities in Earth/climate system science.*
- *Global warming is a fact confirmed by scientific evidence and it will be, it is being, the central environmental concern of our times. More and new research has to be done to* ***fully understand and evaluate the impacts of climate change in the World's Oceans and to monitor the effects of Ocean warming and acidification.***
- *There is a lack of data in the* ***southern hemisphere****. It is crucial and necessary to obtain* ***data with a better spatial and temporal resolution*** *as a step to take the pulse of the oceans at a planetary scale; oceans should be kept under permanent review.*

SEGURANÇA HÍDRICA (ÁGUA)

1: Link science and policy objectives through specific targets and monitoring.

Do relevant science focused on real world problems, and make it relevant through timely and opportune interactions with policy makers. Work towards science-based decision-making.

2: For adaptive management practices, open governance of water to all relevant stakeholders. This requires participatory planning and management.

3: ***Fully Integrate Water Resources Management*** *through the inclusion of relevant sectors (economic, land use planning, transportation, energy, agriculture), institutions and stakeholders.* ***Integrate across scales and timeframes****. Do this from the local level to basin and regional scales. Iteratively monitor the impacts of decisions and policies so that management can be adaptive and ever improving. Assume this as a continuous process. Integrate environmental sustainability, social equity and economic efficiency.*

*4: **Analyze specific interactions between land ownership, management and water impacts** to find where improvements can be made to promote water availability and quality. Encourage investments in water infrastructure and technology that work towards that goal. **Account and integrate linkages between water and food, energy and environmental security. Increase efficiency of water use and manage demand.** Get more use from each drop of water to create more sustainable livelihoods.*

*5: **Manage to conserve the health of ecosystems and maintain their ecosystem services.** Ecosystem services provide wealth. Do not fully appropriate available resources, which may lead to over-allocation of resources in times of change or scarcity (brittle systems). Provide buffers to accommodate change and capitalize on these in times of need (resilient systems).*

*6: **Communicate scientific uncertainty to the user community and stakeholders.** The concept of uncertainty will always be present, regardless of the amount of research and observations. The acceptance and quantification of different sources of uncertainty and their inclusion in water management and planning is essential. It is essential that notions of natural variability and uncertainty are well communicated to the user community, the stakeholders and the public.*

*7: **Reduce the population exposed to natural water-related disasters.** Proposed goals are: (1) Halve the population without protection from hydro hazards below a 10 year return period. (2) Halve the population without access to the basic early warning for extreme hydro hazards. Define standard scales of measuring risk, preparedness and vulnerability, as well as systems to monitor and reduce risk. In the face of uncertainty, prepare for the worst.*

SEGURANÇA ENERGÉTICA

- *The energy challenges facing this transformation include:*
  - *o P**roviding universal access to affordable clean cooking and electricity for the poor***
  - *o **Improving energy security throughout the world***
  - ***o Limiting air pollution and health damages from energy use***
  - ***o Limiting climate change through vigorous GHG emissions reduction**s*

- *The perhaps most pertinent objective is to provide universal access to energy affordable and clean energy services for the poor. Access to energy is required to alleviate poverty and promote social development, while improving human health. However, this requires enabling policy mechanisms as well as financial support to increase affordability, going beyond subsidies into new innovative financing schemes.*

- *Non-technology drivers for the transformation include substantial socio-cultural changes in that effective strategies need to be adopted and integrated into the fabric of everyday society.*
- *Transformative change will require a portfolio of policies and investments. By adopting integrated approaches across energy-using sectors, skill development and institutional capacity to improve the investment climate is possible, resulting in multiple benefits.*
- *The energy transformation will most of all require 'leapfrogging' of the developing parts of the world to a sustainable future.*

An effective transformation of the energy system requires immediate action through policies and investments. We must avoid the lock-in of invested capital into projects not consistent with sustainability objectives.

- ***Improvements in energy efficiency**, especially in end-use technologies, are essential. In addition, renewable energies will be instrumental to harvest multiple benefits of the energy transformation, including improved security, reduced environmental impacts and improved human health.*

- *Non-technology drivers for the transformation include **substantial socio-cultural changes** in that effective strategies need to be adopted and integrated into the fabric of everyday society.*

- *Transformative change will require **a portfolio of policies and investments. By adopting integrated approaches across energy-using sectors**, skill development and institutional capacity to improve the investment climate is possible, resulting in multiple benefits.*

- *The energy transformation will most of all require **'leapfrogging' of the developing parts of the world to a sustainable future.***

OBRIGADA !

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