



**The Abdus Salam  
International Centre for Theoretical Physics**



**2335-7**

**Workshop on Entrepreneurship for Physicists and Engineers from Developing  
Countries**

*23 - 27 April 2012*

**Science, Technology and Innovation for Sustainable Development**

Peter McGrath  
*TWAS, Trieste  
Italy*

# Science, Technology and Innovation for Sustainable Development

Peter McGrath, Programme Officer, TWAS

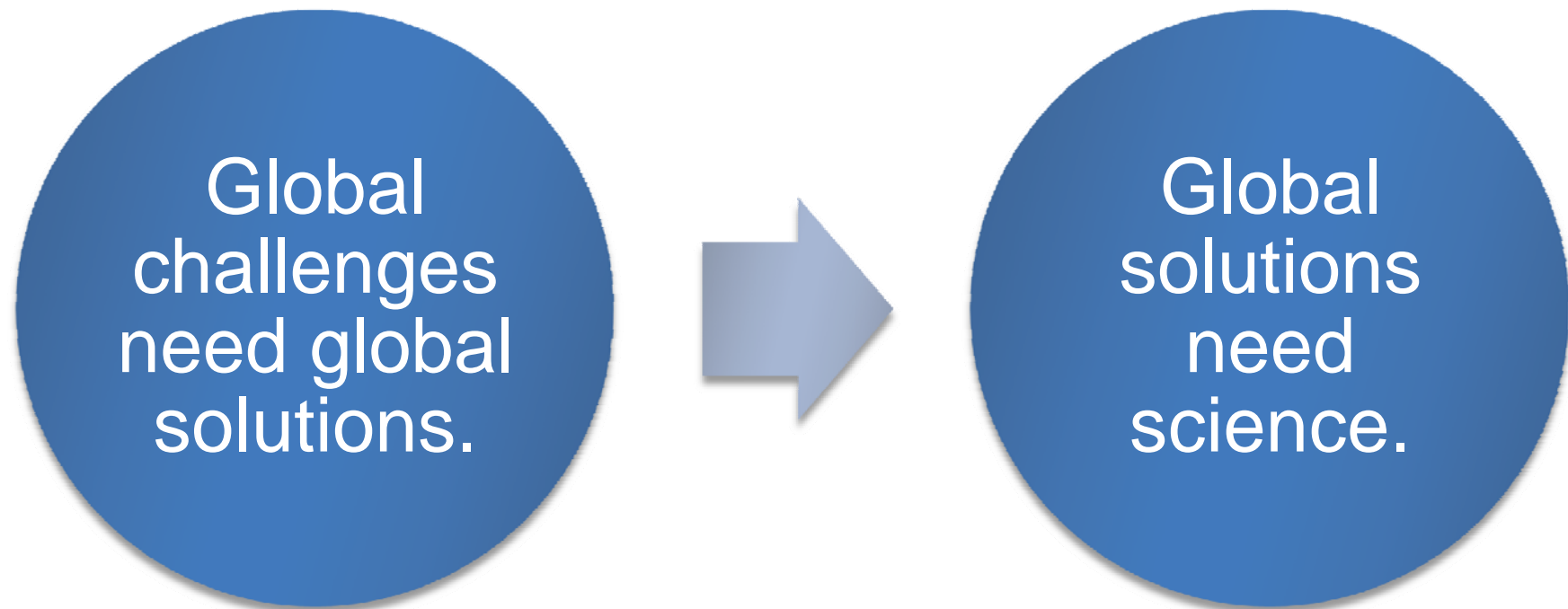
# Global Challenges

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- **Water:** safe drinking water...
- **Energy:** energy security...
- **Health:** infectious diseases...
- **Agriculture:** land degradation...
- **Biodiversity:** ecosystem conservation...
- **Climate Change:** adaptation capacity...

# Global Challenges

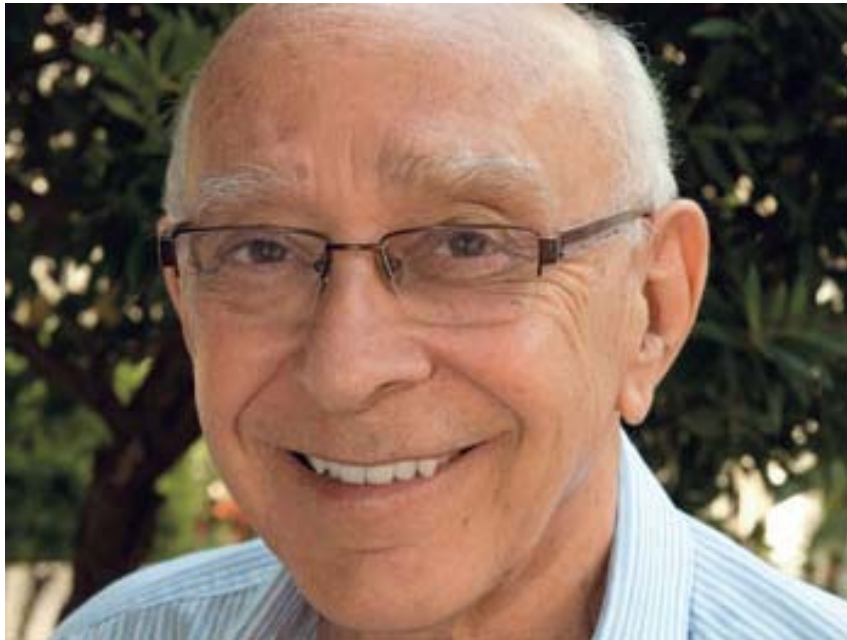
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# The role of S&T: José I. Vargas, Brazil

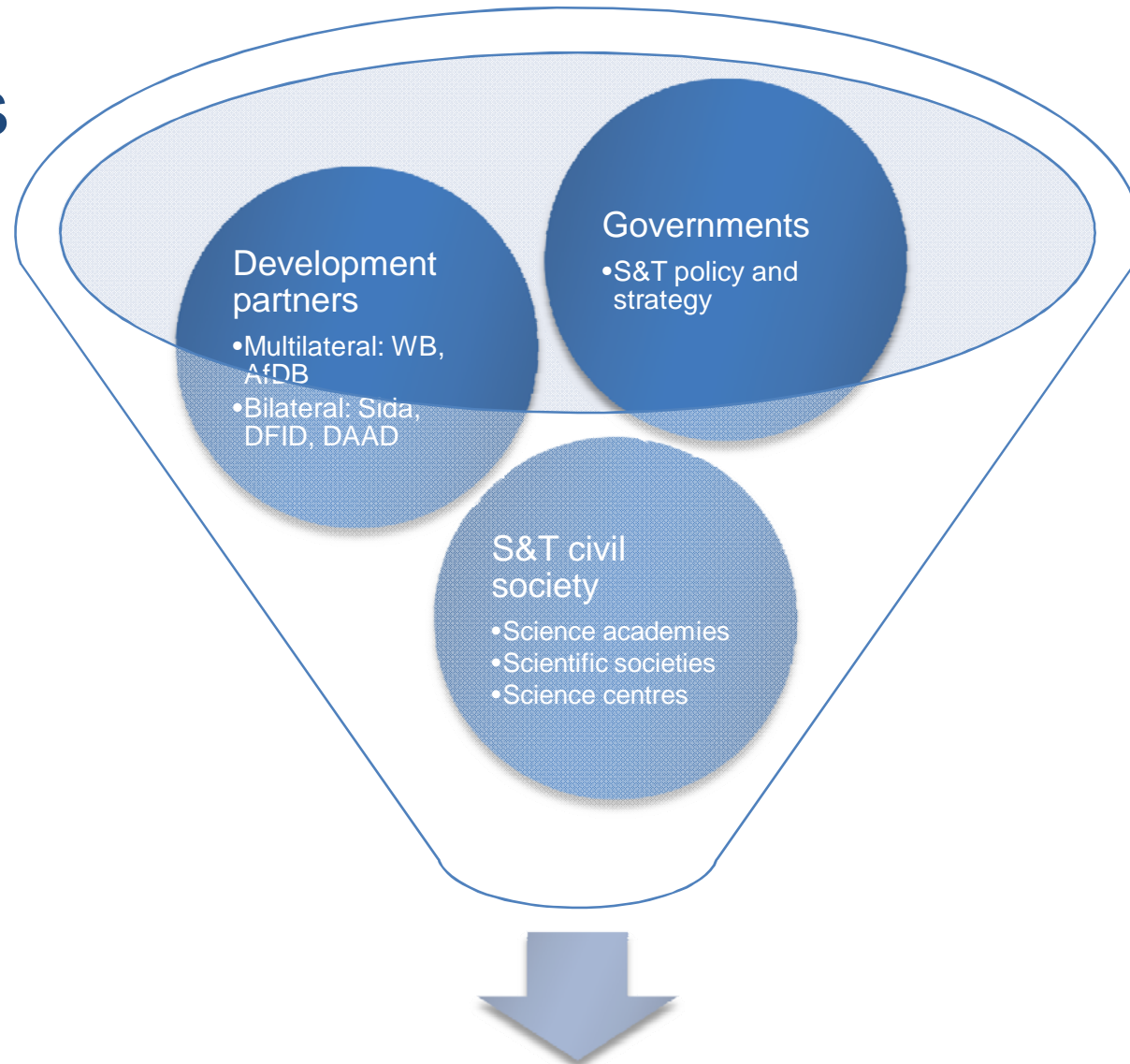
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*former minister of S&T of Brazil, and former president of TWAS*



- The tool is science, the method is to build scientific capacity and knowledge networks, and the goal is sustainable development.

# Ingredients



Science-based sustainable development

## Bill Gates: “How to keep America competitive”

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- “For centuries people assumed that economic growth resulted from the interplay between capital and labour. Today we know that these elements are outweighed by a single critical factor, Innovation.
- Innovation is the source of US economic leadership and the foundation for our competitiveness in the global economy.
- Government investment in research, strong intellectual property laws and efficient capital markets are among the reasons that America has for decades been transforming new ideas into successful businesses.” (*Washington Post*)

# Science, Technology and Innovation Policy

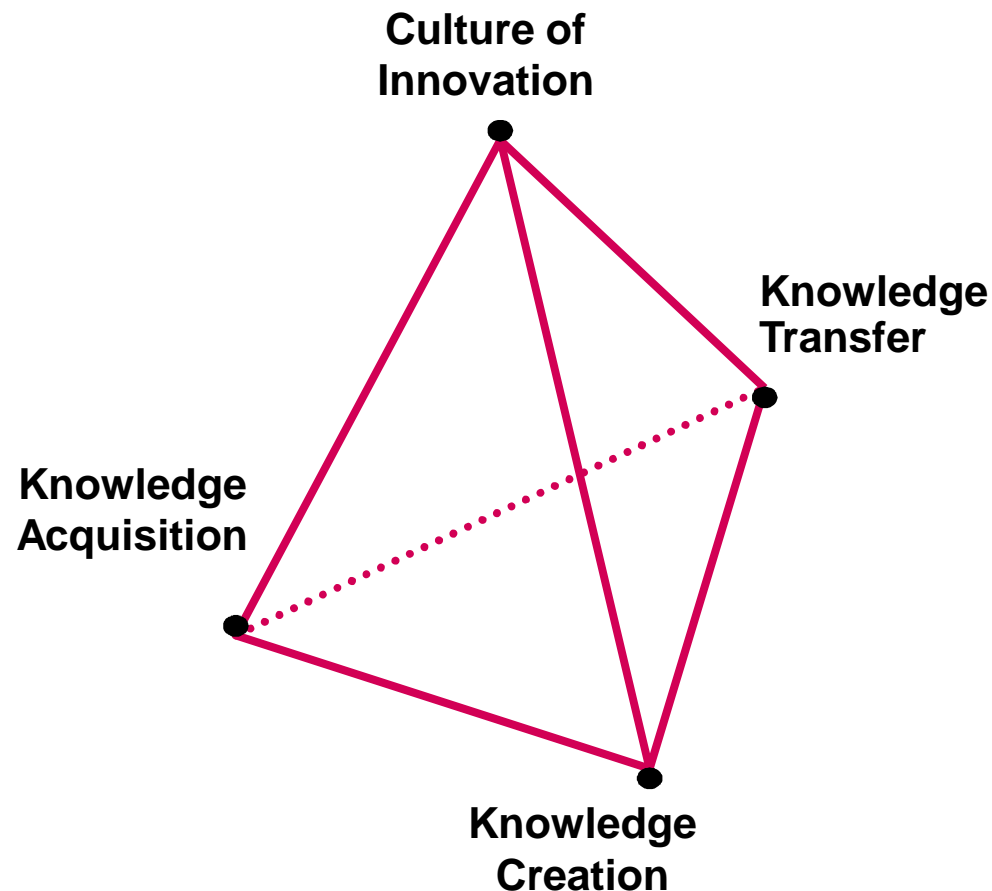
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- **Knowledge Acquisition** – Reinforce science and technology teaching and resources at all levels of education
- **Knowledge Creation** – Develop research capability in all priority sectors of the economy
- **Knowledge Transfer** – Reinforce science and Technology Capability in all priority sectors of the economy
- **Innovation Culture** – Encourage innovation at all levels to help stimulate economic growth



# Knowledge & Innovation Tetrahedron

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- Often known as the knowledge triangle or innovation triangle
  - Can also be represented as the knowledge and innovation tetrahedron
  - Representation of elements of national STI policy with the three fundamental objectives:
    - Knowledge Acquisition
    - Knowledge Creation
    - Knowledge Transfer
- and
- Culture of Innovation
- to build on the solid foundation of these three concepts.

# TWAS-ISTIC Prize winner

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**Hipolito Ortiz Laurel,**  
Postgraduate College,  
Montecillo, Mpio. de  
Texcoco, Mexico

For his design of the 'Kiss Me' harvester for picking the fruit of the prickly pear cactus, or 'tunas'.

# TWAS-ISTIC Prize winner

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**Philippe  
Rasoanaivo,**  
Institut Malgache de  
Recherches  
Appliquées,  
Madagascar

For his  
development of a  
potential  
blockbuster drug to  
treat erectile  
dysfunction from  
the roots of a native  
tree.

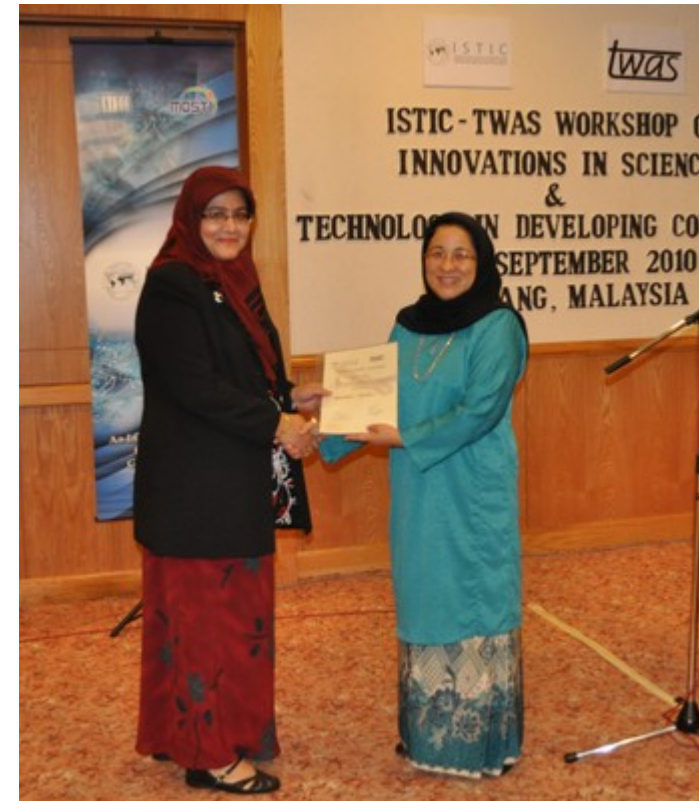


# TWAS-ISTIC Prize winner

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**Rahmah  
Noordin,**  
Universiti  
Sains  
Malaysia,  
Penang,  
Malaysia



For her work developing simple, rapid  
and effective diagnostic tests for filariasis

# TWAS-ISTIC

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TWAS and ISTIC are collaborating on a project aimed at identifying, rewarding and disseminating best practices in the innovative use of science and technology in the development of new products, processes or services that have had impacts on economic development in the South.

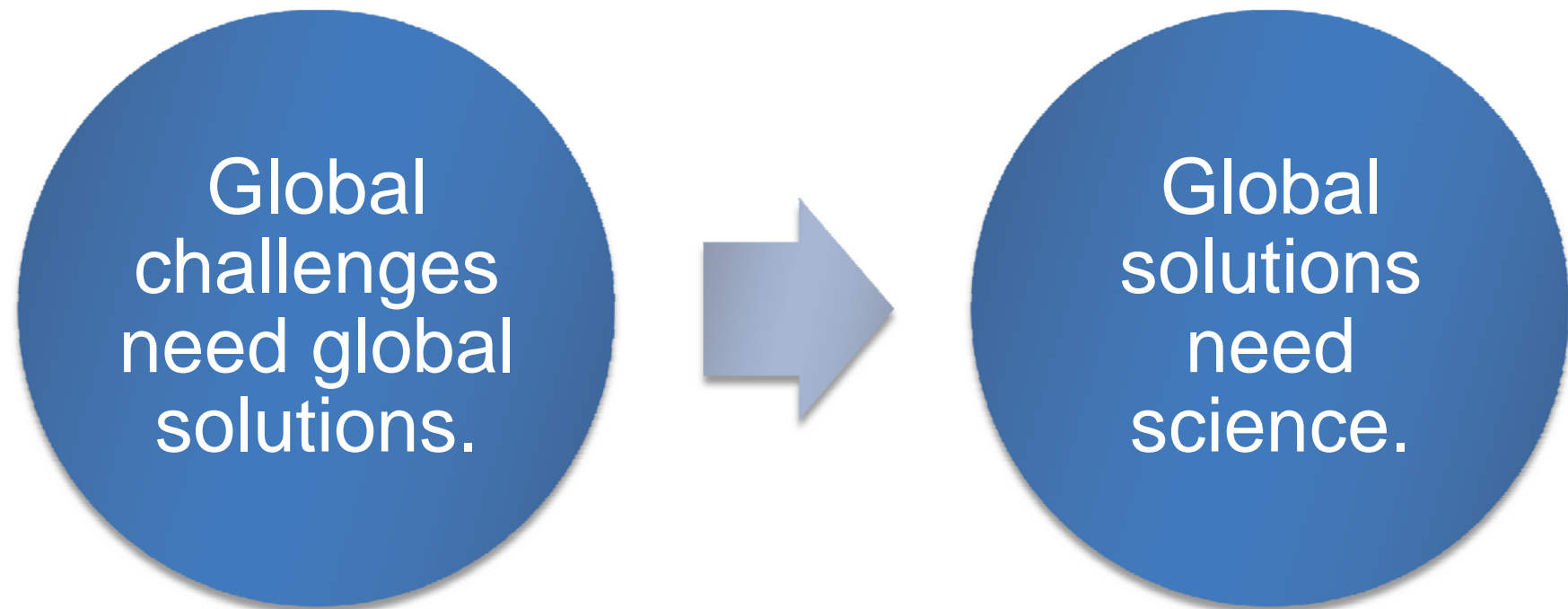
Deadline for submission of abstracts: **Tuesday 15 May 2012.**

<http://twas.ictp.it/news-in-home-page/programmational/innovations-in-science-and-technology-in-developing-countries>



## In conclusion

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**And entrepreneurship!**

## In conclusion

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- The capacity to develop sustainably begins – and ends – with the capacity to do good science.



Thank you

Peter McGrath, Programme Officer, TWAS  
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[www.twas.org](http://www.twas.org)