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Millennium Science Initiative:
What, Why, Who, How

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Science Initiative Group
Hanoi, Vietnam
November 15, 2005

The MSI: *What Is It?*

An international initiative to:

- create and nurture world-class science and scientific talent in the developing world
- foster innovative research and applications of specific value to the host country or region
- educate and train future generations of scientists and engineers
- develop linkages with educational and research institutions, the private sector, and the global scientific community

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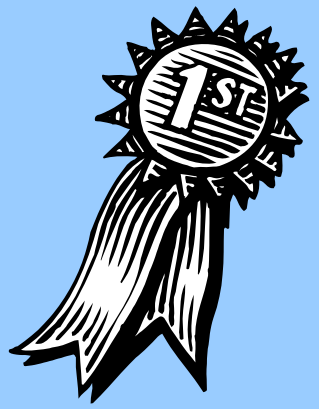
The MSI: *What Is It?*

www.msi-sig.org

Adaptable in Form:

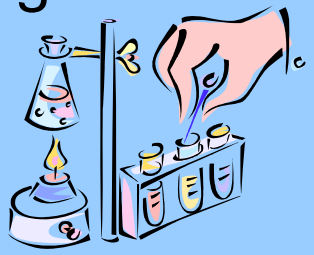
- Centers of Excellence (Chile, Mexico, Uganda)
- Networks of Excellence (Brazil)
- Regional Networks (AMMSI = African Mathematics Millennium Science Initiative)
- Different models being explored in Kazakhstan, sub-Saharan Africa, Central America, Bangladesh

The MSI: *What Is It?*



Common Features:

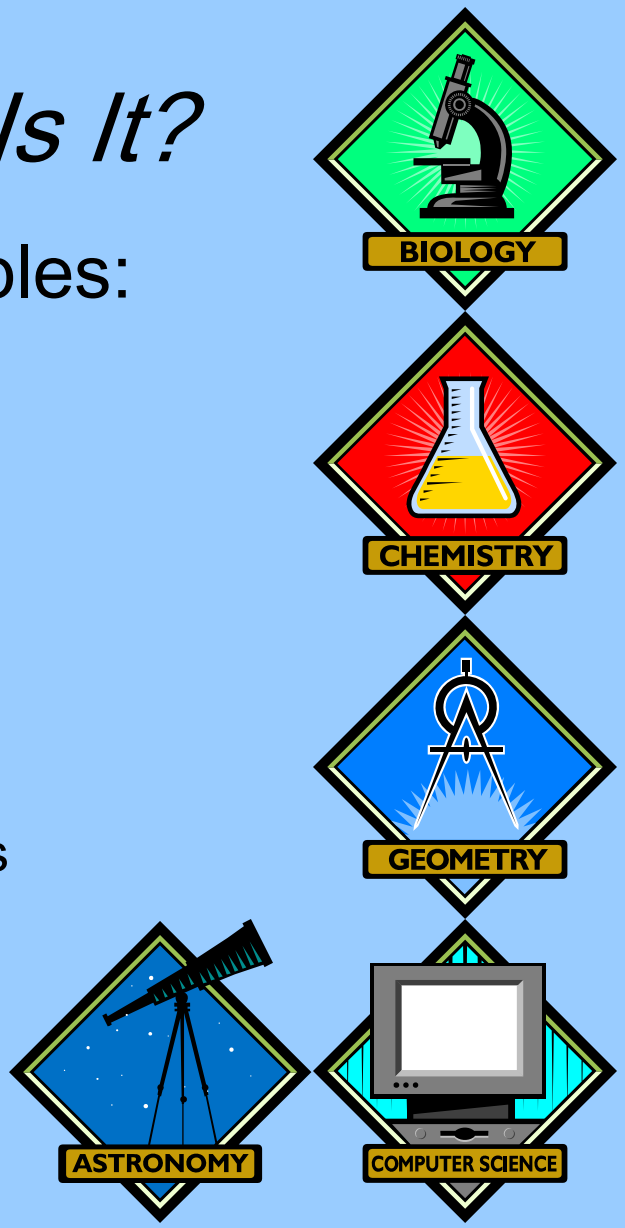
- Scientific excellence
- Merit-based selection and evaluation
- Leaders of major scientific stature
- Scientific autonomy – but not institutional isolation
- Opportunities for scientists to work in their home countries and to collaborate with colleagues abroad
- Adequate research budgets
- Ownership by the stakeholders
- Integration with country's development priorities
- Linkages to institutions, private sector, government



The MSI: *What Is It?*

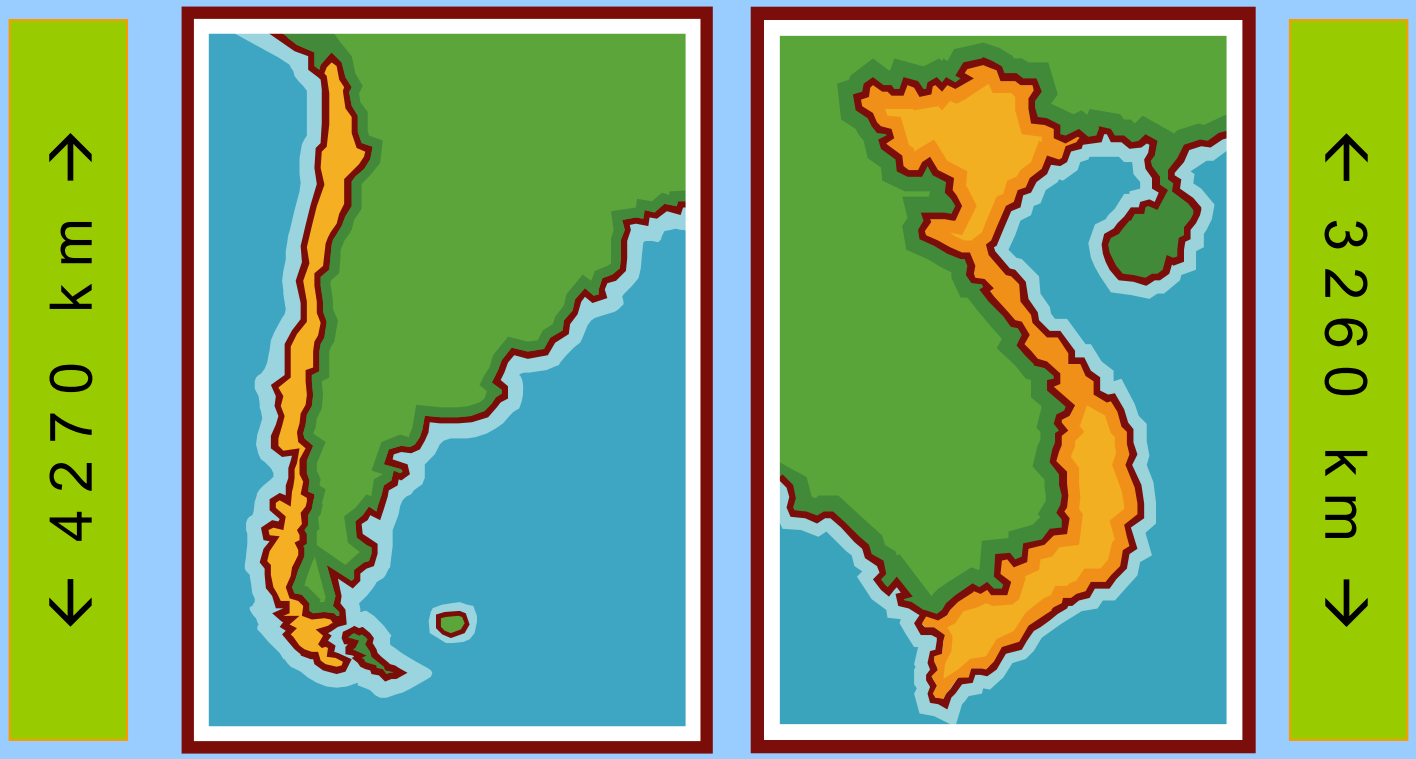
Flexible in Subject Area. Examples:

- Chile:
  - Cell Biology & Biotechnology
  - Condensed Matter Physics
  - Complex Engineering Systems
  - Ecology and Biodiversity
- Brazil:
  - Mathematics
  - Research and Control of Tuberculosis
  - Tissue Bioengineering
  - Nanosciences



The MSI: *What Is It?*

Not one-size-fits-all, but successful models can be adapted.
Vietnam studying Chile model.



The MSI: *Why?*

MSI can serve as example and inspiration.

"*Benefits do not come from support to Centers of Excellence per se, they come from demonstrating that excellence is possible with the right policies, and then from generalizing this demonstration.*"

- *Strategic Approaches to S&T in Development*, World Bank, 2002

The MSI: *Why?*

MSI is most effective as part of a system. To be competitive in a globalized economy and to address its own needs, a country should have:

- Universities ('Top-Tier' university)
- **Centers of Excellence (MSI)**
- Capacity to import, adapt and use existing knowledge
- Technology firms – to apply existing and new knowledge to value-added products

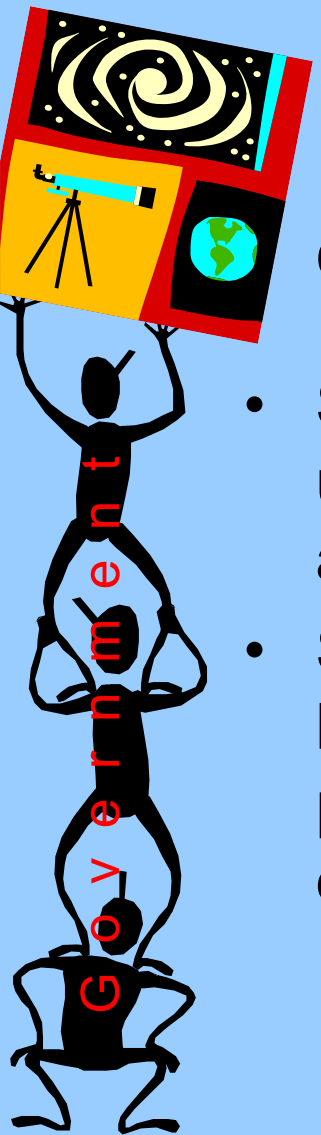
The MSI: *Why?*

MSI can help strengthen Vietnamese science and prepare Vietnam for the "knowledge economy."

By fostering Chile's development of a National Innovation System, the MSI has helped Chile diversify its economic base and provide a new foundation for sustainable, long-term growth."

–World Bank press release, May 2003

The MSI: *Why?*



For the system to function effectively, the country also needs:

- Sustained government support for stronger university-level education in mathematics, science and engineering
- Strong government support for small technology-based companies that stimulate the economy and provide employment for talented young scientists and engineers

The MSI: *Why?*

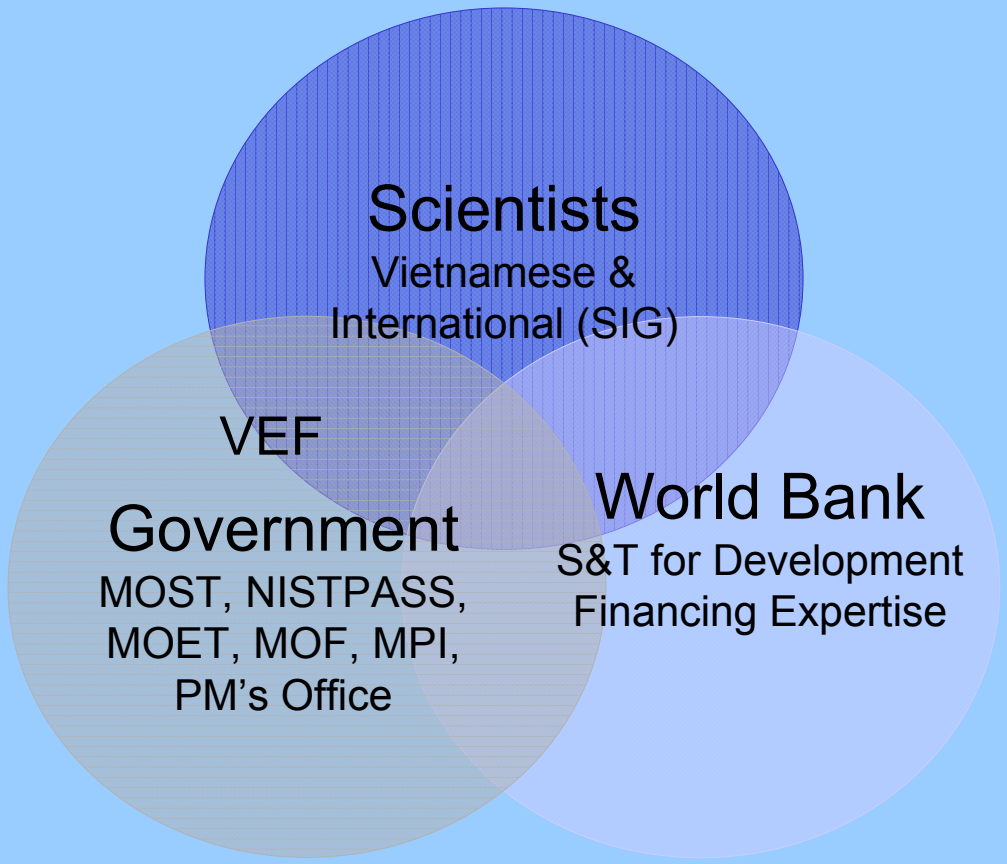
There is no choice: “The world is moving fast…with or without you!”

- Increasing globalization
- Rapid pace of technological change and innovation
- Increasing competition

The MSI: *Why?*

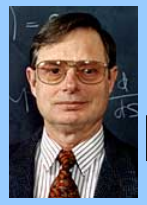
- Short-term benefits
  - Increased scientific output
  - Increased training opportunities
  - Integration with international scientific community
  - Opportunities for returning VEF Fellows
- Longer-term benefits
  - Decreased “brain drain”
  - Stronger links between research & productive sectors
  - Global competitiveness

The MSI: *Who?*


Scientists
Vietnamese &
International (SIG)
VEF
Government
MOST, NISTPASS,
MOET, MOF, MPI,
PM's Office
World Bank
S&T for Development
Financing Expertise

The MSI: *Who?*

Science Initiative Group (SIG) Board:


Phillip Griffiths (chair)


J. Tomas Hexner


Jacob Palis


Harold Varmus

Mohamed Hassan


Chung Kim


CNR Rao


(SIG Staff: Arlen Hastings, Alan Anderson, Kiera Carlisle)



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The MSI: *Who?*

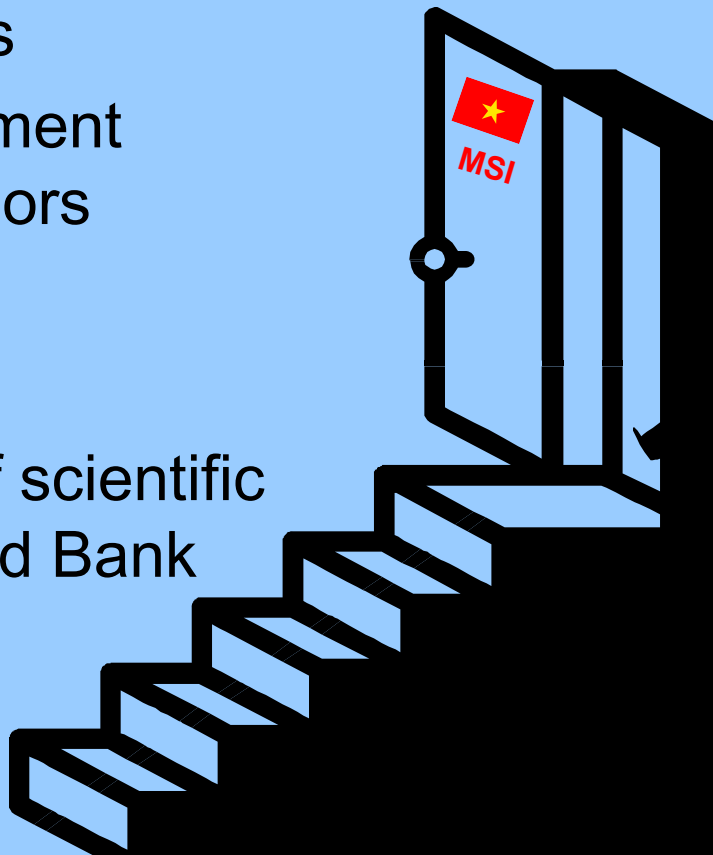
A sampling:

Chung Kim, Le Thanh Binh, Le Thi Thanh My, Nguyen Thien Nhan, Kien Pham, Pham Chanh Truc, Harold Varmus, Dao Van Luong, Phan Minh Tan, Nguyen Thi Le Huong, Nguyen Dinh Minh, Nguyen Ngoc Long, Le Cu Linh, Phan Duy Nga, Tong Dinh Quy, Ha Huy Khoai, Le Thuc Uyen, Do Tran Cat, Luis Fernandes, Dao Dinh Tan, Tommy Vallely, Cong Doan Sat, Nguyen Huu Hien, Ha Hoang Huy, John Hopcroft, Le Hoai Son, Nguyen Thi Quynh, Jeffrey Waite, Phan Thanh Binh, Nguyen Huu Le, Nguyen-Quoc Binh, Nguyen Gia Lap, Le Tran Binh, Tran Dinh Man, Phan Van Chi, Tran Duy Quy, Le Huy Ham, Dang Trong Luong, Al Watkins, Do Nang Vinh, Vu Duc Quang, Phan Van Khai, Claudio Bunster, Vu Minh Giang, Chris Thomas, Nguyen Phy Thuy, Phillip Griffiths, Le Cong Hoa, Maria Elena Boisier, Ha Duyen Tu, Phan Xuan Dzung, Tran Xuan Hong, Vu Tien Duc, Dang Duc Anh, Sandy Lieberman, Dang Vinh Thien, Tran Ngoc Liem, Klaus Rohland, Luong Van Thang, Sadeg Faris, Nguyen Hong Quan, Claudio Wernli, Do Van Loc, Le Thanh Binh, Robert Bryant, Hoang Van Phong, Bui Manh Hai, Nguyen Hong Ha, Tom Hexner, Bui Phuung Lan, Mary Kalin, Jeffrey C. Schwenk, Van Toi Vo, Charles C. Nguyen, Marc E. Knapper, Tran Ngoc Ca, Le Dung Trang, Nguyen Thi Anh Thu, Nguyen Thi Le Huong, Vu Minh Duc, Vu Quynh Nga, Nguyen Duc Long, Nguyen Gia Lap, Lynne McNamara, Jacob Palis, Nguyen Thi Anh Thu, Tran Dun Tien, Pham Binh Minh, Pham Huyen, Nguyen Minh Hien, Tran Van Nhung, Pham Gia Khiem, Tran Quoc Toan, Pham Van Que, Vu Dinh Cu, Le Van Bang, Le Cong Hoa, Vo Tong Xuan, Le Minh Tung, Nguyen Ngoc Binh, Than Duc Hien, Nguyen Ai Viet, Tran Xuan Thao, Chu Hao, Hoang Van Phong, Tamar Attinc, Cao Hao Thi, Nguyen Then Nhan, Do Van Dung, Truong Chi Hien, Nguyen Khoa Son, Nguyen Duy Tien, Ton Nu Thi Ninh, Pham Huyen, Nguyen Van Hieu, Phan Quoc Khanh

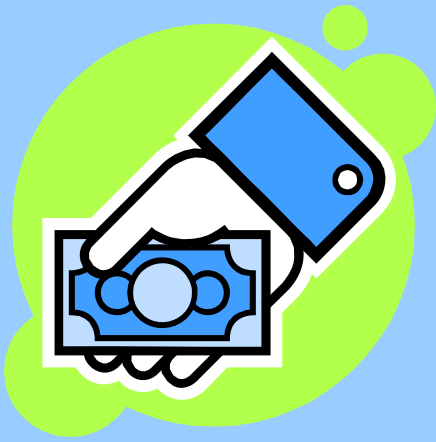
The MSI: *How?*

Steps to Implementation:

- Assess scientific strengths & needs
- Invite input from scientists, government representatives, international advisors
- Research/develop format
- Arrange financing
- Throughout, ensure involvement of scientific community, government; also World Bank



The MSI: *How?*



- Financing mechanisms: Examples
  - Chile: WB loan + government co-pay
  - Mexico: WB loan + government co-pay
  - Brazil: Part of old WB loan + government co-pay
  - Uganda: Part of WB loan
  - AMMSI: Foundation grants
- "Project Preparation" Phase
  - World Bank representatives work with Vietnamese counterpart team, with input/advice as requested from SIG

(SCIENCE INITIATIVE GROUP)

The MSI: *How?*

Preliminary Recommendations of the MOST/SIG/VEF Working Group, March 2005:

To help the Vietnamese government achieve its goals for S&T development, the working group recommends a competition in the following four broad areas, with priority given to proposals that have a basic science component:

- *Life sciences*
- *Information science*
- *Pure and applied mathematics*
- *Materials science*

The MSI: *How?*

- Questions to consider:
  - Targeted and/or open competition?
  - Scale: Number, duration, and size of awards
  - Selection mechanism
  - Selection criteria
  - Ongoing evaluation mechanism

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The MSI: *When?*

"The world is moving fast…with or without you!"

- Ultimately, the Vietnamese scientific community and government representatives will have to make the hard decisions and the commitment.
- SIG (and VEF and the World Bank) stand ready to assist.

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