



Science and Technology Policy toward Sustainable Development in Vietnam

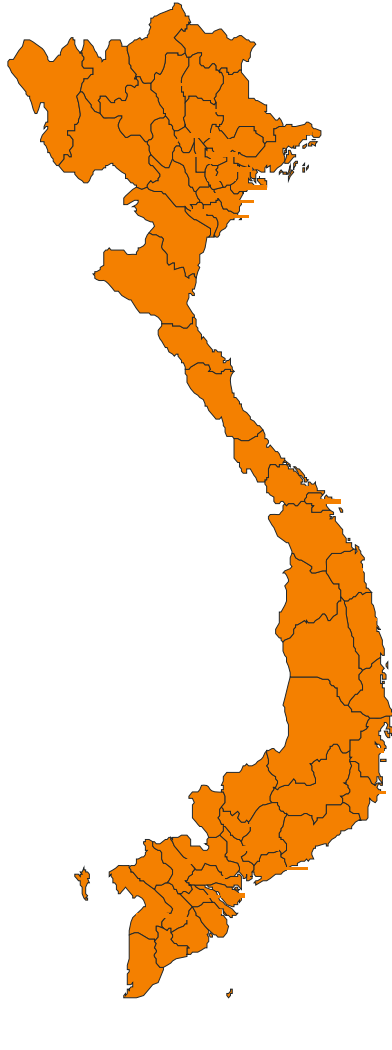
**Dr. Le Dinh Tien,
Vice-Minister of Science and Technology of Vietnam**

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Outline of Presentation

1. Development context, achievements and challenges since 1990s
2. Key factors in S&T Policy contributing to sustainable development (SD)
 - 2.1. S&T policy approach
 - 2.2. Wide participation of concerned policy actors in policy-making processes
 - 2.3. Changing policy agenda (Incorporating of environmental concerns)
3. Issues related to key factors in S&T Policy
4. Recommendation for cooperation areas

Some key figures about Vietnam



Population:

84 million (2006)

Urban - 20%; Rural - 80%

Land Area:

331, 211 km²

Regions:

64 Provinces

Climate:

Tropical and temperate

Geography:

Two major rivers:

Red River and Mekong River

More than 3000km of coastline

People:

Kinh people - 87%

53 ethnic minority groups - 13%, of which

90% are living in rural areas

Development Context (1)

- **1986:** Introduction of economic renovation (doi moi) transforming national economy from a centrally planned system into a market oriented one and open-door policy, gradually integrating it into world economy.
- **1990:** “10-Year Strategy for socio-economic Stabilization and Development” for period 1991-2000, took the doi moi reform process much further and deeply, covering all sectors of the economy and leading to significant changes in economic and social conditions.

Development Context (2)

- **1996:** Focus on promoting industrialization and modernization designed to reach industrialized status by 2020 and to prepare conditions for joining WTO.
- **2001:** “10-Year Strategy for socio-economic development” for period 2001-2010.
- **2004:** Strategic Orientation for Sustainable Development in Vietnam (Vietnam Agenda 21).
- January 11, **2007:** Member of WTO.

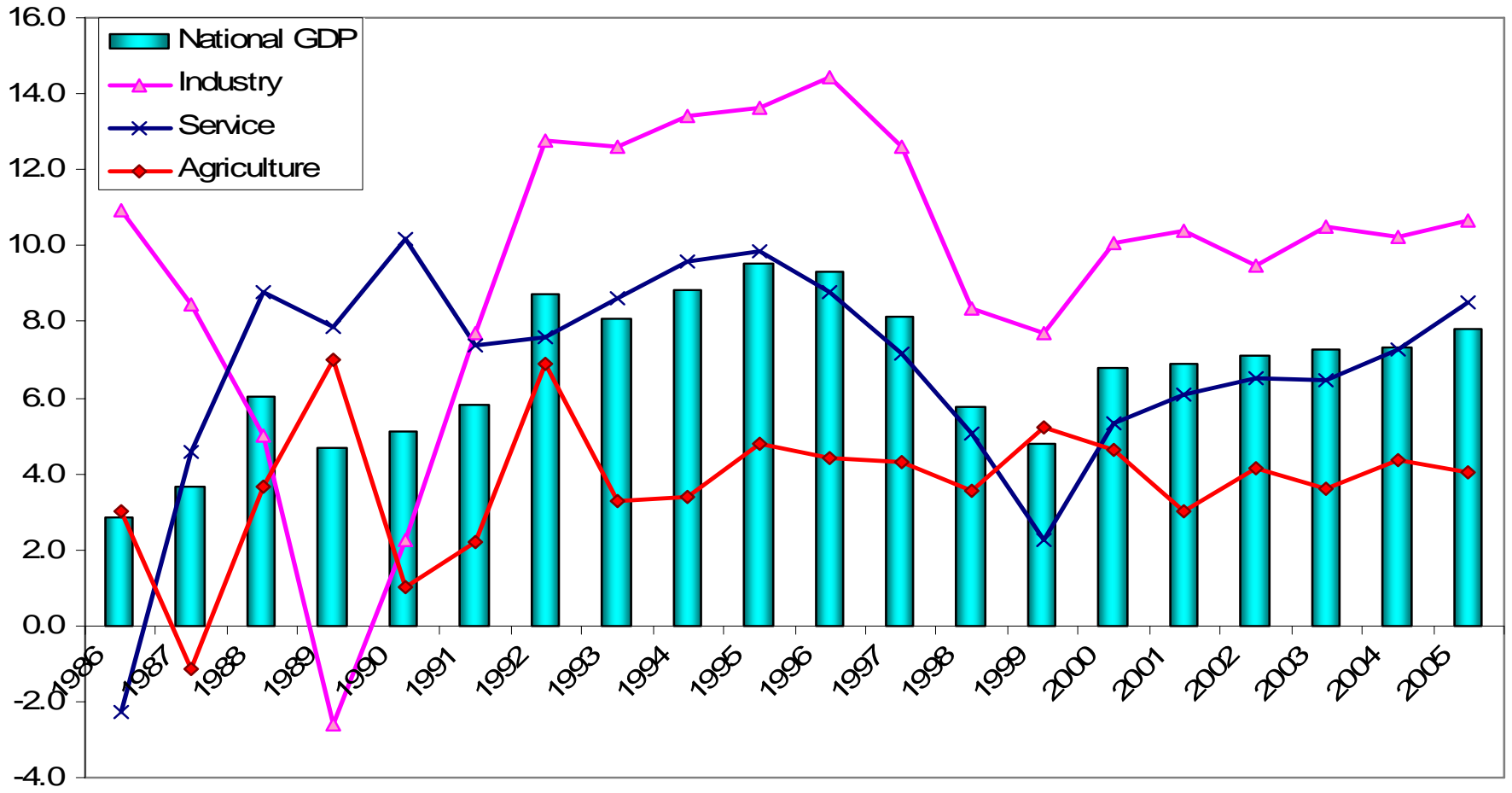
Development achievements (1)

- **GDP** Growth rate: 7.6% per annum during 1995-2005
 - An industrial growth rate of 10.2% per annum raising the share of industry from 22.7% (1990) to 41.6% (2006) of GDP and reducing share of Agriculture from 38% to 20.4% accordingly.
 - Sustained growth of 5.4% in agriculture, making Vietnam the second largest exporter of rice and coffee in the world; Agricultural export constitutes 30% of the country's export.
 - Export growth: more than 20% per annum.
- Reduction of the rate of **poverty** from 58% of the population in 1992/93 to 37% in 1997/98, 32% in 2000, and 19,5% in 2004.
- The area covered by **forest** increases from 23% (beginning 1990s) to 34.5% (2001), 37% (2004), and 37,4% (2005).

Source: UNDP and WB

Development achievements (2)

Growth in the main sectors 1986-2005 (%)



Source: ADB 2006

Major development challenges (1)

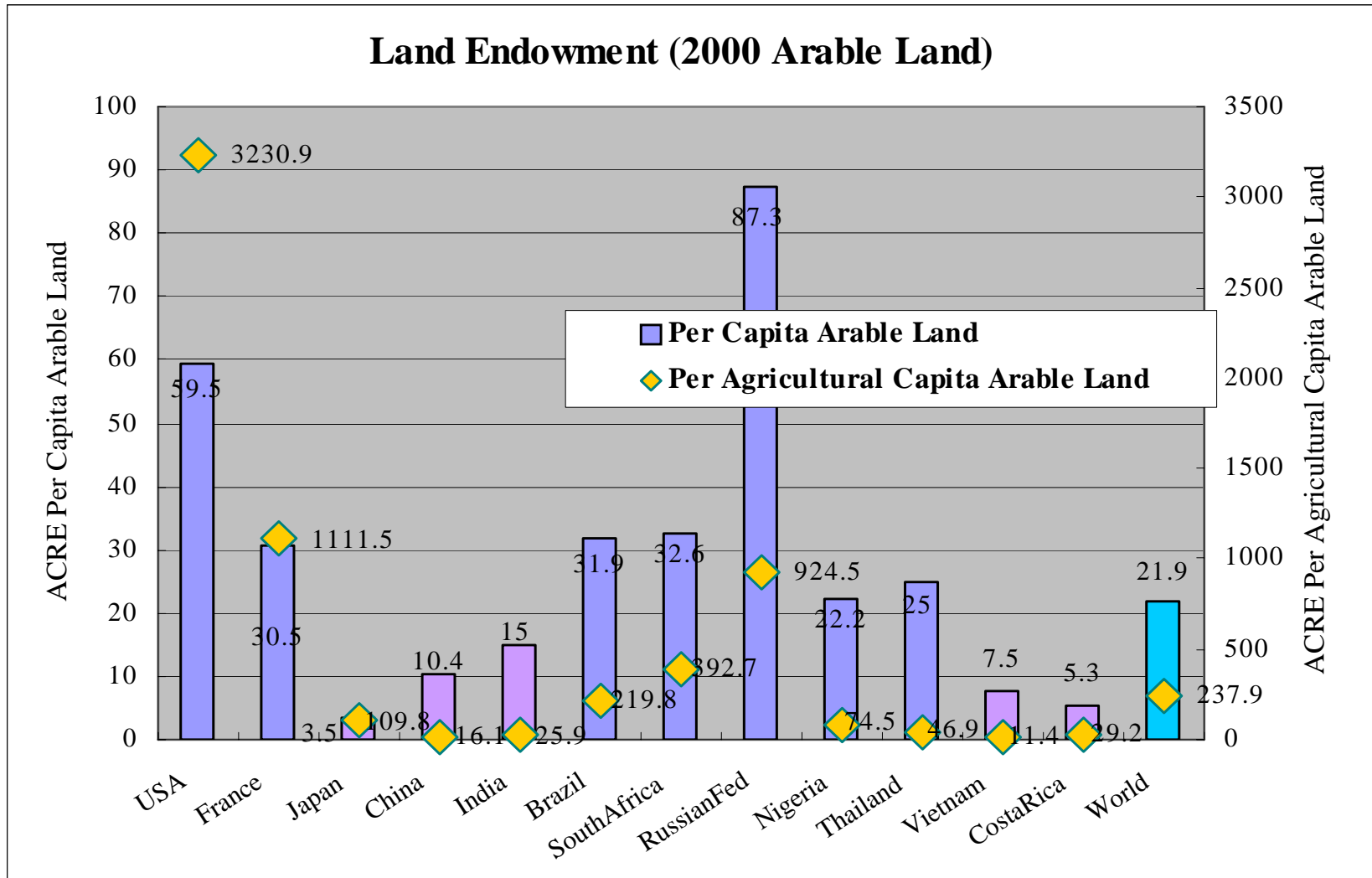
- The exhaustion of **natural resources** due to rapid economic growth based on natural resources and inefficient utilization of natural resources.
 - Lost in under-ground mining: 40-60%
 - Lost in oil and gas exploitation: 50-60%
- Increased **population** vs. limited land resource (more 84 millions population; less 0.1 ha agricultural land per capita).

Land Endowment: Per capita and Per agricultural capita Arable Land

	Arable Land (1000 ha)	Per Capita Arable Land (Acre)	Per Agricultural Capita Arable Land (Acre)
USA	176827	59.52909	3230.9
France	18440	30.51263	1111.5
Russian Fed	124374	87.34313	924.5
South Africa	14753	32.62927	392.7
Brazil	57640	31.9063	219.8
Japan	4474	3.500782	109.8
Nigeria	28200	22.18429	74.5
Thailand	15865	24.99803	46.9
Costa Rica	225	5.294118	29.2
India	161785	14.96307	25.9
China	137124	10.38117	16.1
Viet Nam	6200	7.516883	11.4
World	1396327	21.89409	237.9

Source: AFO database

Land Endowment: Per capita and Per agricultural capita Arable Land

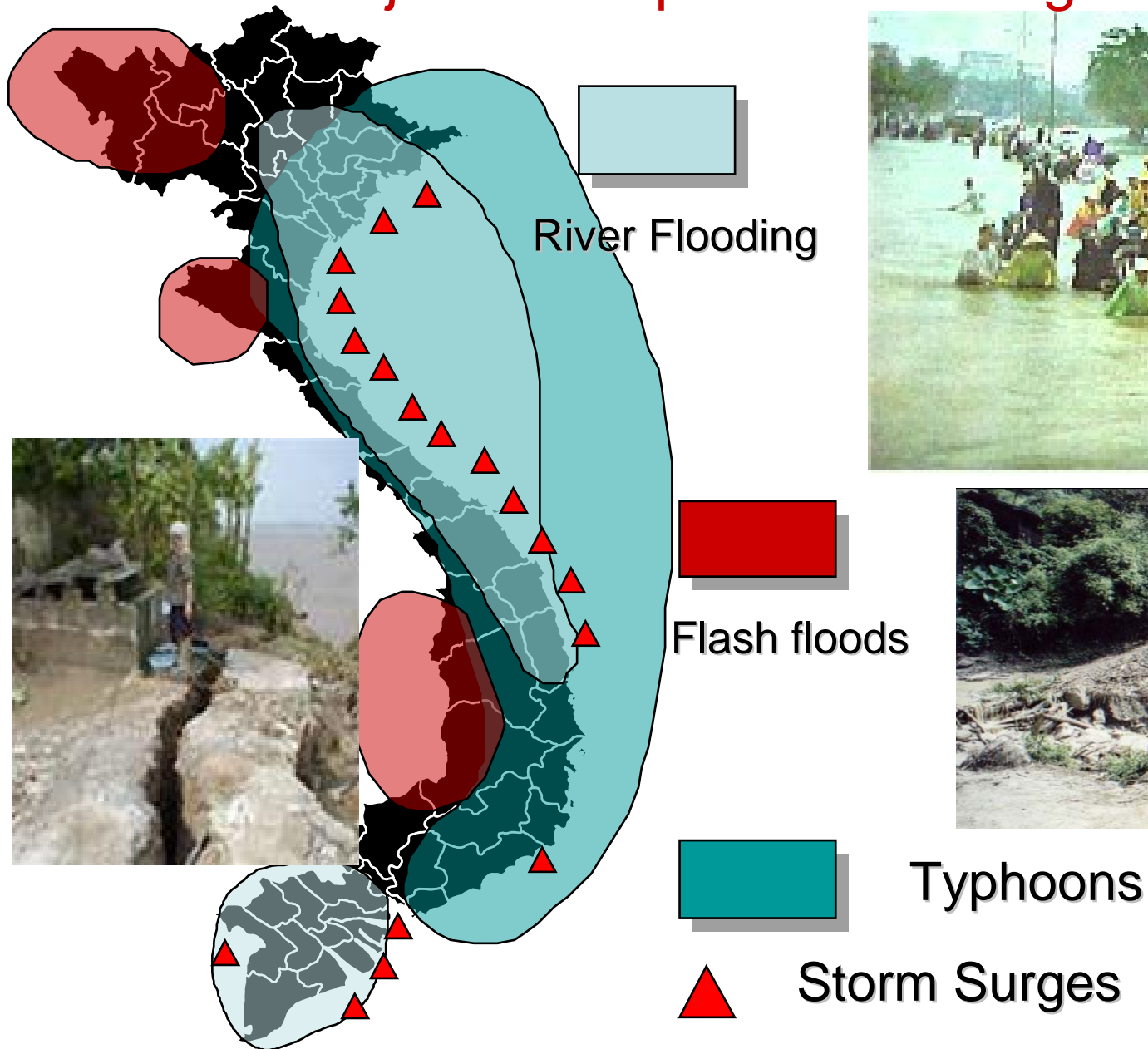


Major development challenges (2)

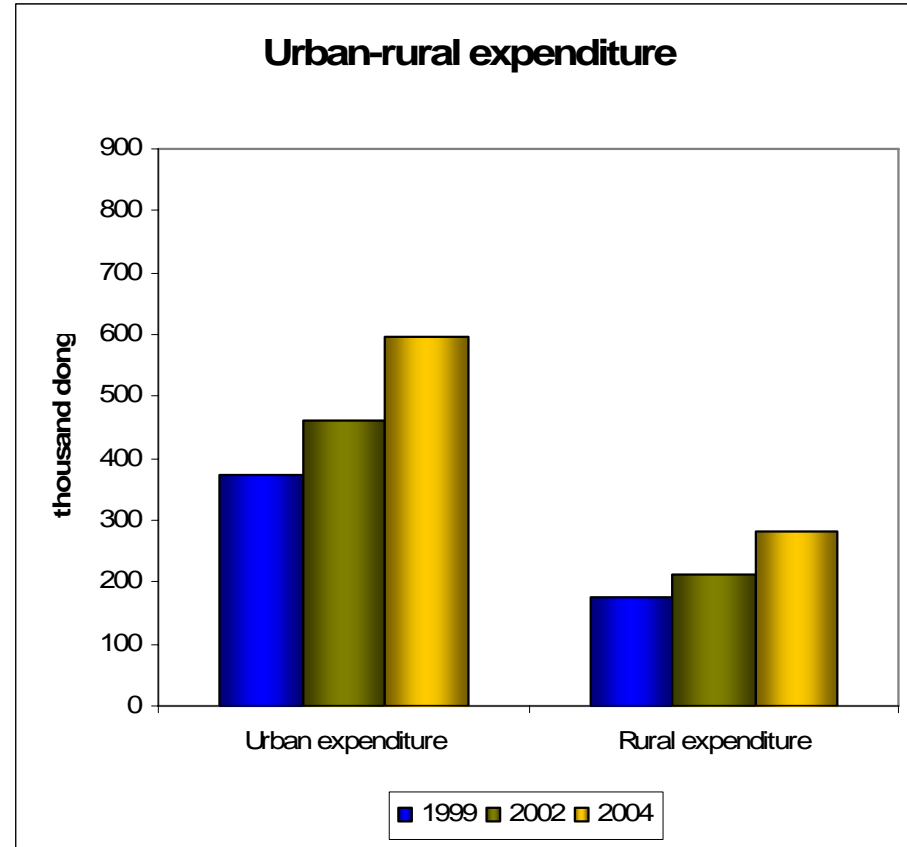
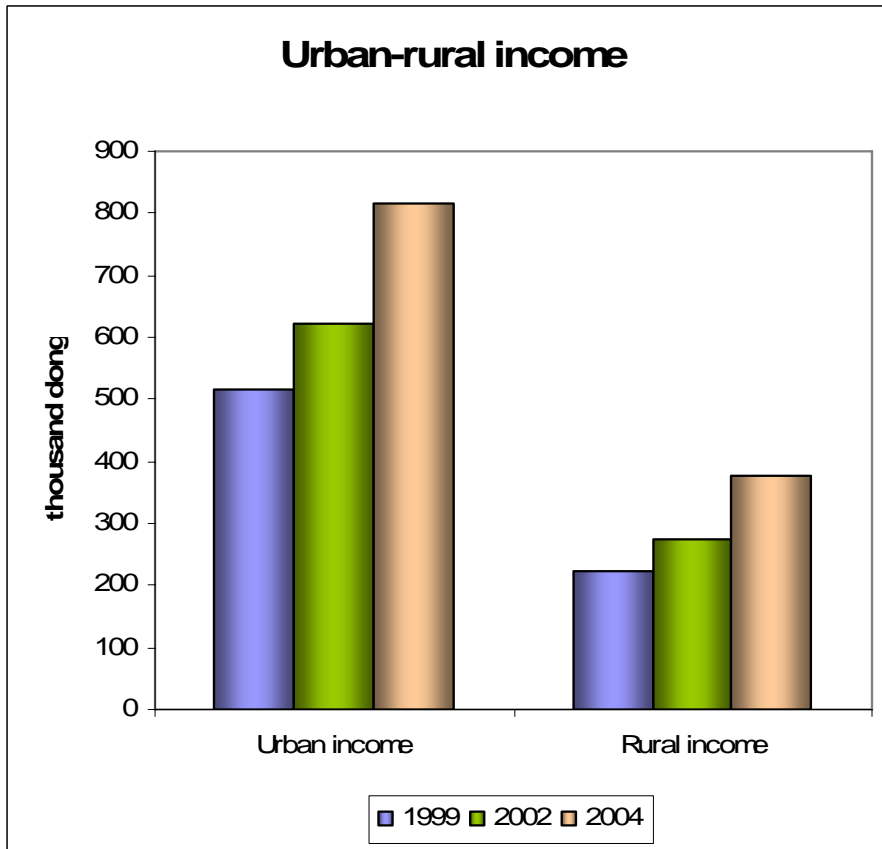
- **Pollution** caused by:
 - Use of outdated technologies in industry*; and
 - Over-use of pesticides and fertilizers in agriculture

* 10% SMEs using technologies of 1970s;
30% - of 1980s;
50% - of 1990s.

Major development challenges (3)



Rural-urban gap



Source: GSO 2006

Labor is stuck in rural area

- 2% and 33% of the additive rural population employed in industry and service respectively. Agriculture absorbs 39% (600 thousand)
- The remained 400 thousand unemployed is stuck in rural area



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S&T Policy Approach (1)

Nature of National Science & Technology Policy

Policy Culture	Bureaucratic	Economic	Academic	Civic
	Science for Policy	Policy for Innovation	Policy for Science	Participatory S&T Policy
Policy doctrine (Macro)	Development and national security	Economic Growth	Enlightenment	Involvement of stakeholders
Operation Mechanism	Planning	Profit and commercialization	Peer Review	Social Assessment
Nature of operation (Micro)	Command	Entrepreneurs	Academic autonomy	Wide participation of relevant stakeholders

Source: Jamison and Baark. 1990 and Elzinga, A. and Jamison. 1995

S&T Policy Approach (2)

The interactive and sustainable S&T Policy

Policy domains	Bureaucratic	Economic	Academic	Civic
Policy Types	Policy for Science	Innovation Policy	Science Policy	Participatory S&T Policy
Policy Objectives	Development and National Security	Economic Growth	Academic enlightenment	Development and equality
Policy making approach	Intervention from outside	Shaped by the Market	Autonomy	Wider participation of concerned stakeholders
Policy Instruments	Planning, bureaucratic measures	Market instruments	Peer Review (evaluated by researchers)	Debate and transparency in governance, social impacts assessment of S&T development
Policy characteristics	Hierarchical and command	Entrepreneurship, commercialization of research results	Academically driven	Participation and dialogue
Policy actors	Bureaucrats, officers of Economic / sectoral ministries	Technology companies, entrepreneur scientists, technologists	R&D institutions and Universities	Activists at NGOs, journalists,

Source: Jamison and Baark. 1990 and Elzinga, A. and Jamison. 1995

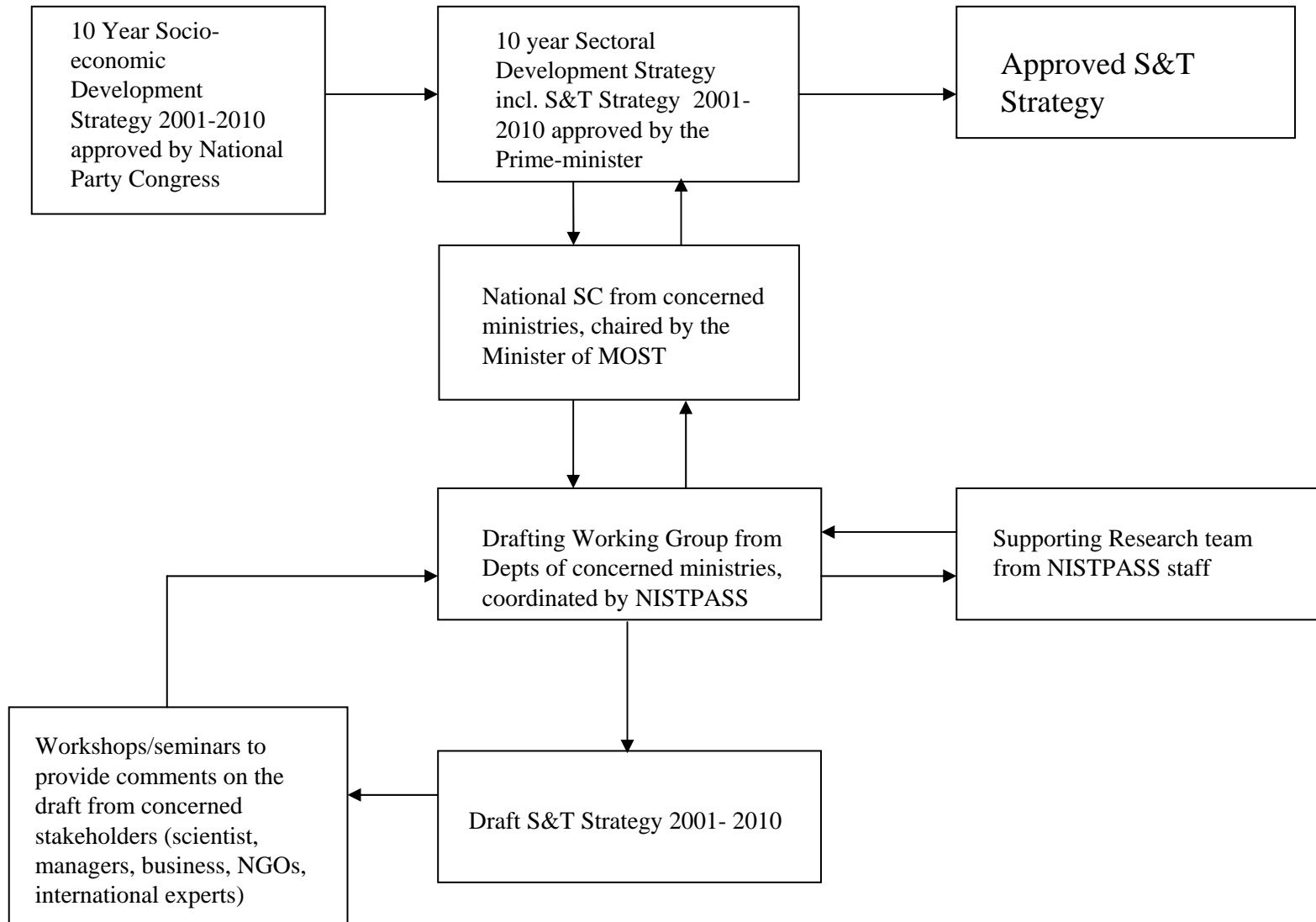
Wider participation of stakeholders in policy formulation process (1)

- Move from sectoral to inter-sectoral approach involving many concerned actors in policy-making process to deal with the inter-sectoral issues (*Civic approach*).
- Move from a centralized and internal debate among policy makers to more broader involvement of concerned stakeholders and more open policy dialogue and debate.

Wider participation of stakeholders in policy formulation process (2)

- Preparation of the S&T Strategy 2010 involved various groups of stakeholders representing academic, bureaucratic, economic and also civic communities:
 - Forms of participation: sending draft for review and comments, holding workshop, seminar and roundtable discussion to discuss and reach collective consensus.
 - Flexibility of conducting policy dialogue to adjust the policy goals and priorities, taking into consideration of concerns of relevant stakeholders.

Policy-making process for S&T Policies: The case of the S&T Strategy 2010



Wider participation of stakeholders in policy formulation process (3)

- Using technology foresight as tool to involve stakeholders in setting priorities for S&T investment, e.g. TF for food-processing and tea:
 - First time to involve business community from food processing and tea in the discussion to setting priorities for tee production.
- Vietnam Union of S&T Associations (VUSTA) as independent institution providing assessment on the impact of science and technology development, e.g. review of the Son La Hydro-power plant.

Changing Policy Agenda

- **Since 1990s:** S&T Policy focuses on the economic aspect - promotion of commercialization of research and technology and innovation in enterprises.
- **Recently** (as indicated in the S&T Strategy 2001-2010), S&T policy highlights the need to ensure the quality of development and achieve sustainable development.

S&T Strategy 2001-2010

The Strategy focuses on achieving **3** groups of **objectives**:

1. To ensure the supply of scientific grounds for the shortened industrialization process, **sustainable development** and successful integration into the world economy;
2. To contribute to a decisive part to raising **quality of economic growth** and competitiveness of national economy;
3. To build and develop the **scientific and technological capacity** to be reached above average level of the region.

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Issues related to key factors in S&T Policy (1)

- **Compartmentalization of policies**
 - Lack of coordination between science & technology policy and other policies, e.g. industry policy, trade policy, environmental policy.
 - Lack of institutional framework and capacity to enforce the incorporation mechanism of environmental concern into existing science and technology policy stipulated in the new Environmental Protection Law.

Issues related to key factors in S&T Policy (2)

- Weak national system of Innovation (NSI)
 - Major types of NSI's actors exist but the interaction among actors is weak due to the lack of trust, affecting the competence/capability of the NSI
 - Urgent need to develop social capital in the NSI which will enhance the mobility of S&T human resources between research, education and industry
 - Newly established technology market with weak enforcement of the IPR framework
 - Flexible, responsive and learning education system

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Recommendations for cooperation areas (1)

- Integration of research on science and technology (and innovation) policy with research on sustainability toward sustainable innovation
 - Sustainable innovation as a governance issue - requiring policy coordination or integration between environment and innovation policy regimes
 - Capacity building for research communities
 - Policy dialogue between knowledge producers (researchers) and knowledge users (policy makers and administrators)

Recommendations for cooperation areas (2)

- **Promote comparative studies on innovation systems across the countries in Asia, from perspectives of increased competitiveness/ indigenous capacity, rational use of resources and social equality.**
 - Technology incubators, technology-based business incubators
 - High-tech parks, state key laboratories
 - Formulation and management of Spin-off and Start-up enterprises
 - Management of Government's R&D programs
 - Regional innovations to balance development status in the whole country
 - IPR Management at public R&D institutions, universities and business
 - Role of institutional learning and co-evolution of socio-economic, environmental and technological sub-systems in promoting innovation

How to establish complementary cooperative framework in S&T Policy

- Set up a working group consisting of expert from each member country to discuss the next steps to design a three-year complementary cooperative framework in research on science, technology and innovation policy as well as the way to links research with policy-making process;
- Present the framework at the Round Meeting of Ministers of S&T and get approval

Thank you
for your kind attention!