NIS POLICY FRAMEWORK: CONCEPT, ELEMENTS, DEVELOPMENT AND IMPLEMENTATION

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GLOBALIZATION AND NATIONAL INNOVATION SYSTEM (NIS)
GLOBALIZATION

Concept of globalization

- 1980’s : “Internationalization” was the term used in market, finance, competition and company strategies (economic perspective)

- Now: “Globalization” is the term of a globalized society resulting from deregulation and ICT development (globalized society perspective)
GLOBALIZATION

Characteristics of globalization

- Increased competition: a company competes with national companies as well as MNCs in the home market.
- Internationalized manufacturing: manufacturing resources come from different places: capital, labor, technologies, raw materials, etc.
- Increased trade between specialized companies.
GLOBALIZATION

Big companies and MNCs in a globalized economy

- Big companies and MNCs play a greater role especially in the high-tech sector.

- Big companies and MNCs grow in the technological environment of the nation they belong to.

- Big companies and MNCs also create a technological environment in the nation they belong to.
GLOBALIZATION

Focus on S&T policy: support for S&T infrastructure

- S&T education, especially, high educational institutions
- Functions of technology production and diffusion
- Development of strategic technologies
- Network between industry, academia and research institutions.
NATIONAL INNOVATION SYSTEM

Purpose of NIS exercise

- Understand factors which stimulate innovation
- Use as a framework in formulating a national and/or company innovation strategy
Origin of the term NIS

Christopher Freeman introduced the term “National Innovation System” to describe the performance of the economically most successful country of the post-war period namely Japan in 1987.
NATIONAL INNOVATION SYSTEM

Characteristics of NIS

A. Innovation and learning
B. Holistic and interdisciplinary
C. Historical background
D. Differences between NISs
E. Inter-reaction between elements of NIS
A. Innovation and learning

- Technology innovation means knowledge creation or combination of existing knowledge using new methods to create new products and processes.
- “Innovation” and “learning” are the most important elements in dealing with the technology innovation system.
B. Holistic and interdisciplinary

- In dealing with innovation system, all factors which determine innovation should be considered.
- Economic factors as well as institutional, organizational, political and social factors.
C. Historical background

- When NIS between countries is compared, the historical background and natural environment should be considered.
D. Differences between National Innovation Systems

- NIS is different from one country to another because the manufacturing system, R&D investment, technology development and diffusion all differ.
- Factors of NIS are also different.
- No most optimal NIS existing. One can only compare which one is better and more effective.
E. Inter-reaction between actors of NIS

- Innovation is understood as a process of combination of new and existing knowledge.

- Inter-reaction is important because innovative knowledge comes from various actors and institutions.
In traditional economic theory, the term “innovation” was understood mainly as process innovation to increase productivity and decrease labor per unit-quantity.

The innovation system pays more attention to manufacturing innovation in accordance with new demands.

Innovation involves organizational involvement.
Elements of an innovation system

- Elements of an innovation system are different from one scholar to another and from country to country.

- In general
  - Government policies
  - R&D of GRIs and companies
  - Education system
  - Others: culture, language, tradition, etc.
Role of government

- Government effort to enhance the competitiveness of national companies becomes more important.

- Competitiveness of all companies including MNCs comes from technological competitiveness of a country to which companies belong.
An innovation system as a conceptual framework

- Innovation system is not a set of fixed theories
- However, an innovation system is based on economic theories
NIS POLICY FRAMEWORK

Major elements of the NIS framework

- Promotion of national strategic R&D
- Manpower development
- Creation of linkages between government supported research institutions, academia and industry
- Commercialization of R&D results
- Promotion of venture business
- Establishment of business parks and business clusters
- Science and technology awareness
- Promotion of women entrepreneurship
- Introduction of a sound S&T infrastructure
- Introduction of a new institution and/or reformation existing institutions
NIS POLICY FRAMEWORK

Success factors for NIS

- Willingness and intention of the top decision maker
- Organizational culture and milieu
- Avoidance of NIH (Not invented here syndrome)
Wide consultation during policy framework development

- Choose opportunities and options today for tomorrow
- Involve major stakeholders
- Share common understanding
NIS POLICY FRAMEWORK

Strategic analysis during policy framework development

- Economic and social demands and opportunities
- Cost-benefit analysis
- Internal capacity and ability analysis
- Resource analysis
- External threats and opportunities, internal strengths and weaknesses.
NIS POLICY FRAMEWORK

Intrinsic tensions during policy framework development

- Science and technology push - demand-pull
- Top-down - bottom-up
- Stakeholders - third-party
NIS POLICY FRAMEWORK

Implementation

- Introduction of new policies and initiation of new programmes
- Re-orientation of on-going programmes
- Re-direction of on-going strategies and management
NATIONAL INNOVATION SYSTEM

NIS Project in APCTT

- Project Goal: Establish on-line, off-line NIS networks in the Asia Pacific region.
- Entities: Policy makers, R&D institutions, universities, industries.
- Duration: 1.5 years.
NATIONAL INNOVATION SYSTEM

NIS Project in APCTT

Purpose:
- To enhance NIS in member countries.
- To promote good NIS policies and practices

Method:
- Seminars, workshops and fora on NIS organized to share good NIS policy frameworks and practices.
- Establish an NIS on-line network on the APCTT website.
NATIONAL INNOVATION SYSTEM

NIS Project in APCTT

Schedule of meetings:

Asia Pacific Meeting of High-Level Policy Makers
- April 2005 - India

National Workshops on NIS Focusing on Knowledge Flow and Partnerships
- September 2005 - Thailand
- October 2005 - Sri Lanka
- March 2006 - Philippines
- June 2006 - Islamic Republic of Iran
- July 2006 - Indonesia
NATIONAL INNOVATION SYSTEM

On-line Resource Centre

- About Innovation
- Indonesian Innovation Systems
- Policy measures by the Government of Indonesia
- Measures by Govt. supported organizations, industry associations and NGOs.
- R&D Infrastructure
- Financing innovation and technology development
- Venture development
- Intellectual property rights
- Human resource development
- Women entrepreneurship
- Incentives and awards
Goal
Build capacity for development and exploitation of grassroots innovation in Asia-Pacific region

Output
1. Mechanisms to scout, document and disseminate grassroots innovation are available
   - Regional workshop

2. National strategies and a road-map to SDD are developed and adopted in selected countries
   - Four national workshops
Thank you

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