Innovation Trend in GMS

National Economic and Social Development Board (NESDB)

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Outlines

1. New Global and Regional Context
2. Thailand Positioning
3. Challenges and Opportunities
4. Innovation Policies in GMS Countries

New Context of Global Conditions

New Global Context

Global Threat/Risk

- Global Market
- Global Collaboration
- Global Standard

Global Opportunities

- Global Risk
- Global Warming

New Industry Characteristic

Environmental Friendly – Green and Clean Production

Adopt Global Standard / Business Ethic

Apply Technology /Knowledge Based

Collaborative Network/Cluster

New Mode of Production Through Global Value Chain

Focus on Specialized Core Competency

Manage Through Global Risk

New Market Access

Thai Context

Challenges and Opportunities Ahead

Short Term: maintain growth rate and to minimize risks from global economic fluctuation

Long Term: adjust to new global condition

World Economy/Finance	• Expand market and promote regional cooperation • Develop and restructure the production sector
World Food, Energy & Environment	• Increase competitiveness of agricultural production base • Develop value added of agriculture and food products • Renewable energy development
Climate change Environment & Social Responsibility	• Green Job / Green Growth / Green Economy
Ageing Society	• Expand elderly-care business and services, medical and health, and long stay tourisms
Sub-Regional/Regional Cooperation	• Promote cooperation on production, trade & investment • Environment and Social development • Foster cooperation to reduce financial risk

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S&T and Innovation Development in Thailand*

1. Creating Enabling Environment for Development and Adaptation of STI in Real Sector

- ⊙ Reform incentive schemes in terms of monetary, financial and other measures to encourage venture capital or public-private partnership research fund, revise laws and regulations that are obstacles to utilization of research and development.
- ⊙ Set up measures to support national research and technology transfer through FDI.
- ⊙ Improve efficiency of science, technology, research and innovation management by establishing a coordinating system among relevant agencies both at the policy and implementing levels, as well as effective and transparent evaluation and follow-up system.

Targets

R&D Expenditure to GDP ~ 1%
and 2% as the Next Step
Ratio of R&D Expenditure Public : Private = 30:70

2. Developing STI Infrastructure in Terms of Both Quality and Quantity

- ⊙ Accelerate development of science parks, intelligence centers, incubation centers, research and development institutes, specialized science research institutes and testing centers to satisfy existing demand especially at the regional level.
- ⊙ Establish research network between universities, research institutes, production sector, communities, clusters and related associations.
- ⊙ Develop research personnel and scientists through on-the-job training, supporting scholarship students, talents and science instructors, providing up-to-date learning materials, and creating awareness in Thai people of thinking and doing based on facts and scientific evidence.

* Is a part of 'restructuring the economy towards quality qrowth & sustainability' development strategy.

- Use researchers and development as significant tools for driving the country's development in all development dimensions. Government agencies at the policy level should integrate their works and utilize resources for research and development (R&D) and apply them as tools for development.

- Cooperation of research agencies will be promoted especially networks of National Research Council of Thailand (NRCT), Thailand Research Fund (TRF), National Science and Technology Development Agency (NSTDA). National Science Technology and Innovation Policy Office (STI), Health Systems Research Institute (HSRI). Agricultural Research Development Agency (ARDA) as well as academic institutes at local level such as Science Park for being the coordinating unit of R&D, especially high-priority development

Science Park (SP) Development Strategy (2013-2017)

Privilege and Incentive

1) Appropriate tax incentives for every stakeholder in SP (developers, operator, R&D personnel)
2) Personal incentives e.g. one stop services in visa and work permit, collaboration btw business and univ to produce personnel in relevant fields e.g. industrial Ph.D. and M.Sc
3) S&T services (laboratories, testing centers)

Capacity Building for SP

4) Increasing SP management capacity
5) Leveraging potentials of service provision in SP
6) Promoting new establishment of SP
7) Encouraging entrepreneurs engaging business in SP to utilize R&D for commercialization

SP Development Investment

8) Phase I (first 5 years): infrastructure investment financed by gov't seed money. Private sector encouraged to join at this stage. Research institute and univ with strong R&D capacity and endowment supported to engage in running SP.
Phase II (year 6-10): support from gov't budget reduced. SP operation financed by its own revenue.
Phase III (year 10 on): acquiring venture capital (e.g. local administration, interested private partner). Gov't budget kept at minimal.

Remark: private sector encouraged to establish SP in parallel with those run by gov't. To reduce risks, venture capital (e.g. PPP) applied where possible

Regional Science Park Investment Project (2013-2015)

❑Northern Science Park

- Focal Point: Chiang Mai University
- Emphasis: Innovation and Value Added for Thai Rice to Meet Demand in Global Market
- Seed Money: 2,680 Mil. Baht

❑Northeastern Science Park

- Focal Point: Khon Kaen University
- Emphasis: Moving the Supply Chain of Meat Chicken Industry in Thailand
- Seed Money: 2,764 Mil. Baht

❑Southern Science Park

- Focal Point: Songkhanakarin University
- Emphasis: Upgrading and Adding Value to Rubber Industry
- Seed Money: 3,178 Mil. Baht

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I. Moving toward Green Innovation

Opportunity

- Renewable energy
- Waste management
- Environmental friendly Production
- Energy efficiency
- Green products demand
- Carbon credit market Development
- Collaboration within regional bloc

Government

Reform environment management system
ie. pollution tax and excessive pollution trade system

Include natural and environmental costs to National accounts

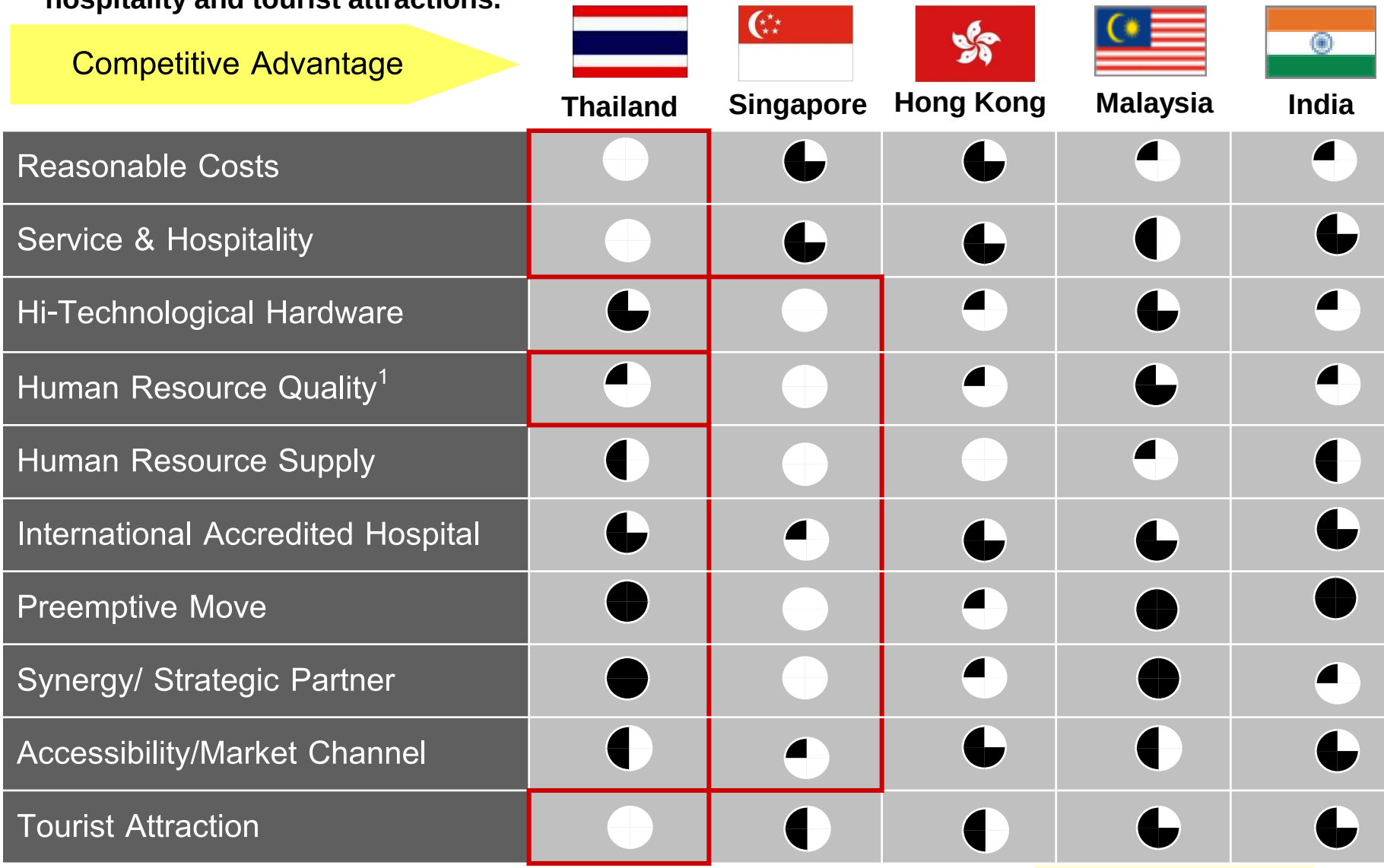
Government to invest in green business and alternative energy

Terminate government support to brown products and subsidise companies that have clear policy on pollution reduction

Improve environmental rules/laws and efficient enforcement

II. Center of Excellent Health of Asia

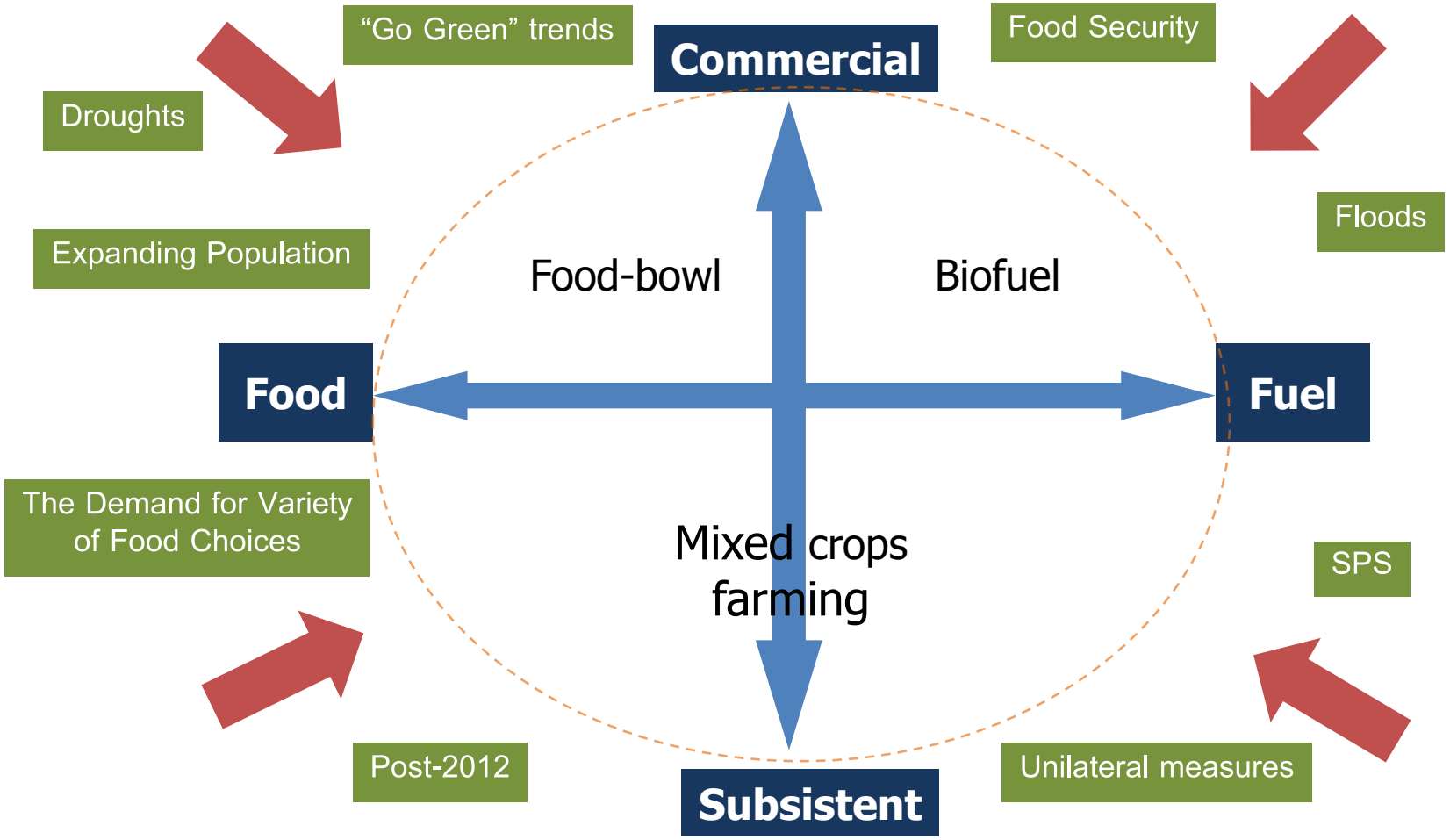
Comparing to some selected countries, Thailand has high competitive advantage in price of services, hospitality and tourist attractions.



Source: Analyzed by NESDB based on information collected from Websites of other countries

○ low ● high

III. Agricultural Development Direction under New Challenges

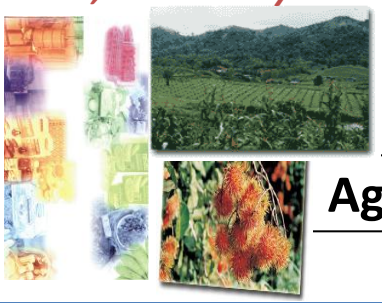


Thailand's Development Directions ?

IV. Integrated Approach for Value Creation

Industry is considered beyond manufacturing activities

High productivity by nano and bio-tech, local wisdom, biodiversity



- Logistics for agriculture
- Bio-products for logistics eg. for packaging

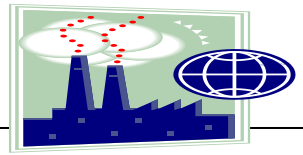
High productivity By IT, HR หรือ Process Innovation

Agriculture ⟷ **Services**

Encourage interaction between sectors, segments and products

- Bio-based production
- Food security/sustainability
- New opportunity i.e bio-fuel
- Bio- Material to support others

- From domestics to domestics, regional focus
- From generalization to specialization, differentiation



Manufacturing

- From tradition to innovation
- Logistics for manufacturing

OEM → **ODM, OBM**

Imitation → **Innovation**

Low cost → **Differentiation**

GMS

Hub of the Regional Supply Chain

Trade facilitation

Investor confidence

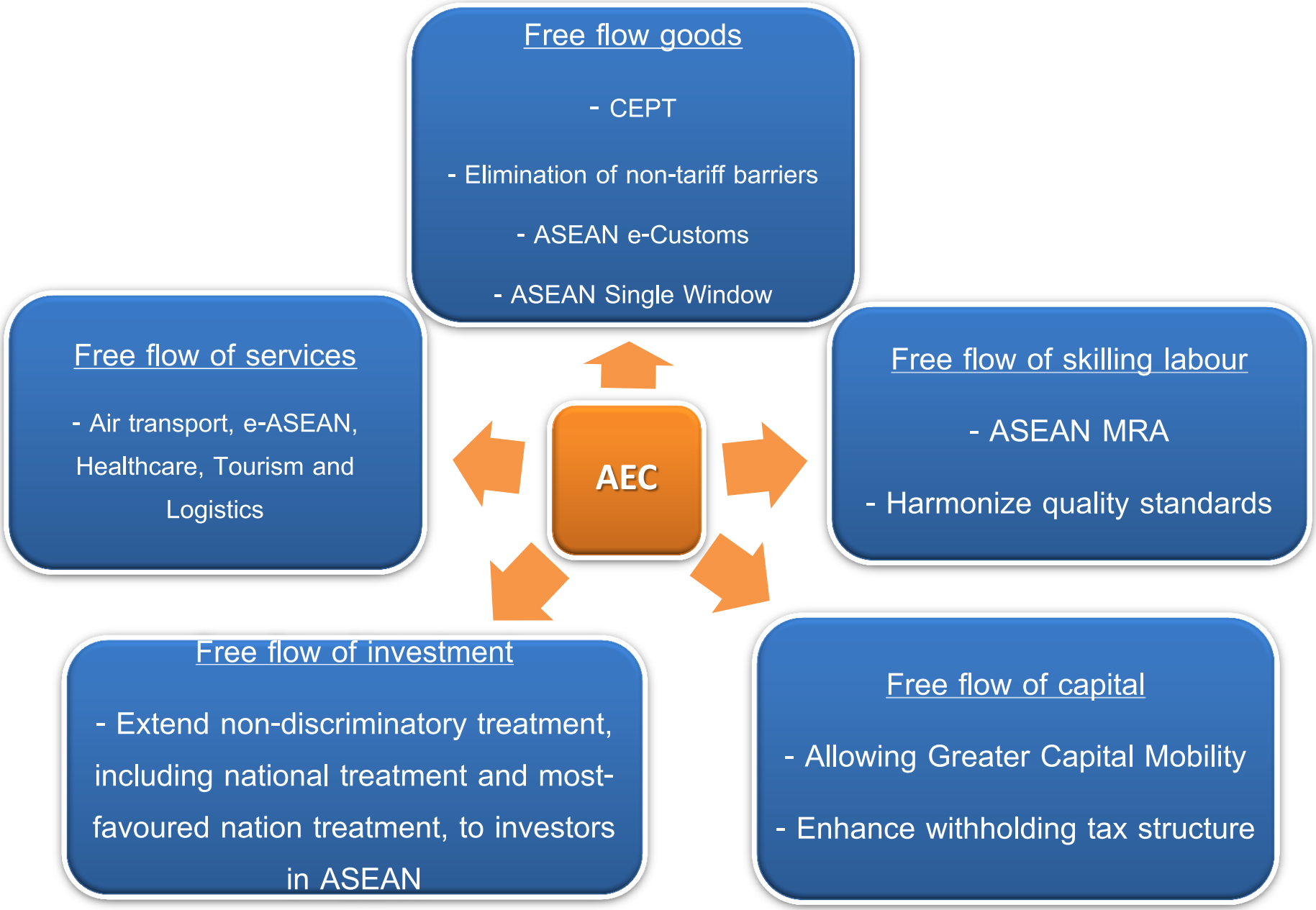
Entrepreneur competitiveness

Trade/Investment/
Tourism
and Employment
opportunity

Resource sharing
Trade partners
Interconnected Infrastructures
(Road rail air and Institutions)
Innovation

Cost Reduction
Value added products

VI. Free Flows of 5 Sectors: AEC 2015



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China Innovation

"The principle of independent innovation"

China's 12th five-year plan

Twelve megaprojects

- Core electronic components, high-end general use chips and basic software
- Large-scale integrated circuit manufacturing equipment and techniques
- New-generation broadband wireless mobile communication networks
- Advanced numeric-controlled machinery and basic manufacturing technology
- Large-scale oil and gas exploration

- Large advanced nuclear reactors
- Water pollution control and treatment
- Breeding new varieties of genetically modified organisms
- Pharmaceutical innovation and development
- Control and treatment of AIDS, hepatitis, and other major diseases
- Large aircraft
- High-definition earth observation system

中国商飞
COMAC

The Commercial Aircraft Corporation of China, Ltd. (COMAC)

The Chinese have targeted aviation and hope to become self-sufficient through Chinese firms.

Foster the development of a narrow-body aircraft to compete with Boeing and Airbus

Myanmar Innovation

Connectivity five neighboring countries

• Construction is now underway on highway connections to India, China and Thailand, and could begin soon on railroad links to China and Thailand.

Tourism

Social security

Telephone and internet network

• Invite foreign companies to form joint ventures with the state-owned telephone and internet companies

Social service

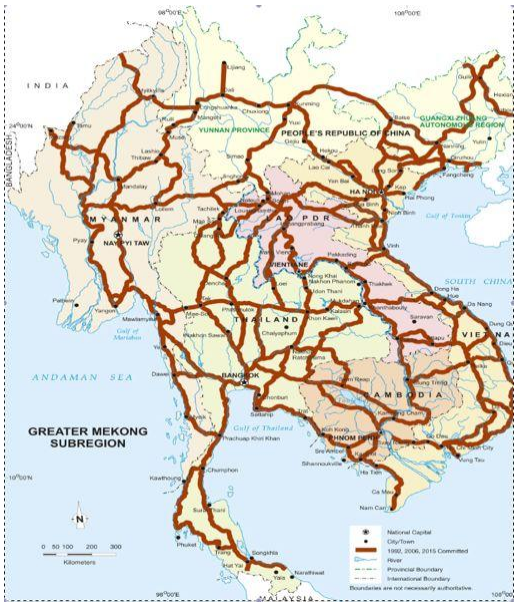
"Basic infrastructure & social welfare"

New Foreign Investment Law

• Myanmar's private and state-owned banks are working overtime to modernize the regulations to meet ASEAN standard.

Improved education

• A sustainable industrial development program requires a steady improvement in the skill levels of the labor force and increasing numbers of managers, marketers, engineers and the like.



Lao PDR Innovation

Policies to Strengthen National Innovation system

- Encourage universities and research institutes to work closely with the industry through : provision of training, consultancy and testing services.
- Improve systematically research institutes and universities, including promoting their facilities and equipping them with modern materials and tools for research
- Establish a National Science and Technology Research Institute that covers all existing research institutes
- Develop an appropriate collaborative research centre in close cooperation with the National University for improving the capability of S&T research aiming to promote production and industrial development
- Establish a Council of Science and Technology in each of the sectoral ministries to function as an advisory committee to the ministry

Vietnam Innovation

Policies to Strengthen National Innovation system

Researches should be continued to make clear the way towards the socialism which are appropriate with Vietnam's geographical, human and social conditions and adapted to current changes in the international context.

Research and wide use of technical advancements should be promoted in agriculture-forestry-fishery and processing industries of agricultural products and foods in order to effective use tropically biological resources, increase added values and competitiveness of exported agricultural products

Researches are applied-oriented to support the selection, acquisition, adaptation and improvement of advanced technologies imported from foreign countries especially in information technology, biology technology, advanced material technology, automation, mechanic and electronic technology.

Cambodia Innovation

Policies to Strengthen National Innovation system

Developing policies for the transferral of functions and resources to sub-national levels through decentralization should be implemented .

Commune councils become increasingly more involved in natural resource and environmental management issue and issue local regulations to support natural resource management committee to crack down on illegal fishing activities.

Information communication technologies are important tools for better governance to provide services and information exchange for citizens in a more transparent and accessible manner

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