



**Asia-Pacific
Economic Cooperation**

2014/PPSTI1/003
Agenda Item: 9

APEC STI Policy Issues and the ART Way Forward

Purpose: Information
Submitted by: Korea



**3rd Policy Partnership on Science, Technology
and Innovation Meeting
Changzhou, China
9-11 April 2014**



APEC Policy Partnership on STI (PPSTI)
10 April 2014
Changzhou, China

APEC STI Policy Issues and the ART Way Forward

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I. Brief History of ART and Review of ART 2012 - 2014



1. Brief History of ART

APEC R&D Management Training Program

To enhance R&D capacity in the region by sharing experiences on R&D management among APEC member economies

1997

The 2nd APEC Ministers' Conference on Regional Science and Technology Cooperation in 1996

APEC Research & Technology Program

To identify APEC STI issues and formulate solutions to improve strategy development and implementation

2009

Strong requests from the ART participants to change the program to senior experts' policy dialogue

2012

Designated as one of three official policy dialogue mechanisms of PPSTI with ITD and IPD

2. Review of ART 2012 - 2014

2012: Linking Research to Innovation

2013: STI Strategy Development in Practice

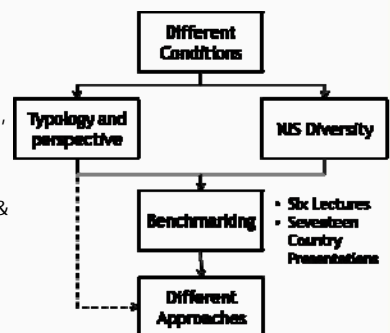
2014: STI Implementation Strategy

First ART held overseas, Indonesia

First ART with private sector speaker, China

● 2012 ART: "Linking Research and Innovation: Finding Proper Approaches to My Economy"

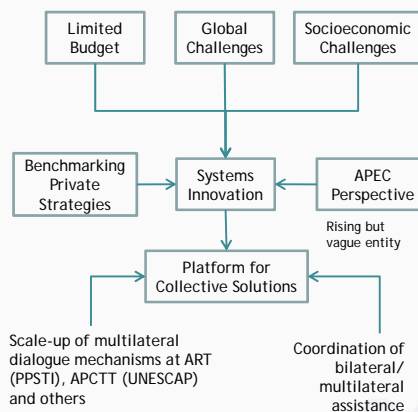
- Common: Leadership, Competition, Risk culture, Pilot programs (e.g. tech parks, incubators)
- Asia: Middle-income trap (resources, FDI, brain drain) and Tech import dependent
- Latin America: Low GERD/low budgets, Cultural obstacles to S&T, Stable policy & instruments (STI think tank)
- Advanced Countries: Venture capital missing, Need strategic investment in infrastructure





● 2013 ART: “STI Strategy Development in Practice”

- Developing New Approaches for Diagnosis and Strategy Development
- Lack of Longitudinal Approaches and Prevalence of Benchmarking Practices
- Rush to Benchmark Korean Experiences without Contextualized Understanding
- Structural Capacity: Government intervention that supplies sectoral capacity that is weak or missing (i.e. research or industry)



● 2014 ART Workshop Detail

- Theme: STI Implementation Strategy
- Dates: 28 January - 1 February 2013
- Venue: Dong Fang Hotel, Guangzhou, China
- 41 Participants from 15 countries and 1 international organization*
 - 15 Speakers: OECD (1), China (3), Germany (1), Thailand (1), Finland (1), Korea (4), USA (1), Russia (1)
 - 21 Participants: Brunei (2), Chinese Taipei (2), China (2), Indonesia (2), Korea (1), Malaysia (1), Mexico (1), Peru (1), Philippines (2), Thailand (5), Vietnam (2)
 - Organizing Committee**: China (1), Korea (1)

* Not including local participants; **Participants have been counted only once



- 2014 ART Program
 - Day 1: Foundation
 - STI Strategy and Implementation
 - STI Planning and Implementation
 - Day 2: Special Sessions
 - China
 - ASEAN-ROK STI Dialogue
 - Day 3: APEC Economies
 - Day 4: Field Survey
 - Day 5: APEC Econ, Breakout Discussions & Wrap-up
- } Discussions:
• Relevance
• Consistency
• Coherence



II. Policy Issues in APEC

Issue 1. Contextualization in Different Framework Conditions

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- Comprehensive approach to enhance the knowledge value chain, but locked into previous resources and experiences: Russia, Vietnam, China
 - Strong basic science capabilities no longer appropriate for commercialization
 - Planning economy inheritance?: Increase input and build capacity → encourage technology spin-offs and extension through IP incentives → promote technology markets
- Problem identified, but solutions ineffective to overcome resource-driven economy trap!: Malaysia, Indonesia, Canada, Australia



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- Targeted, comprehensive plans but greater scale-up necessary!
 - Niche targeting and smart governance: Chinese Taipei
 - Top-down comprehensive vision, strategy and programs: Japan and Korea
- Sophisticated policy programs but not contextualized to address country issues: Thailand, Philippines, and Mexico

Issue 2. Structural Bottlenecks for Implementation

- Conflicting interests in priority setting agenda: Indonesia 1-747 plan focused on innovation vs. R&D prioritization of national integration and security such as traffic, communication, defense, health, food, energy and etc.
- Trial and error in direction-setting in early stages of STI strategy establishment: Brunei and Peru
- Excessive planning but insufficient implementation: Philippines and Indonesia
- Locked in past success: Chinese Taipei and South Korea
- Comprehensive planning but lack of longitudinal coordination: Malaysia and Mexico



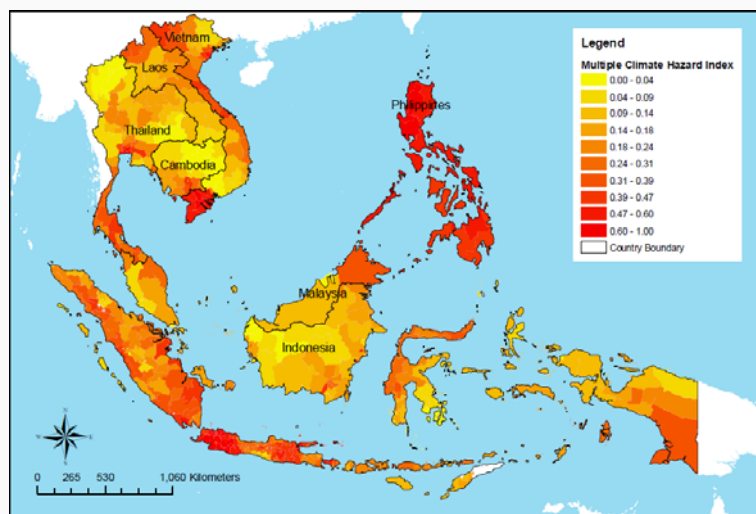
- Differentiated approaches but conflicts in execution:
 - Vietnam: Korean style action-plan clashes with socialist decision-making process and resource mobilizing mechanisms
 - Thailand: Buddhist harmonization but lacks a clear mechanism to produce systemic output
 - Peru: Insufficient policy resources to address identified problems
 - China: Distance between STI and Economy

Issue 3. Regional STI Issues: the Case of ASEAN STI Initiatives

- Structural Limitations of Implementation
 - FDI-driven economic growth based on natural resources and cheap labor making ASEAN members potential competitors for FDI and enlarging disparities among member countries
 - STI initiatives such as Flagship Programmes, Krabi Initiative and others proposed to overcome regional challenge & disparities and contribute to achieving Vision 2020 (later Vision 2015) of regional integration (AEC: ASEAN Economic Community)
 - Lack of regional STI capacities (relatively poor investment, output and outcomes), inter-regional cooperation rather than regional cooperation (reflecting strong economic, ethnic and historical ties with advanced countries), reliance on bilateral/multilateral donations without strategic utilization

➔ Poor implementation of various STI initiatives and necessity to create successful cases

Multiple Climate Hazards in Southeast Asia



Note: For the legend, the scale used is 0-1 indicating the lowest vulnerability level (0) to the highest vulnerability level (1).
Source: Yusuf, A.A. and H.A. Francisco. (2009).



Krabi Initiative

Science, Technology and Innovation (STI) for a Competitive, Sustainable and Inclusive ASEAN

Endorsed by ASEAN S&T Ministers at the 6th IAMMST as a policy framework for STI cooperation in ASEAN
December 2010

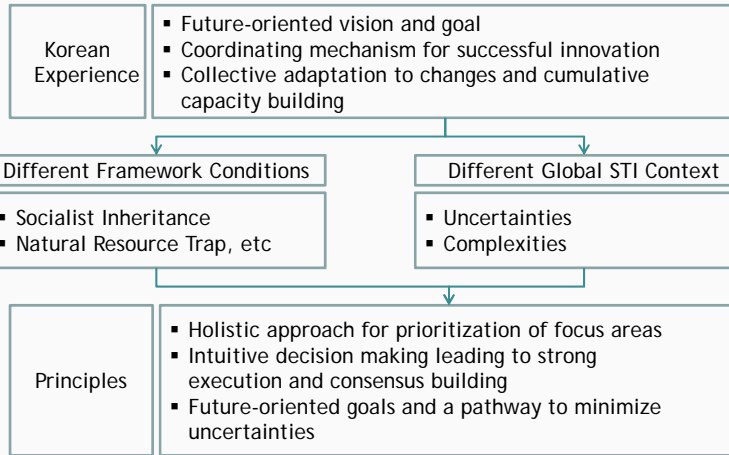
Rationale	ASEAN 2015 – Vision of ASEAN Leaders				
	Roles of STI – A Balance between Competitiveness and Human Development (People-oriented STI)				
	Reinventing ASEAN Scientific Community for a Meaningful Delivery of STI Agenda in ASEAN				
Thematic Tracks	ASEAN Innovation for Global Market	Digital Economy, New Media & Social Network	Green Technology	Food Security	
	Energy Security	Water Resource Management	Biodiversity for Health & Wealth	Science and Innovation for Life	
Paradigm Shifts	STI Enculturation	Bottom-of-the-Pyramid (BOP) Focus	Youth-focused Innovation	STI for Green Society	Public-Private Partnership Platform
	Organisational restructure for a meaningful delivery of STI agenda in ASEAN				
Courses of Action	Develop mechanisms to pursue partnerships and cooperation with other stakeholders in STI				
	Enhance ASEAN Plan of Action on S&T for 2012-2015 and leverage the recommendations of the Krabi Retreat for development of future APAST beyond 2015				
	Implement monitoring and evaluation mechanism for the implementation of STI thematic tracks				



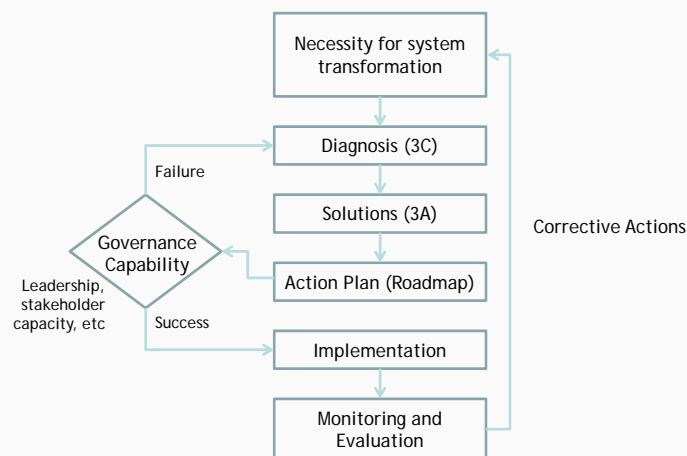
III. New Initiatives for STI Strategy Development and Implementation

1. New Approaches with Korean Experience

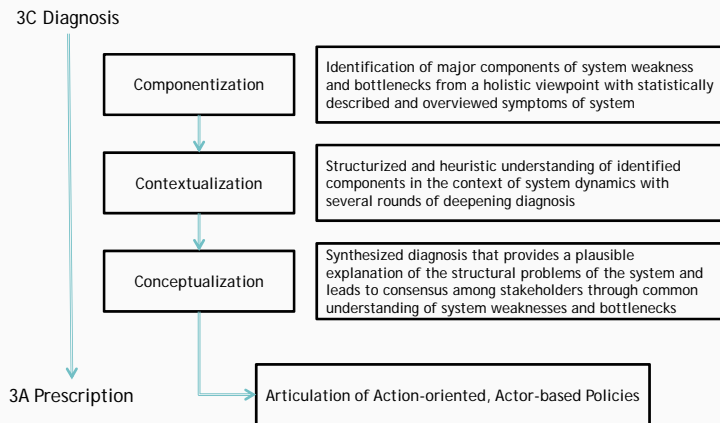
● Strategy Development Principles



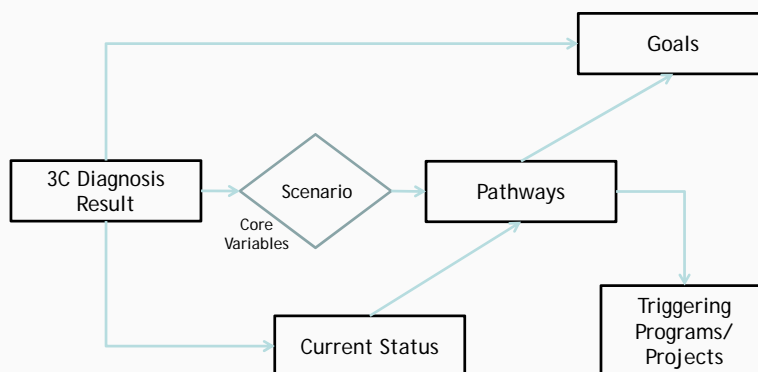
● Strategy Simulation



● Holistic Approach: 3C Diagnosis and 3A Prescription

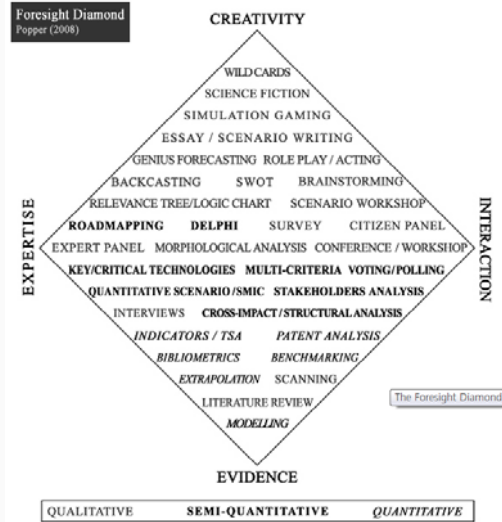


● Future Design Approach: Goals and Pathways





- Intuitive Approach
 - Appropriate methodology for effective planning with limited resources and time
 - Expert panel brainstorming



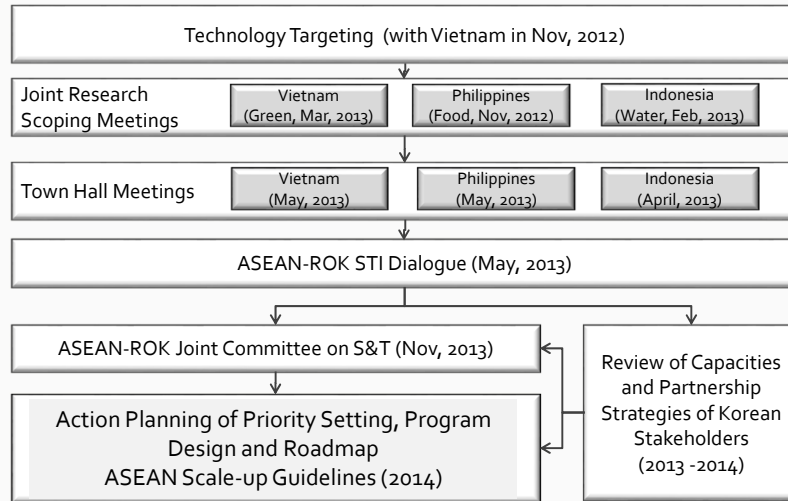
2. Pilot Study: ASEAN STI Initiative

- Technology Targeting and Research Partnership

TECHNOLOGY	SCOPE OF TECHNOLOGY	
	LEAD COUNTRY	PARTNER COUNTRIES
WATER	Water accessibility and Quality	
	Indonesia	Cambodia & Laos
GREEN	Energy efficiency & Renewable energy	
	Vietnam	Malaysia & Brunei
FOOD	Agricultural productivity & Post-harvest value addition	
	Philippines	Thailand & Myanmar
OVERVIEW & COMMENTS	Singapore & ASEAN Secretariat	



● Research Milestone



	Framework Conditions	Diagnosis	Solutions	Innovation Directions
Indonesia (Water)	<ul style="list-style-type: none"> Decreasing quality & quantity of water in rural and urban areas Limitations of financial assistance and tax income 	<ul style="list-style-type: none"> Ecological degradation Fragmented governance Decreased pipe services 	<ul style="list-style-type: none"> Strengthening coordination and capacity through tech localization Promotion of water-related industries to reduce financial burden 	<ul style="list-style-type: none"> Pathway: Domestic capacity building through implicit coordination Goal: ASEAN Water Innovation Hub
Philippines (Food)	<ul style="list-style-type: none"> Food price surges and endangered food security Weakening agricultural productivity and agricultural technology leading to low rural income 	<ul style="list-style-type: none"> Low productivity and low rural income Industry and research isolation Laissez-faire policy and lack of strategic intervention 	<ul style="list-style-type: none"> Export promotion of agricultural products and processed food driven by global challenges Inclusive development and mission-oriented R&D 	<ul style="list-style-type: none"> Pathway: Competitiveness building through pooling and sourcing of international technologies Goal: Strategic positioning of Filipino agricultural and food industry in global value chain
Vietnam (Green Energy)	<ul style="list-style-type: none"> Premature green energy market and limited capacity Climate change adaptation 	<ul style="list-style-type: none"> Weak producers/providers Poor market Incompetent governance 	<ul style="list-style-type: none"> Promotion of new energy service and production industry Provision of affordable products/services 	<ul style="list-style-type: none"> Pathway: Sustainable production mechanism ASEAN Green Energy Innovation Hub



4. The ART Way Forward



1. Critical Review of and Alternative to ART

- Successful Transformation to Policy Dialogue
 - Once training program to share best practices among APEC economies
 - Qualified presentations and in-depth discussions to identify APEC-wide STI issues & solutions
- Structural Limitations
 - Poor articulation of discussion results to PPSTI agenda and limited outcome sharing
 - Weak implementation of various suggested solutions
 - No linkages to APEC Policy Support Unit (PSU)



- Proposed Solutions: “APEC Innovation Platform”
 - Agenda development policy study in partnership with APEC Policy Support Unit
 - Increase of self-funded participants necessary
 - APEC funding necessary
 - Linkages to other implementation programs such as APEC Youth Scientist Mentoring Center Program
 - Development of an on-line forum to share ideas and strategies, which lead to formulation of research consortia and continuous funding from APEC



2. ART 2015

- Theme (one of following themes): Brain Circulation, Global Value Chain, and Technology Foresight
- Venue: Korea or Volunteer Member Economy (Depends on Korean Ministry's decision and in-kind contribution of host economy)
- Time: 1st quarter of 2015



Thank you for your
attention!