Asia-Pacific
Economic Cooperation

APEC WORKSHOP ON SME's ACCESS TO TECHNOLOGY
Jakarta, Indonesia, 7-9 February 2012

APEC Small and Medium Enterprises Working Group

April 2012




APEC Small and Medium Enterprises Working Group
SME 06/2011A

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APEC Workshop on
SMEs' Access to Technology
Jakarta, Indonesia, 7-9 February 2012

FOREWORD

Small and Medium Enterprises (SMEs) have been recognized as a major contributor to economic growth in many economies of Asia-Pacific Economic Cooperation (APEC) including Indonesia. SMEs are also very important on stabilizing social economy and job creation. Therefore, SMEs should be given high attention to grow and develop. There are many aspects that become barriers to SME development, and lack of access to technology is one important aspect that must be considered.

Related to the above aspects, the Ministry of Cooperatives and SMEs in collaboration with APEC and Study Center for Industry, SMEs and Competition, University of Trisakti, organized APEC Workshop on SMEs' Access to Technology on 7-9 February 2012 at Bidakara Hotel, Jakarta. This workshop aims to share best experiences and knowledges to better access to technology for our SMEs by :

- Increasing the understanding of relevant stakeholders in APEC forum related to the needs of SMEs on technology in order to increase added value,
- Improving the understanding of stakeholders in APEC about the relationship between technological development policy that apply to the institution- existing institutions and how to overcome barriers to SME access to technology. Outcome of the workshop was to reduce the transaction costs faced by SMEs in accessing technology and improve competitiveness of SMEs in the APEC region.

The International Workshop was jointly funded by APEC and the government of Indonesia through the Ministry of Cooperative and SMEs, and was participated by fifty three (53) participants coming from APEC member economies namely China, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Thailand, Viet Nam and non-APEC economies such as Colombia. Eighteen (18) participants and 5 (five) speakers were funded by APEC. The speakers and participants came from the government officials, Association of SMEs, Universities, and Research Institutions.

A visit to Martha Tilaar Factory was a best-practice to learn the history and technological development of SMEs, and visit to LLP KUKM or SME Promotion Center/SPC was to determine the role of SPC to promote SMEs' products in Indonesia. Last but not least, this workshop was expected to generate further constructive recommendations regarding better access to technology for SMEs in the APEC region.

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This report is intended to present a summary of the APEC Workshop, results of the evaluation as well as comments given by the speakers and participants. It is hoped that this report would serve as a reference for future similar activity.

May I also take this opportunity to express my sincere gratitude and appreciation to APEC economies, APEC Secretariat, and Study Center for Industry, SMEs and Competition, University of Trisakti, for extraordinary participating and contributing in realizing this workshop.

I Wayan Dipta
Deputy Minister of Research and Development
for Cooperatives and SMEs
Ministry of Cooperatives and SMEs
Republic of Indonesia

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I. INTRODUCTION

There are many aspects becoming impediments to development of SMEs, and lack of access to technology is one of the important aspects that should be put into consideration in order to maintain the improvement of their role as an engine for APEC economic growth.

APEC Workshop on SME's Access to Technology is intended to increase broader understanding among APEC economies of the current needs of SMEs' to get into better access to technology. In order to do so, the workshop will improve knowledge of APEC economies of the relationships between current policies and existing institutions and the exiting acces barriers. Internal constraints and limitations by technology and policies or regulations associated with improving SMEs' capability for technology development and innovations and eliminating access barriers for SMEs' to source of technologies, and creating/increasing cooperations between SMEs and universities. R&D institutes and Large Enterprises including multinational companies through interaction and information sharing (e.g. best practices and lessons leardned) among roundtables participants and expert speakers.

KEY OBJECTIVE & OUTCOME EXPECTED

Key Objective of this workshop would be:

1. To increase broader understanding among APEC stakeholders of the current needs of SMEs for better access to technology.
2. To improve APEC stakeholder's knowledge of the relationships between current policies and existing institutions and the exiting access barriers.

By creating better access to technology for SMEs, it is expected:

1. To reduce the SMEs' transaction cost
2. To improve SMEs competitiveness

II. WORKSHOP

2.1. Program Implementation

The International Workshop on The SMEs' Access to Technology commenced on 7-9 February 2012 was preceded by a short report on the preparation of the event, the participants and the speakers also the content of the program presented by Ir Martono Djohari, MABM, the head of organizing committee, while Mr. I Wayan Dipta the Deputy Minister for Resources Research and Development for Cooperative and small and medium enterprise who is the Project Overseer had officially opened the event. In his opening remarks. Mr. I Wayan Dipta expressed that governments can play an important role in strengthening the competitiveness of SMEs by supporting the development and adoption of better technologies for SMEs. Furthermore, this workshop was expected to be a tool to share policies and best practices between member economies on SME's access to technology and if possible relate to recommendations of ABAC.

The workshop has been a forum consisting of three-day activities, namely: (i) one day roundtable on 7 February 2012, (ii) one-day seminar that organized parallel with the fieldtrip on 8 February 2012, and (iii) one-day panel discussion to produce policy recommendations on 9 February 2012. This workshop has been discussed four issues, namely:

1. How the government does develop technologies policy for SMEs and how to overcome obstacles of SMEs in access to technology. The keynote speakers were DR. Tulus Tambunan (University of Trisakti, Indonesia) and DR. Lewis Chen (Chinese-Taipei). This issue was presented on 7 February 2012.
2. The role of R & D Institutes and Universities in Technology and Innovation to support the development of SMEs including technology transfer to SMEs. The Speakers having addressed these issues are DR. Tatang A Taufik (BPPT, Indonesia) and Mr. Franz Gelbke (Germany). This issue was presented on 7 February 2012.
3. The factors that determine the success story behind the Technological Development of SMEs be addressed by Prof. Shigeo Kagami (Japan), Mr. Franz Gelbke (German), and Mr. Lucas T Prawira(CISCO, Indonesia). This issue was presented on 7 February 2012 and
4. Different experiences in the formulation and implementation of technology development of SMEs had been addressed by DR, Tatang A Taufik (BPPT, Indonesia), DR. Lewis Chen (Chinese-Taipei), Prof. Shigeo Kagami (Japan), Mr. Junghwa Lee (Korea), and Mr. Mike Orgill (Google). This issue was presented on 8 February 2012

The third day of workshop, the forum of workshop had discussed the policy recommendations on better access to technology for APEC SMEs. The Workshop Program is attached as Annex A and presentation from speakers is

Attached as Annex B, and presentation from workshop participants is attached as Annex C. In second day of the workshop, a visit to Martha Tilaar factory and LLP KUKM or SME Promotion Center/SPC was carried out.

2.2. Participant

The APEC International Workshop on SMEs' Access to Technology was attended by fifty-three participants (53) coming from nine (9) APEC economies namely China, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Thailand, and Viet Nam and non-APEC economies such as Colombia. APEC had supported eight teen (18) participants to attend the workshop while thirty five (35) workshop participants were non-APEC sponsored participants. They came from the government officials, Association of SMEs, Universities, and Research Institutions. The list of the participants of the workshop is presented as Annexes D.

2.3. Speaker

There were four (4) APEC sponsored speakers from APEC member economies namely from Indonesia, Japan, Korea, and Chinese Taipei,, and four (4) non APEC sponsored speakers from Germany, Indonesia, CISCO Indonesia and Google. The speakers were invited from Advisor for Business and Technology Transfer, Ministry of Research and Technology, Republic of Indonesia; Venture Incubation & Investment Division of Commercialization and Industry Service Center (CIS) of Industrial Technology Research Institute (ITRI); Division of University Corporate Relations, The University of Tokyo; Small Medium Business Administration(SMBA) of Korea; The Center for Industry, SME and Business Competition Studies Faculty of Economics, University of Trisakti; BPPT; CISCO; and google. The list of the speakers is presented as Annex E.

2.4. Notes of Workshop Discussion Sessions

Notes of workshop discussion sessions can be found in details in Annex F.

2.5. Workshop in Pictures

Pictures of participants and speakers for the whole program during the opening ceremony is illustrated in Fig. 2.1 and 2.2., Activities during the workshop in Fig.2.3. and during the field trip are depicted in Fig. 2.4.

Figure 2.1. Opening remarks by Deputy Minister of Research and Development for Cooperatives and SMEs, Ministry of Cooperatives and SMEs, Republic of Indonesia

Figure 2.2. The Participants and Speakers at the opening ceremony of the APEC International Workshop on SMEs' Access to Technology, Jakarta, Indonesia, 7-9 February 2012

Figure 2.3. Activities during workshop

Figure 2.4. Field visit to Martha Tilaar Factory and LLP KUKM/SPC (SMEs Promotion Center)

III. OUTCOMES AND RECOMMENDATIONS

Based on the discussion during the two-day workshop, it was agreed among all participants that SMEs is an important factor in economy. A variety of SMEs that are different in nature and development dictate what kind of policy government needs to formulate to enhance SMEs' competitiveness and capabilities, particularly in technology.

It has also been found that access to technology was a common constraint among SMEs in many APEC member economies. As SMEs are market-oriented, they need better access to technology in order to get closer to their customers. Research and development as well as innovation are highly essential and their sources are mainly drawn from their business partners therefore SMEs need a third party, or intermediaries to be able to connect comprehensively to research institutions.

In formulating policy recommendations, nine APEC member economies and a representative of the Business Technology Center, an expert-based institution that focuses on SMEs presented their point of views and shared their economy experience in promoting technology among SMEs. The followings are short conclusion of their presentation:

People's Republic of China states that a sense of innovation must be greatly applied at every aspects of economy without neglecting the importance of quality control. Special fund for technology innovation must be allocated and having learned from past experience, national and local governments must work hand in hand in developing SMEs.

Chinese Taipei suggested that government needs to formulate a policy that encourages large enterprises to invest on SMEs in terms of business innovation and research and development programs that can be implemented through CSR programs or subsidy. It is also important to bear the value of innovation in the mind of entrepreneurs. There have to be strong commitment and consistency by both government and SMEs and technical development must be a combination of each practical area in business.

The Business Technology Center mentioned that the roles of governments has diminished and was taken over by large companies in terms of technology innovation for enterprises. Government needs to convince companies to invest more in technology

as technology transfer is a part of sales that are beneficial for both SMEs and companies.

Mexico shared its programs in enhancing entrepreneurship which eventually generates technology innovation. Through its National Entrepreneurs Program, the government of Mexico gathers a high number of entrepreneurs from around the economy and assists them with incubation, networking, and free training programs for entrepreneur leaders. The government also consolidates all actors in the national system of business incubators, including local governments, businessmen, investors, academic researchers, industrial parks, virtual market places, specialized agencies, industrial clusters, information system, entrepreneurs and financing.

Malaysia suggested some tools to evaluate SMEs' advancement in technology by using four main criteria: technology innovation ability, technology commercialization ability, technology innovation management ability, and technology innovation results. Instead of providing grants, the government supports SMEs by offering them with soft loans thus encourage more responsibilities. In order to get closer to customers, SMEs are also encouraged to improve their branding.

The Philippines explained that despite their government's efforts to make technology more accessible, many SMEs are reluctant to use online marketing and websites as other SMEs may copy their products. In that case, legal assistance and patent laws must be socialized and the establishment of Technology Development Center would be a significant help in encouraging the use of more advanced technology.

Thailand suggested increasing the number of R&D personnel among companies cooperating with SMEs. In developing economies innovation to intermediaries should be established as catalysts and bridging agents of innovation process.

Papua New Guinea shared its economy experience in establishing the Regional Center for Technology and innovation and expanded their networks with major stakeholders such as national government and statutory authorities, provincial governments, research agencies, international technology transfer organization and informal sector representatives.

Peru shared its vision of inclusive growth which incorporating all citizens and economic growth. They also suggested increasing teaching of IT and dissemination of the concept of business and R&D

Indonesia noted the importance of growing culture of techno-entrepreneurs among SMEs and the development of technology and innovation center by APEC.

Policy Recommendations

In improving SME's access towards technology, systemic approach has to be established to encourage all relevant actors to play their parts. The variation of nature and interests of SMEs also have to be taken into account in order to create a proposal that represents a balanced interest of APEC region.

The government also needs to create a conducive business climate which subsequently will build trust among SMEs, business societies and the government itself, in terms of supporting affordable technology for SMEs and creating fair transaction cost for business societies. Collaboration and networking among SMEs across APEC member and non-member economies are hoped to be realized in the long term thus SMEs can take benefits from the global economic trends. Both national and regional government should support all efforts in easing access of technology to SMEs as the impacts and results will be beneficial to economic national and regional growths.

Technology incubation is an important factor which consideration should be determined by the SMEs, research institutions and private sectors. Therefore the workshop also proposed the establishment of SMEs Working Group as a catalyst in APEC networking and it is hoped that workshop would be continued in the future to contribute a concrete recommendation on what would be collaborated projects in the region.

IV. PROJECT EVALUATION

The APEC questionnaires for participants and speakers were used to evaluate the project. They are addressed separately.

4.1. Speaker Evaluation

Summary of APEC Project Evaluation

(Part A – Speakers)

Project Code : SME 06/2011A

Project Title : Workshop on SMEs' Access to Technology.

1. General Information

- APEC Workshop on SMEs' Access to Technology was held in Jakarta - Indonesia on 7-9 February 2012.
- The workshop was officially attended by 53 participants from China (2); Indonesia (35); Malaysia (2); Mexico (2); PNG (2); Peru (2); Philippines (2); Thailand (2); Vietnam (2) and Colombia as an observer (2).

  Out of 53 participants, 8 speakers/moderators were from Chinese Taipei (1); CISCO (1); Germany (1); Google (1); Indonesia (2); Japan (1), and Republic of Korea (1), all of them are Males.
- From 8 evaluation sheets that distributed to the listed speakers, 5 of them were filled and returned to the committee (62.5%) under the following composition: Chinese Taipei (1); Indonesia (2); Japan (1); and Republic of Korea (1).

2. Status of Activity and Speakers

- All respondents recognized that APEC Workshop on SMEs' Access to Technology was held on 7-9 February 2012 during 3 (three) consecutive days.

Out of 8 respondents, 4 of them justified the APEC Workshop on SMEs' Access to Technology as Seminar/Symposium, 1 justified Conference Forum, and 3 abstain.

The status of speakers originated from the various roles, namely: 4 government officers (DR Tatang A Taufik, Mr Franz Gelbke. DR. Lih- Woe Chen, Mr. Junghwa Lee), 2 researchers (Prof. Tulus Tambunan, Prof. Shigeo Kagami), and 2 executives of Large Enterprises (Mr. Lucas T Prawira, Mr. Mike Orgill).

3. Project Accomplishment

5 respondents confirmed that the project has achieved its objective; and recognized the workshop as a forum for exchange of information on SMEs' Access to Technology.

3. Profile of Attendees

5 respondents justified that the attendees of the workshop were in conformity with the target group.

4. Project Assessment

The question on the overall effectiveness of the project were responded as follows: 1 respondent said "Excellence;" 1 respondent said "Effective;" 1 respondent said "Good;" 1 respondent said "need to increase the outreach to broader audience and 1 respondent said all attendees' can share information for SMEs of each economy.

5. Project Improvement

2 respondents have suggested to improve the workshop, 1 respondent reiterated to invite more key persons; another respondent identified the needs of focus on more specific area and visits to relevant examples discussed in the workshop/seminar.

6. Other Suggestions

2 respondents were abstain; 1 respondent want a possible conference that's focus more an "entrepreneurship" rather than SMEs in general, 1 respondent suggested that the next topics must relate to public awareness to political communities; and 1 respondent suggested that this workshop should be follow up by an APEC joint research to obtain evidence on the issue discussed in this workshop.

4.2. Participant Evaluation

Summary of APEC Workshop Evaluation

(Part B – Participant)

Project Code : SME 06/2011A

Project Title : Workshop on SMEs' Access to Technology.

1. General Information

- APEC Workshop on SMEs' Access to Technology was held in Jakarta - Indonesia on 7-9 February 2012.
- The workshop was officially attended by 53 participants from China (2); Indonesia (35); Malaysia (2); Mexico (2); Papua New Guinea (2); Peru (2); Philippines (2); Thailand (2); Viet Nam (2) and Colombia as an observer (2). Out of 53 participants, 8 speakers/moderators were from Chinese Taipei (1); CISCO (1); Germany (1); Google (1); Indonesia (2); Japan (1), and Republic of Korea (1)
- From 53 evaluation sheets that distributed to the listed participants, 48 of them were filled and returned to the committee (90.56%) under the following composition: China (2); Columbia (2); Indonesia (30); Malaysia (2); Mexico (2); Peru (2); PNG (2); Philippines (2); Thailand (2) and Viet Nam (2).

2. Perception on Workshop's Benefits

- 48 respondents have confirmed that primary benefit of the workshop for the economy is sharing experiences on best practises in SME programs and get various information about technology development, technology access, and the method of implementation of R & D result for SME from another APEC Economy;

- In term of new skills and knowledge gained from the workshop, all respondents recognized at having new knowledge about SMEs' Access to Technology from many angles, such as: policy development, Importance University's power of R & D, transfer of technology to SMEs, new commercialization collaboration between SMEs and LC, innovation system, sharing experiences among member economies.

3. Implementation of Workshop's Results

- 40 respondents were keen to pursue workshop's results in their respective home economy through many approaches, such as: proposed to explore new schemes for technology development and financing, new role for university R & D, select focus industry, establishment of a technology/innovation center for SMEs, share the model and knowledge from the workshop, more collaboration and exchange of knowledge among APEC economy, method of transferring technologies, promotion and strength the connection between university and companies. 8 respondents were abstain.

- Respond to question about what to be done next, and how should the workshop be built upon, 48 respondents definitely responded that similar workshop needs to be continuously undertaken, such as: integrate outcomes of workshop to general work of SMEWG, select good practice then each economy select a practice that they want to try/implement, build the technology center, detect new opportunities in technology transfer or the implementation of new support program, the knowledge shared should be the platform to more forward, some real program for implementing innovation/ technology access for SMEs, assisting to implement technology which suitable in SMEs, organizing specific workshop of best practices strategies, discussion between R & D Institutes/University or government officer need more time, and have more discussion on the feedback.

- 8 respondents were keen to link workshop's outcome to the inclusive growth part of the APEC Growth Strategy, 4 participant said it is better if economies linked together to develop and implement the programs for assessing and benchmarking the impact in each economy, 4 respondent said maybe there is a plan if given an opportunity and appropriate funding, 2 respondent said that for the moment is only share with the Mexican companies the best practices in technology access in APEC region, 6 respondent just say yes, 4 respondent will promote the outcomes on the meetings, conferences, or for a which she attend in, 4 respondent will give a report and see what can be adopted from the workshop, 4 respondent said not at the moment but soon, and 12 respondents were abstain.

4. Rating, Effectiveness, and Contents

- In term of workshop's rating, there were 28 respondents provided rating 5 (very good); 8 provided rating 4 (good); 12 respondents gave rating 3 (near good).
- The overall effectiveness of the workshop has been responded as "Effective" by 12 respondents; "Good" by 12 respondents; "Fair" by 4 respondents.

  4 respondent commend that the workshop was the great opportunity to share experiences implemented in APEC region about technology and innovation actions, 4 respondents said effective in general but not for special SME, 4 respondent said if the participant have influences in the government or in the sector they belong it will be successful, 4 respondent said it's a very helpful project and successful meeting, and the last 4 respondents said this project is very fruitful and enhanced our understandably and communication.
- Out of 48 respondents, 36 has confirmed that the content of the workshop was "Just Right, and 12 respondents said "Not Detailed Enough."

5. Additional comments

- 12 respondents expressed positive appreciation; and 12 respondents were abstain.
- Additional comments from another 24 respondents were covering the following subjects:

  (a) Should have a chance to add/comment on the drafted policy recommendations.

  (b) All participants should be informed about presentation so that good presentation could be prepared.

  (c) More time should be given to speakers so that more knowledge and experiences gained by participants.

  (d) More data and statistics should be acquired to make a better analysis.

  (e) More information related to specified technology for specified SMEs in each APEC Economies.

  (f) It would be better if there are more representatives from industry to give more successful stories.

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Annex A

Annex A. Workshop Program

Day	Session and Time	Topic
First Day Workshop		
7 February 2012	07.30-08.30	Registration
Venue : Subadra Drupadi Room	08.30-09.00	OPENING By Deputy Minister of Research and Development for Cooperative and SME Resources, Republic of Indonesia
	09.00-09.40	"Current State of the Art of Technology Development in SMEs and Their Constraint in Access to Technology". 1. Dr. Tulus Tambunan (Indonesia) 2. Dr. Lih- Woe Chen (Chinese-Taipei)
	09.40-10.20	"The Role of R&D Institutes/Universities in Supporting Technology Development/Innovations in SMEs (Including transfer of technology to SMEs)". 1. Dr, Tatang A Taufik (Indonesia) 2. Mr. Franz Gelbke (German)
	10.20-11.30	Discussion
Venue : Kenanga Restaurant	11.30-13.30	Break and Lunch
	13.30-15.00	"Key Determinants behind the Success Stories of Technology Development in SME" 1. Prof. Shigeo Kagami

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		(Japan) 2. Mr. Franz Gelbke(German) 3. Mr. Lucas T Prawira (CISCO)
	15.00-16.00	Discussion
Venue : Mawar Restaurant	19.00-21.00	Welcoming Dinner

Day	Session and Time	Topic
Second Day Workshop		
Venue : Subadra Drupadi Room	08.30-11.45	"The Difference between Experience in Formulating and ImplementingTechnology Development Policy for SMEs". 1. Dr, Tatang A Taufik (Indonesia) 2. Dr. Lih- Woe Chen (Chinese-Taipei)
	09.30-09.45	Coffee Break
	09.45-10.15	Discussion
	10.15-11.45	"The Difference between Experience in Formulating and ImplementingTechnology Development Policy for SMEs". 1. Prof. Shigeo Kagami (Japan) 2. Mr. Junghwa Lee (Korea) 3. Mr. Mike Orgill (Google)
	11.45-12.30	Discussion
Venue : Kenanga Restaurant	12.30-13.30	Break and Lunch

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Venue : Martha Tilaar Factory	13.30-17.00	Field trip 1
Venue : LLP/SPC	18.00-19.00	Field trip 2
	19.00-21.00	Dinner

Day	Session and Time	Topic
Third Day Workshop		
Venue : Subadra Drupadi Room	08.30-12.00	Panel Discussion "TO PRODUCE POLICY RECOMMENDATIONS"

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Annex B

Annex B. Presentations from Speakers

BUSINESS TECHNOLOGY CENTER

Key Determinants behind the Success Stories of Technology Development in SME

Franz Gelbke
February 7th , 2012

BUSINESS TECHNOLOGY CENTER

Key Determinants behind the Success Stories of Technology Development in SME

Franz Gelbke
February 7th , 2012

- Internal and external influence
- Key determinants inside SME
  - Leadership
  - People and Culture
  - TQM
  - Product and Process
  - Knowledge and Information
  - Other Factors
- Innovation System
  - The important role of policy and administration
  - The level of intervention and time
  - 30 Determinants of a National Innovation Systems
  - Promotion tools along the timeline
  - The impact after 30 years

Internal and external determinants for innovation in SMEs.

external → stimulating environment for innovation (innovation system)

internal → Company culture, Leadership, Organization, Processes, Staff qualifications

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Key determinants inside SMEs:
Leadership

- Management fosters creative thinking and innovation in the company.
- Everyone in the organization is expected to come up with new ideas. Management takes new ideas very seriously.
- The organization operates a suggestion scheme.

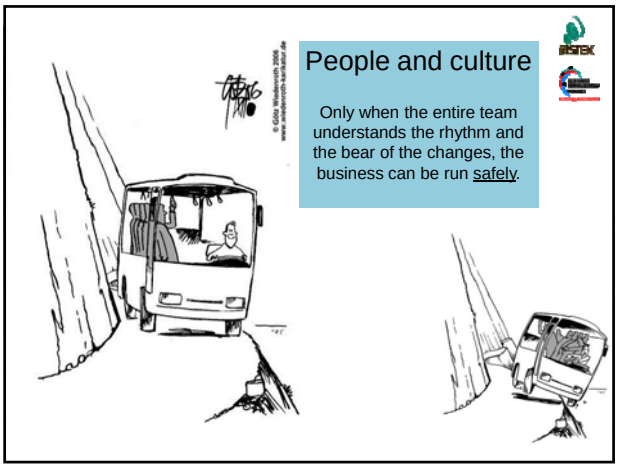
Key determinants inside SMEs :
People and Culture

- The culture in this organization promotes change and the structure of the organization facilitates change.
- Bonuses are paid according to the organization's performance.
- Overall, employees have access to all the resources needed to get the job done.
- The organization is an enjoyable place to work.

People and culture

To run a business in the global economy means to NOT only be fast, BUT the products and processes must be flexibly adaptable to global economy.

The corporate culture plays an important role in adapting process.



Key determinants inside SMEs :

TQM **(Total Quality Management)**

- Total Quality Management program and Continuous Improvement (CI) process.
- From a formal structural quality system to a quality culture.
- Therefore, people need positive role models.

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Key determinants inside SMEs :
Product and process

- Management places top priority on new products and processes.
- Groups and teams are involved in developing new products and services.
- We regularly compare our products and services with those of our competitors.
- **Customers are regularly involved in the development of new products and services.**
- Everyone in the organization is expected to suggest ways to improve processes and procedures.
- This organization is investing to develop the capabilities it will need in the future.

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Key determinants inside SMEs :
Knowledge and information

- Information/knowledge is effectively managed and used throughout the organization.
- Efforts are made to share information/knowledge across the organization.
- **Information/knowledge from and about customers is effectively managed within the organization.**
- Active management of information/knowledge produces a range of business benefits.

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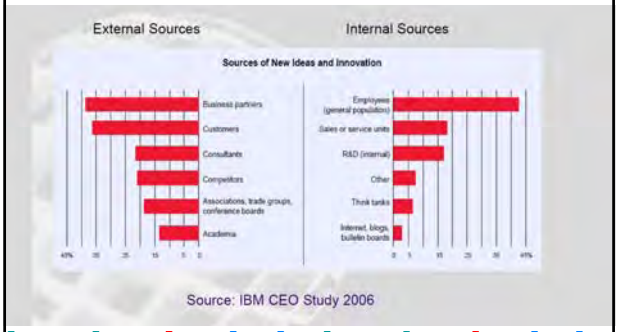
Key determinants inside SMEs :
Sources for Innovation



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Key determinants inside SMEs :
Other factors

- **Collaboration with other partners – cooperation culture**
- **Grants for promoting innovation received - stimulation**
- Links with universities to support innovation
- Links with other group to support innovation

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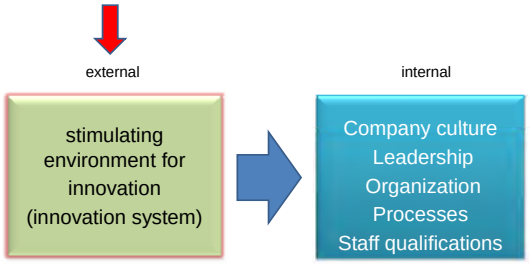
Internal and external determinants for innovation in SMEs.



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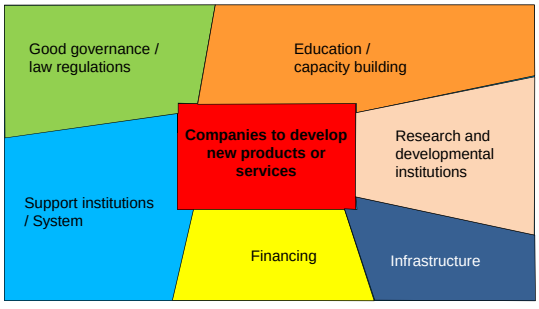
Elements to build National / Regional Innovation System



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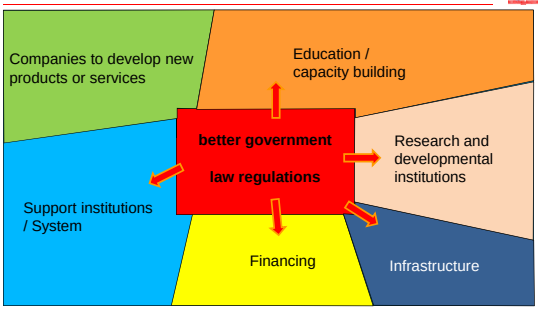
Influence of Government in National / Regional Innovation System



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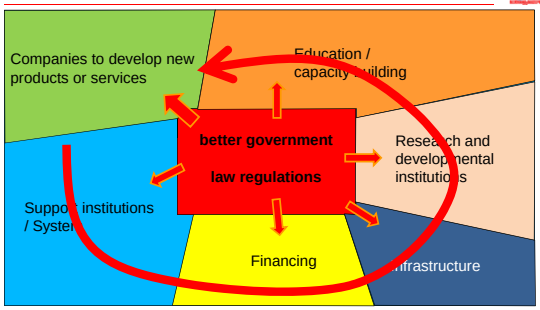
Influence Government in the National / Regional Innovation System



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Matrix of level and type of intervention

Level of Intervention	Micro Level	Meso Level	Macro Level
Innovation Capacity	- EDUCATION - TRAINING	- PROGRAMS - INSTITUTIONS - FRAMEWORK CONDITIONS	- INNOVATION POLICY - EDUCATION POLICY
Technology	- RESEARCH AND DEVELOPMENT	- R&D PROGRAMS - R&D INSTITUTIONS	- TECHNOLOGY POLICY
Production Commer-cialization	- PRODUCTION - COMMERCIALIZATION - DISTRIBUTION	- MARKET INCENTIVE PROGRAMS - PROMOTING BODIES	- TRADE POLICY - SUBSIDY POLICY

Long-term
Impact
Short-term

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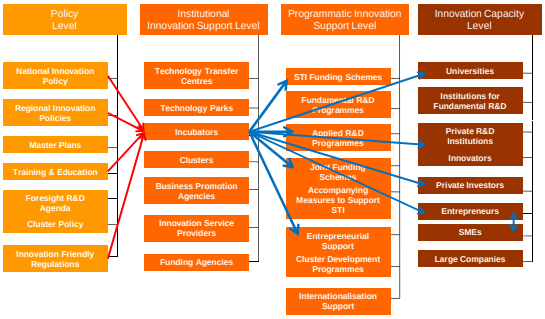
30 Determinants of a National Innovation Systems



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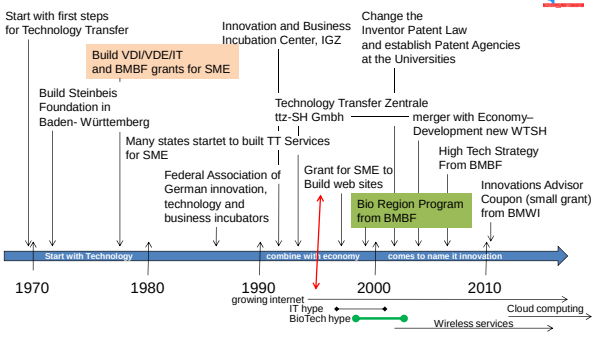
Technology Promotion Tools: Lesson Learnt from German History



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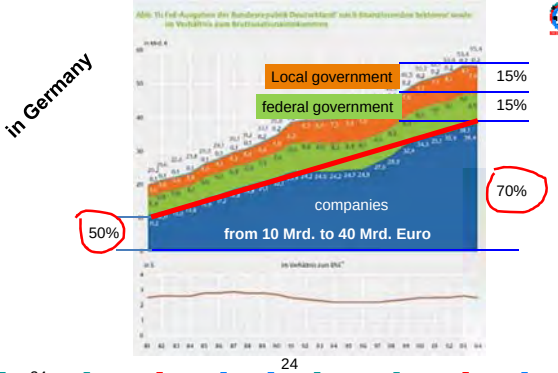
R&D Investment 1981 to 2004 stimulation of private investment in R&D



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Terima kasih | Thank you | Danke

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BUSINESS TECHNOLOGY CENTER

The Role of R&D Institutes/Universities in supporting Technology Development/Innovations in SMEs

Franz Gelbke
February 7th , 2012

BUSINESS TECHNOLOGY CENTER

The Role of R&D Institutes/Universities in supporting Technology Development/Innovations in SMEs

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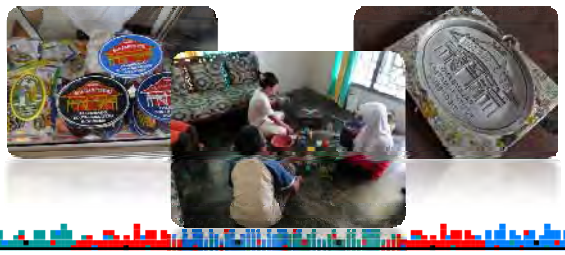
- Definitions
  - The understanding of R&D for SMEs
  - Types of R&D institute
- Development phases within SMEs
- Technology Transfer Process
  - Telemetry System: example
  - Supplier of Technologies.
- Reflection

Understanding of R&D for SMEs : 1

Family handicraft business

Cluster development is required.

Basic knowledge on marketing, production process, quality, design and tools building are needed.



Understanding of R&D for SMEs : 2-3

Mechanical production
LOW LEVEL

SMEs need basic knowledge on:
marketing production process
quality construction
idea for new product (start development)

Electro-mechanical development and production
MEDIUM LEVEL

SMEs need knowledge on:
optimized injection molds
develop components for microcomputer training
training on computer simulation based

Understanding of R&D for SMEs : 4

Advanced mechanical development and application of programmable controllers

SMEs need:
optimization of backing wheel supported by "finite element analysis"
using remote maintenance (develop telemetry system)

Types of R&D institute : 1

Vocational school (SMK):

Education
Training
Prototyping

Types of R&D institute : 2

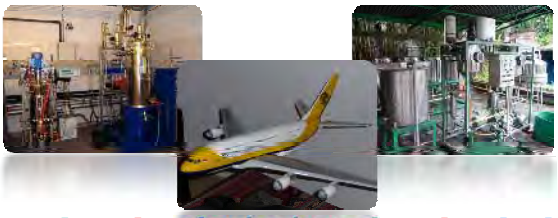
Polytechnic (University of applied science)

Higher Education
Training
Prototype Center

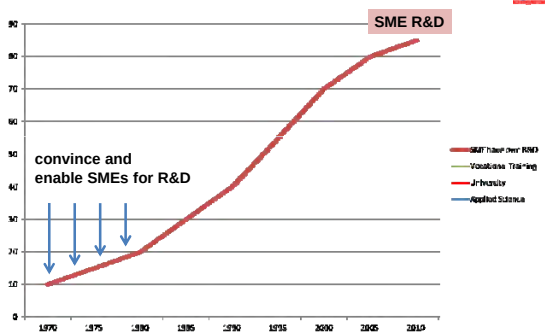
Types of R&D institute : 3

University

high education
process technology
simulation before prototyping
complex mathematic process optimization



SMEs development:
They started doing R&D themselves and improved the quality and quantity over time



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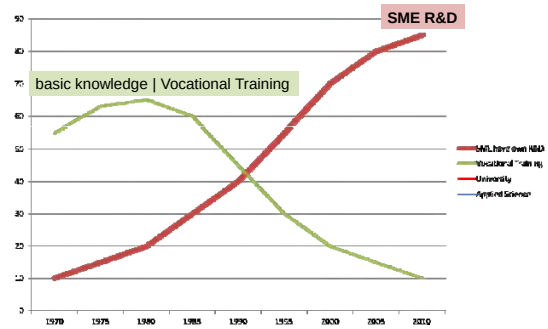
The influence of R&D institutes on product and process development within SME depends on the situation in the SME itself.



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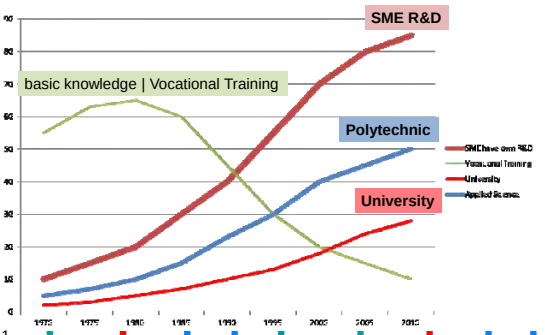
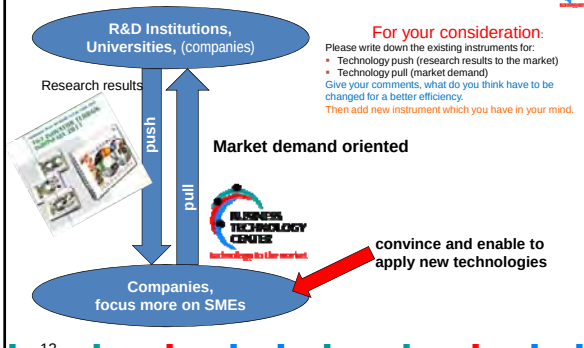
The influence of R&D institutes on product and process development within SME is depended on the situation in the SME itself.



11

Instruments for Technology push and pull

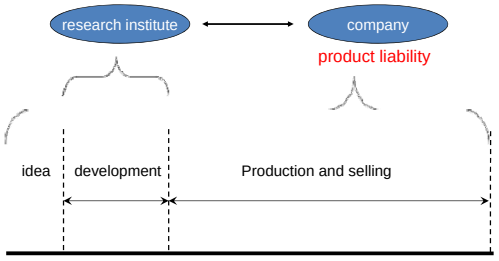


For your consideration:
Please write down the existing instruments for:
- Technology push (research results to the market)
- Technology pull (market demand)

Give your comments, what do you think have to be changed for a better efficiency.
Then add new instrument which you have in your mind.

12

Technology Transfer is different to product-selling.



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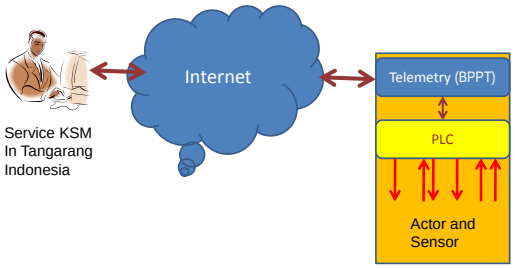
Technology Transfer Example: Telemetry System



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Telemetry System: Project result (1)

Positive:

- The company employed one engineer for further development and for technical marketing.
- BPPT staff has gained experiences to develop telemetry system to work in the internet cloud.

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Telemetry System: Project result (2)

Negative:

- BPPT develop a product, which unfortunately did not fit the demand from the company.
- The company does not apply that research result into their machines yet.
- From this experience, the company has not planned yet to collaborate with any public research center anytime soon.
- No economy effects up to now and in the near future.

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Telemetry System: Project result (3)

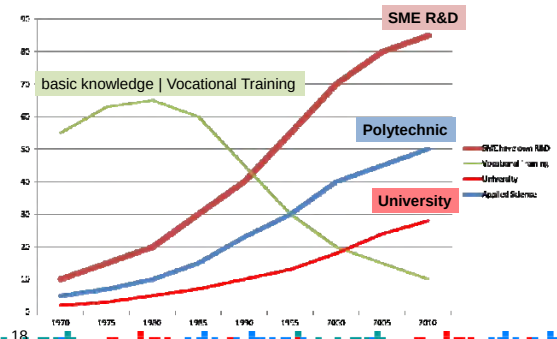
Challenge:

The negative result **has nothing to do** with the knowledge of the researcher (BPPT). They are very well educated.

- The Incentive program has to be adapted. For further collaborative project, SMEs have to get the responsibility.
- Project process at research center shall be changed.

17

Suppliers of Technologies.



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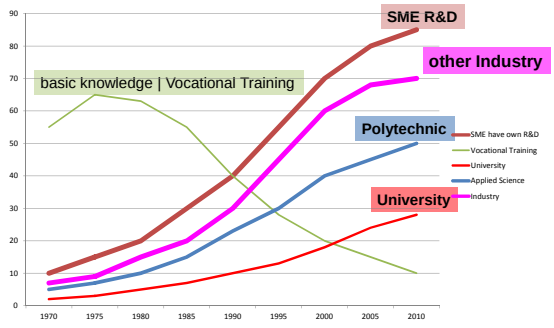
Suppliers of Technologies.



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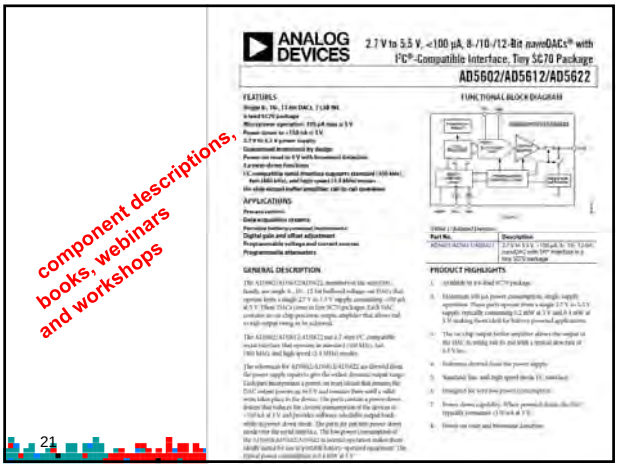

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Reflection

Depending on the level of development of SMEs, we need different institutions for R/D and we need intermediaries as door opener

We often overestimate the importance of R&D institutes in product / process development in cooperation with SMEs.

In fact, it is < 5% that SMEs collaborate with R&D institute/university.

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Terima kasih | Thank you | Danke

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Small and medium-sized enterprises (SMEs)
SME Definition in Europe

Enterprise category	Headcount	Turnover
medium-sized	< 250	≤ € 50 million
small	< 50	≤ € 10 million
micro	< 10	≤ € 2 million

THE ROLE OF R&D INSTITUTES/UNIVERSITIES IN SUPPORTING TECHNOLOGY DEVELOPMENT (INNOVATIONS) IN SMEs

A General Overview in Indonesia

Dr. Tatang A. Taufik
Deputy Chairman of BPPT for Technology Policy Assessment
Agency for the Assessment and Application of Technology (BPPT)

Roundtable Discussion
Workshop on SMEs' Access to Technology
APEC Project SME 06/2011A
Jakarta, February 7, 2012

OUTLINE

1. INTRODUCTION
2. SOME GENERAL FINDINGS
3. SUGGESTIONS FOR FUTURE POLICY DIRECTION
4. CONCLUDING REMARKS

OUTLINE

1. INTRODUCTION

GENERIC ROLES OF R&D INSTITUTES/UNIVERSITIES IN SUPPORTING TECHNOLOGY DEVELOPMENT (INNOVATION) IN SMEs (1)

1. A productivity center, e.g. :
   a. Use of university faculty or other research staff as advisors and consultants.
   b. Any form of funding connection on research to solve particular problems, e.g. as a business development service provider.
2. A talent pool, e.g. :
   a. A direct source of staff recruited at graduate or post-graduate level.
   b. A source of start-ups by students or staff leaving directly from a university.
3. Providing knowledge/technology-based services, e.g. :
   1. A source of product ideas.
   2. Provision of proven technologies (technolofy transfer).
4. Use of university/institute facilities and equipment, e.g. :
   a. Prototyping center.
   b. Business incubation.

GENERIC ROLES OF R&D INSTITUTES/UNIVERSITIES IN SUPPORTING TECHNOLOGY DEVELOPMENT (INNOVATION) IN SMEs (2)

5. Intermediary and networking, e.g. :
   a. Facilitating access to information and other productive resources.
   b. Facilitating to business partners and market.
6. Business and knowledge/technology intelligence, e.g. :
   a. Business intelligence services.
   b. Technology assessment.
7. A support to regulatory compliance and competitiveness enhancement, e.g. :
   1. Technology audit.
   2. Provision of MSTQ (measurement, standardization, testing, quality).
8. Capacity building, e.g. :
   a. Upgrading of the company's human resources.
   b. Knowledge sharing.

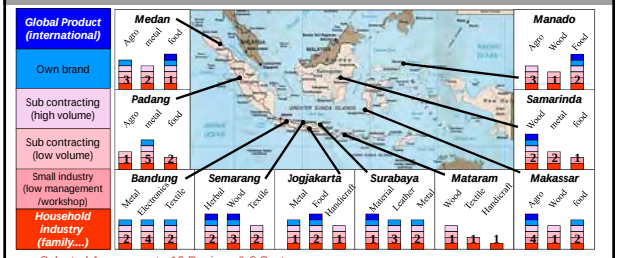
A GENERAL PHENOMENA IN INDONESIA

- Three essential roles of Indonesian universities ("Tri Dharma Perguruan Tinggi"/Three Elements of Indonesian Higher Education) : education, research and community service.
- Public/government R&D institutes :
  - Technology related R&D activities are mostly carried out by departmental/ministerial and non departmental/ministerial R&D organizations at the central government
  - R&D institutes at regional/local governments generally play coordination roles with a more limited scope of activities (services) in the regions.

OUTLINE

2 SOME GENERAL FINDINGS

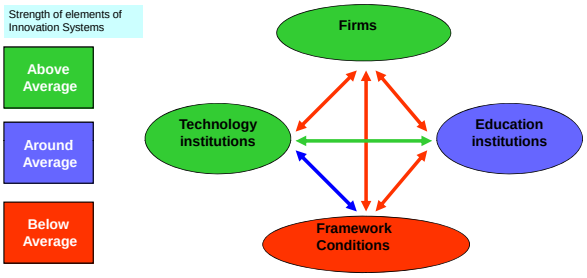
PERISKOP STUDY (2001)



- Selected Assessment : 10 Regions & 8 Sectors
- Most "comprehensive" study so far :
  - Contacted companies/institutions : 451
  - Interviews : 649
  - Workshops : 401
  - Contacted persons : 1,501

Source : PERISKOP Study (2001)

RELATIVE STRENGTH OF ELEMENTS OF REGIONAL INNOVATION SYSTEMS



Source : PERISKOP Study (2001)

TECHNOLOGY SUPPLY SIDE

- Public R&D institutes and some large universities provide technology supports to SMEs, but the activity outreach is generally still limited
- Most common & a relative easily accessed service : capacity building of SMEs (trainings, knowledge/ information sharing)

TECHNOLOGY SUPPLY SIDE

- Among limited roles are :
  1. As a talent pool (especially for new/start-up companies)
  2. Provision business & knowledge/technology intelligence
  3. Supports to regulatory compliance (technology assessment/audit)
  4. Provision of proven technology & technology-based services (with adequate technology readiness levels required, a prompt service response, a clear & satisfying IPR arrangements, an affordable business model)
  5. Effective intermediary, e.g. as innovation centers for technopreneurship development (incubators & business development service providers)

TECHNOLOGY DEMAND SIDE (SMEs)

- Mostly based on natural resource abundance, low knowledge content (low value added/ productivity)
- Limited economies of scale for service providing organizations
- Limited 'formal educational background' & absorptive capacity
- Lack of motivation toward continuous improvement

TECHNOLOGY/INNOVATION RELATED LINKAGES

1. Institutional gaps & cultural gaps (between R&D institutes/universities and SMEs)
2. Policy supports :
   a. Individual – fragmented government policy measures
   b. Limited adequacy of scope of government intervention
   c. "Rigid" government mechanisms/procedures (e.g., government procurement, funding for innovation initiatives)
   d. Institutional support-related issues, e.g., risk financing (lack of risk capital development)

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

OUTLINE

GERBANG INDAH NUSANTARA

3 SUGGESTIONS FOR FUTURE POLICY DIRECTION

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

GENERAL SUGGESTIONS

- Innovation system approach to strengthen SME competitiveness (through national flagship programs)
- Needs more holistic & synergetic policy measures
- Collaborative supports from key stakeholders
- National policy agenda with regional & industrial "flavors" (customization) to support local specific potential strenghts.

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

OUTLINE

GERBANG INDAH NUSANTARA

4 CONCLUDING REMARKS

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

CLOSING

- R&D institutes/universities need to develop more effective roles in supporting SMEs (serving existing SMEs, and initiating new/start-up companies as well)
- Systemic approach to strengthen innovation, technology transfer & diffusion, and learning process (that is innovation system approach) needs to be the national and regional consensus & movement
- More focus on local specific strengths
- Developing effective intermediary and networking role is among the most important agenda to provide significant leverage for Indonesian SME competitiveness.

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

GERBANG INDAH NUSANTARA

Gerakan Membangun Sistem Inovasi, Daya Saing dan Kohesi Sosial di seluruh Wilayah Nusantara
(National movement to develop innovation system, competitiveness, and social cohesion through out the Country)

... in harmony we progress ...

Thank You

Dr. Tatang A. Taufik
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BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

DEVELOPMENT OF MSMEs, THEIR CONSTRAINTS AND MAIN SOURCES OF TECHNOLOGY: THE INDONESIAN STORY

Tulus T.H.Tambunan

Center for Industry, SME and Business Competition Studies, Trisakti University

- **MAIN CHARACTERISTICS**
- **PERFORMANCE**
- **CURRENT CONSTRAINTS**
- **COMPETITIVENESS**
- **MAIN SOURCES OF TECHNOLOGY**

Aspect	MIEs	SEs	MEs
Formality	operate in informal sector, unregistered & pays no taxes	some operate in formal sector, registered & pay taxes	all operate in formal sector, registered & pay taxes
Location	Majority in rural areas/ villages	Many in urban areas/cities	Mostly in urban areas/cities
Organization & management	- run by the owner - no internal labor division -no formal management & accounting system (bookkeeping)	- run by the owner - no labor division (majority), -no formal management and accounting system (bookkeeping)(majority)	-many hire professional managers, -many have labor division, formal organizational structure & formal account-ting system (bookkeeping)

Aspect	MIEs	SEs	MEs
Nature of employment	majority use unpaid family members	some hired wage laborers	-all hired wage laborers -some have formal recruitment system
Nature of production process	- degree of mechanization very low/mostly manual - level of technology very low	some use up-to-date machines	many have high degree of mechanization/access to modern technology
Market orientation	majority sell to local market and for low-income consumers	-many sell to national market and export -many serve also middle to high-income group	-all sell to national market and many also export - all serve middle and high-income consumers

Aspect	MIEs	SEs	MEs
Social & economic profiles of owners	- low or uneducated - from poor households - main motivation: survival	- some have good education, and from non-poor households - many have business/profit motivation	- majority have good education - many are from wealthy families - main motivation: profit
Sources of inputs	- majority use local raw materials and use own money	- some import raw materials -some have access to bank and other formal credit institutions	- many use imported raw materials - majority have access to formal credit sources
External networks	- majority have no access to government programs and no business linkages with LEs	- many have good relations with government and have business linkages (such as subcontracting) with LEs (including MNCs/FDI).	- majority have good access to government programs - many have business linkages with LEs (including MNCs/FDI)
Women entrepreneurs	ratio of female to male as entrepreneurs is high	ratio of female to male as entrepreneurs is high	ratio of female to male as entrepreneurs is low

Total enterprises by size category in all economic sectors in Indonesia, 2000-2009 (000 units)

Size category	2000	2004	2006	2009
MIEs & SEs	39,705	44,684.4	48,822.9	52,723.5
MEs	78.8	93.04	106.7	41.1
LEs	5.7	6.7	7.2	4.7
Total	39,789.7	44,784.1	48,936.8	52,769.3

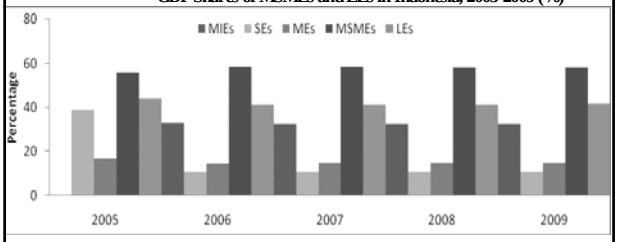
Total Employment by Size Category and Sector in Indonesia, 2008 (workers)

	MIEs	SEs	MEs	LEs	Total
Agriculture	41,749,303	66,780	643,981	229,571	42,689,635
Mining	591,120	28,762	21,581	78,847	720,310
Manufacture	7,853,435	1,145,066	1,464,915	1,898,674	12,362,090
Elect, gas & water supply	51,583	19,917	31,036	54,233	156,769
Construction	576,783	137,555	51,757	31,016	797,111
Trade, hotel & restaurant	22,168,835	1,672,351	472,876	179,895	24,493,957
Transport & communication..	3,496,493	145,336	111,854	98,191	3,851,874
Finance, rent & service	2,063,747	313,921	279,877	156,064	2,813,609
Services	5,096,412	462,683	178,311	49,723	5,787,129
Total	83,647,711	3,992,371	3,256,188	2,776,214	93,672,484

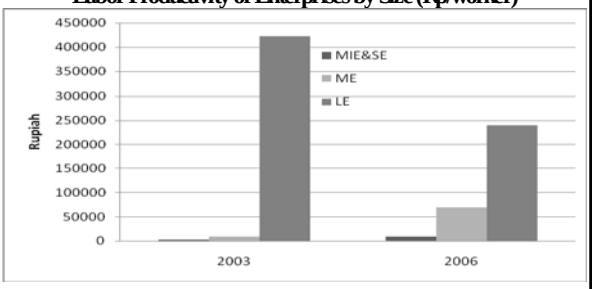
Structure of Enterprises by Size Category and Sector in Indonesia, 2008 (units)*

	MIEs	SEs	MEs	LEs	Total
Agriculture	26,398,113	1,079	1,677	242	26,401,111
	(52.07)	(0.21)	(4.23)	(5.54)	(51.50)
Mining	258,974	2,107	260	80	261,421
	(0.5)	(0.41)	(0.66)	(1.83)	(0.51)
Manufacture	3,176,471	53,458	8,182	1,309	3,239,420
	(6.27)	(10.28)	(20.63)	(29.94)	(6.32)
Elect, gas & water supply	10,756	551	315	125	11,747
	(0.02)	(0.11)	(0.79)	(2.86)	(0.02)
Construction	159,883	12,622	1,854	245	174,604
	(0.32)	(2.43)	(4.68)	(5.60)	(0.34)
Trade, hotel & restaurant	14,387,690	382,084	20,176	1,256	14,791,206
	(28.38)	(73.45)	(50.88)	(28.73)	(28.85)
Transport & communication..	3,186,181	17,420	1,424	319	3,205,344
	(6.29)	(3.35)	(3.59)	(7.30)	(6.25)
Finance, rent & service	970,163	23,375	3,973	599	998,110
	(1.91)	(4.49)	(10.02)	(13.70)	(1.95)
.Services	2,149,428	27,525	1,796	197	2,178,946
	(4.24)	(5.29)	(4.53)	(4.51)	(4.25)
Total	50,697,659	520,221	39,657	4,372	51,261,909
(percentage)	(100.00)	(100.00)	(100.00)	(100.00)	

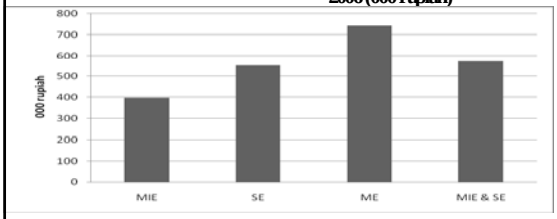
GDP Shares of MSMEs and LEs in Indonesia, 2005-2009 (%)



Labor Productivity of Enterprises by Size (Rp/worker)



Average Income per Worker in MIEs, SEs and MEs 2006 (000 rupiah)



Number of SEs and MIEs in the manufacturing industry by main obstacles,2005

	SEs	MIEs	Total
Have no serious obstacles	46,485	627,650	674,135
Have serious obstacles:	192,097	1,862,468	2,054,565
-Lack or high prices of raw materials	20,362	400,915	421,277
-Marketing difficulties	77,175	552,231	629,406
-Lack of capital	71,001	643,628	714,629
-Transportation / distribution obstacles	5,027	49,918	54,945
-High price or short supply of energy	4,605	50,815	55,420
-High labor cost	2,335	14,315	16,650
-Other main constraints	11,592	150,646	162,238
Total	238,582	2,490,118	2,728,700

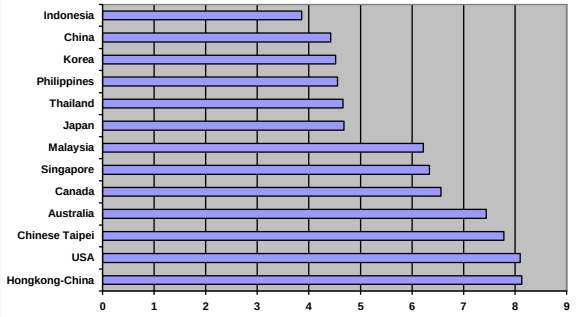
Sources of Capital of MIEs and SEs in the Manufacturing Industry, 2005 (% of total sampled enterprises)

Source of capital	MIEs	SEs
Own Money	82.41	68.85
Borrow	2.86	1.75
Own money and borrow	14.73	29.40
Total	100.00	100.00

Education of the Owners of MSMEs in the Manufacturing Industry, 2006(%)

Level of Education	Scale		
	MIE & SE	ME	MSME
Not completed primary education	12.20	7.97	16.09
Completed primary education	28.87	21.29	31.30
Completed first level secondary education	23.04	19.58	22.10
Completed second level secondary education	30.42	37.54	26.87
Completed Academic level education (DI/II/III)	1.96	3.53	1.44
University diploma	3.51	10.09	2.20
Total	100.00	100.00	100.00

MSME Competitiveness in Selected APEC Economies



MAIN SOURCES OF TECHNOLOGY

-LEs

-Government

-University and R&D institutes

LEs

- Subcontracting activities between MSMEs and LEs are weak
- Japan is the leading players in subcontracting with local MSMEs (automotive; Toyota)
- No evidence showing strong cooperations in other forms in R&D between MSMEs and LEs
- The main constraint facing potential local subcontractors: lack of basic technology/knowhow
- Indonesian government has been trying to promote subcontracting, but still unsatisfied

Main Constraints in Starting and Conducting subcontracting

- Hard to get trust or confidence
- Company must be a legal entity
- Lack of skilled human resource
- Organization must be well developed with clear structure within the company
- Many costs during the tryout
- Lack of information
- Location of potential partner is far away
- Must have minimum technical capability
- Requirements (e.g. ISO 9001) are hard to be met
- Heavy competition from other potential subcontractors
- Difficulties in administrative procedures
- Difficulties in reaching an agreement that secure “win-win Solution

Necessary Steps to become a Subcontractor

- Your company must be known through e.g. aggressive promotion of your products
- You must be able to show your business capability
- First, you must be able to produce efficiently or with cost competitiveness
- You must have minimum required facilities in place, including production space with necessary production tools.
- You must first improve first your human resource, business organization and management and technology capability

Government

- Existing government sponsored programs focus more on financing
- Transfer of technology to or Technology development in MSMEs not clear/not explicitly stated in National policy on MSMEs; neither in National policy on Technology
- Problems of coordination between government technical departments
- Lack of official staffs and uneven distributed by region dealing explicitly with technology development in MSMEs

Number of Institutions and Assistance Programs to Strengthen MSMEs, 1997-2003

Institutions	Number of institutions	Number of assistance programs		
		Total	Still continuing	
			Total	%
Government institutions	13	388	127	32.7
Banking institutions	7	31	25	80.7
Private companies	10	12	12	100.0
Donor agencies	8	46	15	32.6
NGOs	20	109	79	72.5
Others	6	8	8	100.0
Total	64	594	266	44.8

The Proportion of Assistance Programs to Strengthen MIEs and SEs based upon the Type of Activities and the Executing Institutions (%), 1997-2003

	Government institutions	Banking institutions	Private companies	Donor agencies	NGOs	Others	Total
Capital assistance	5.3	52.9	25.0	21.0	29.6	28.6	17.3
Training	21.1	13.7	22.2	19.0	29.0	21.4	22.9
Facilitation	11.3	9.8	19.4	7.6	28.7	0.0	16.1
Information	1.9	7.8	2.8	3.8	1.6	21.4	2.6
Facilities	16.2	2.0	5.6	8.6	1.0	0.0	9.7
Promotion	3.0	3.9	13.9	6.7	1.0	7.1	3.3
Dissemination/introduction of new technology	27.9	0.0	0.0	6.7	1.3	0.0	15.2
Guidelines	4.3	0.0	0.0	0.0	0.7	0.0	2.4
Others	9.0	9.8	11.1	26.7	7.2	21.4	10.5
Total activities	531	51	36	105	307	14	1044

Universities and R&D Institutions

- very few universities engaged actively in supporting technology development in MSMEs
- No coordination among universities
- National policy on MSMEs does not mention specifically about the need of strong coordination in technology development between universities and MSMEs
- cooperation between universities and business community is not an Indonesian culture like in Japan, US, and Korea

R&D Policies for SMEs

2012. 2

SMBA
Republic of Korea

Contents

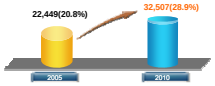
I The need and effect of support for SME's R&D

1. The necessity of support for SMEs' R&D
2. The effect of technological innovation in SMEs

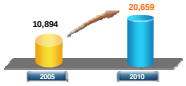
◆ The current status of R&D in Korean SMEs ◆

SMEs performing R&D : 32,507 ('10)
SMEs with affiliated research centers : 20,659 ('10)

<No. of SMEs that perform R&D>

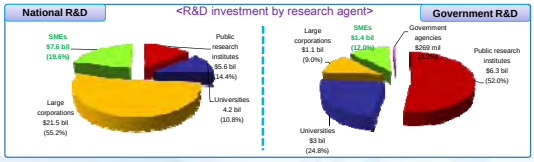


<No. of corporations with research centers>



National R&D investment in SMEs : $7.6 mil (19.6%)
Government's R&D investment in SMEs : $1.4 bil (12.0%)

<R&D investment by research agent>



1. The necessity of support for SMEs' R&D

➢ **SME : Primary agent for technological innovation & Core of the national economy**

- **Agent for technological innovation :** ❶ Progressive, ❷ Flexible, ❸ Fast adaptation to environmental changes
- **Core of economy :** 99.9% of Enterprises, 87.7% of Jobs

➢ **Government's support : Compensating market failure and inducing private investment in R&D**

- **Market failure :** Avoiding the risk of R&D ➡ Shortage of investment in R&D
- **Inducing private investment in R&D** : Increasing productivity and inducing private investment in R&D

2. The effect on technological innovation in SMEs

- ➢ Product innovation is positively related to the rate of increase in the sales and number of employees of a corporation. (Roper, Freel)
- ➢ SMEs increase sales through technological innovation, while large corporations do so by expanding their production scale. (Dr. Zoltan J. Acs)
- ➢ Innovation in manufacturing process, marketing and R&D is positively related to the growth of an SME. (Heunks)
- ➢ The value of patents a corporation holds is positively related to the value of the corporation . (Schencker and Swanson, Hall et al)

<Outcomes of SMBA's support for R&D>

- **(Commercial outcome)** 601 mil Won (KRW) in sales were generated.
- **(Technological outcome)** 0.5 cases of registration and certification of Intellectual property were generated.
- **(Job creation outcome)** 0.216 jobs were created.

Ⅱ The current status of SMBA's support for R&D

1. Outline of support projects
2. Budget
3. Outcomes
4. Problems

1. Outline of support projects

Improving the technological competitiveness of SMEs

Types of projects

- Developmental stages of corporations (Startup - Innovation - Global)
- Types of research performance (Independent – Industry-Academy –Industry-Research)
- Developmental stages of technology (Planning – R&D - Commercialization)
- Areas of technology (Product – Manufacturing process)

Scale of support	Condition of support	Period of development	Royalty
$560 mil in total From $21,000 to $0.7 mil	Government funding Up to 75% of total cost	1~3 years	20% of funding in case of success

2. Budget

SMBA's budget for R&D : ('09) $433 mil→ ('10) $499 mil → ('11) $560 mil

* 2011 government budget for R&D : $13.2 bil (SMBA : 4.2%)

Technology development	Scale	No. of projects
▪ Innovation of technology	2,091	959
▪ Development of startup / growth technology	950	598
▪ R&D in service	100	81
▪ Purchase-conditional development of new product	530	310
▪ Technology development connected to overseas demand	70	23
▪ Technology development with private-public joint investment	200	85
▪ Innovation of R&D planning	50	220
▪ Development of manufacturing-IT convergence technology	15	10
Total (8 subprojects)	4,006	2,286

Industry-academy-research institute cooperation	Scale	No. of projects
▪ Joint development technology	817	1,401
▪ Support for establishing affiliated research centers	380	403
▪ Technology development for application of research equipment	200	114
▪ Support for sharing research equipment	151	123
▪ Development of transferred technology	100	43
▪ Development of technological convergence and combination	234	111
▪ Development of green manufacturing technology	400	172
Total (7 subprojects)	2,282	2,367

3. Outcomes

Strengthening competitiveness of SMEs

Per 100 mil won (KRW) of government funding.

- (Commercial outcome) 601 mil won (KRW) in sales
- (Technological outcome) 0.5 cases of registration and certification of intellectural property
- (Job creation outcome) 0.216 jobs

Expanding base of technological innovation in SMEs

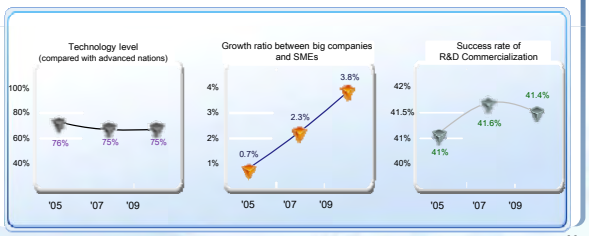
- Supporting 15,000 SMEs for R&D
  -> Increasing SMEs with R&D activities by 9% (from 2006 to 2010)
- Increasing total amount of R&D investments of SMEs by 13.9% (from 2006 to 2010)

Fostering multiple major SMEs with new technology

- R&D funding from SMBA : Stepping stone for KOSDAQ registration

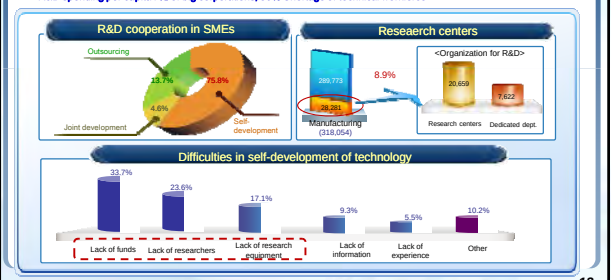
4. Problems

- **Technological level of Korean SMEs :** 75% of the best in the world
- **Weakness in investment efficiency and commercialization capability**
  : Low ratio of &D commercialization
- **SMEs' productivity :** 1/3 of big corporations



Korean SMEs' R&D investment
: Lower than the invesetment of advanced nations

* Scale of R&D : 1/10.5 of the US.S., 1/2.2 of Japan,
* R&D spending per capita : ⅓ of big corporations, 30% Shortage of technical workforce

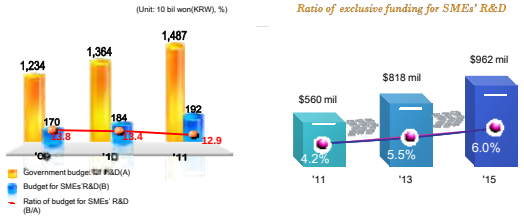


Direction of SMBA's R&D policy

1. R&D expansion
2. Strategic support for R&D
3. Strengthening cooperative R&D
4. Shared prosperity & Protection of SMEs' technology
5. R&D Commercialization
6. Advanced system of R&D management

1. R&D expansion

- Support for SMEs' R&D : Effectiveness of KOSBIR
- Expansion of funding for SMEs' R&D
  : Ratio of funding for SME's R&D (up to 6% by 2015)



2. Strategic support for R&D

Supporting promising projects

- Revising & supplementing the existing roadmap
  -> Presenting core technology appropriate for SMEs
- Finding promising RFPs by roadmap and project-finding committee

Tecnological convergence and combination in SMEs

- Increased 2012 budget for 'Convergent, Combined Technology Development Project
- Approval Program for convergence projects
- 'SME Support Center for Congergence and Combination'
  : (2011) 7 centers → (2012) 11 centers

R&D Support system based on developmental stages

- Differentiated targets and goals of support projects

Technology-based startups	Technology-based startups	Technology-based startups
• Startup technology development project	➡ • Future-leading project • Green manufacturing project	➡ • Global corporations project

Fostering SMEs in promising areas

- Fostering growth of SMEs in 17 promising areas
  • (17 areas) solar energy, wind energy, applied robotics, IT convergence, SW & contents, industrial foundation, etc
- Supporting overseas expansion of green SMEs

Health care program for R&D

- Providing quick evaluation and support based on R&D prescriptions
  - Dividing projects into short-term projects and general
  - Short-term Project : up to 9 months, and up to $44.500 of government funding
  - General Project : up to 1 year, and up to $89,000 of government funding

❖ **Health care program**: a program to promote and maintain sound growth of a corporation by preventing a possible business crisis and solving business problems in general.

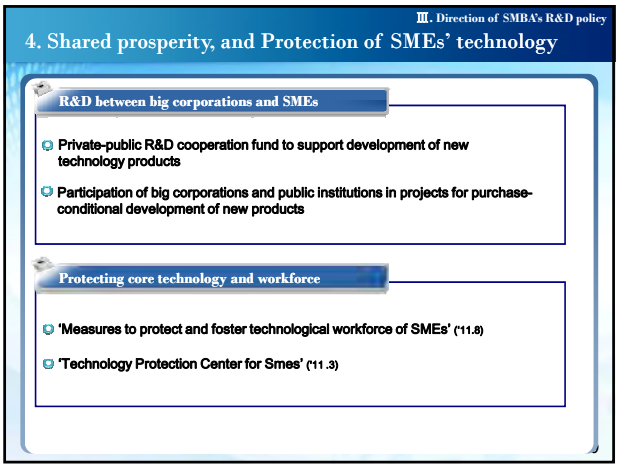
3. Strengthening cooperative R&D

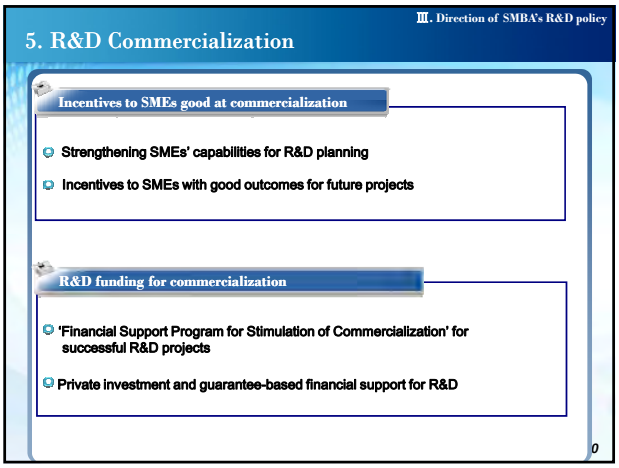
Expanding R&D cooperation

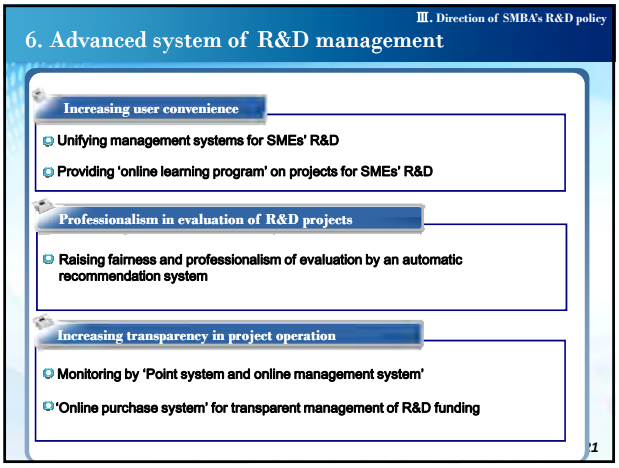
- Industry-research institute cooperation
  : Joint R&D with government-funded research institutions
- Industry-academy cooperation
  : Support for technology development tailored to size and experience

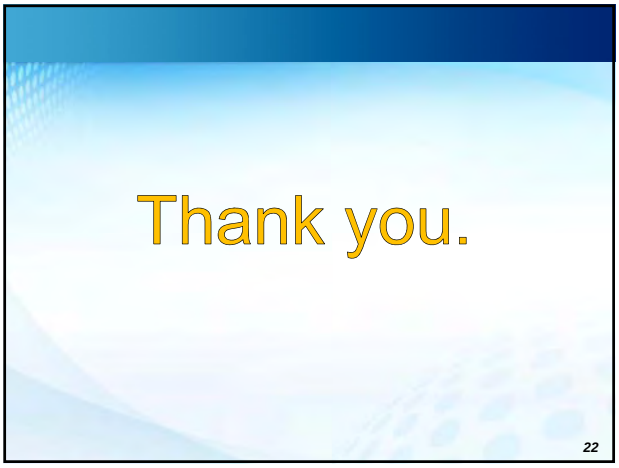
Creating foundation of innovation

- Operating 'Platform for Technological Connection'
- Creation of departments dedicated to SMEs in research institutes
- Establishing 'SME-affiliated Research Center Complex' in universities


Ⅲ. Direction of SMBA's R&D policy
4. Shared prosperity, and Protection of SMEs' technology
R&D between big corporations and SMEs
Private-public R&D cooperation fund to support development of new technology products
Participation of big corporations and public institutions in projects for purchase-conditional development of new products
Protecting core technology and workforce
'Measures to protect and foster technological workforce of SMEs' ('11.8)
'Technology Protection Center for Smes' ('11 .3)


Ⅲ. Direction of SMBA's R&D policy
5. R&D Commercialization
Incentives to SMEs good at commercialization
Strengthening SMEs' capabilities for R&D planning
Incentives to SMEs with good outcomes for future projects
R&D funding for commercialization
'Financial Support Program for Stimulation of Commercialization' for successful R&D projects
Private investment and guarantee-based financial support for R&D


Ⅲ. Direction of SMBA's R&D policy
6. Advanced system of R&D management
Increasing user convenience
Unifying management systems for SMEs' R&D
Providing 'online learning program' on projects for SMEs' R&D
Professionalism in evaluation of R&D projects
Raising fairness and professionalism of evaluation by an automatic recommendation system
Increasing transparency in project operation
Monitoring by 'Point system and online management system'
'Online purchase system' for transparent management of R&D funding


Thank you.
22

DIFFERENT EXPERIENCES IN FORMULATING AND IMPLEMENTING TECHNOLOGY DEVELOPMENT POLICY FOR SMEs

A Limited Overview on Indonesia

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Deputy Chairman of BPPT for Technology Policy Assessment
Agency for the Assessment and Application of Technology (BPPT)

Seminar
SMEs' Access to Technology
APEC Project SME 06/2011A
Jakarta, February 8, 2012

OUTLINE

1. INTRODUCTION
2. FROM TECHNOLOGY POLICY TO INNOVATION POLICY
3. SOME CURRENT INITIATIVES
4. CONCLUDING REMARKS

OUTLINE

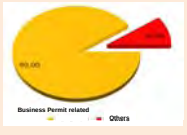
1. INTRODUCTION

INTRODUCTION

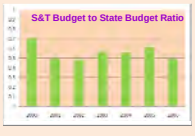
- Competitiveness enhancement is a shared responsibility of the Central government (across the sectoral and non sectoral institutions) and the Regional/Local governments
- Enhancement of business (including SME) competitiveness and technological development and utilization (innovation), and diffusion is a shared responsibility as well
- The achievement is unsatisfactory yet
- Legal instruments are necessary, but not sufficient.

SOME CURRENT CHALLENGES

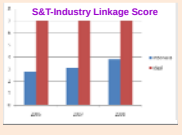
1. Unfavorable Regulations to Business and Innovation



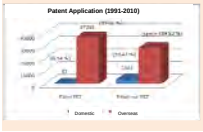
2. Not strong enough Innovation Resources



3. Weak S&T and Industry Interaction



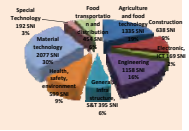
4. Low Innovation Culture



5. Weak Value Chain

No	Country	Scale 1-7		Ranking (out of 142 countries)	
		2010	2011	2011	2011
1	Singapore	5.3	5.3	10	10
2	Malaysia	4.8	4.8	20	23
3	Indonesia	4.4	4.4	26	29
4	Thailand	4.1	4.1	37	36
5	Philipines	3.7	3.6	59	67
6	Vietnam	3.4	3.1	76	101

6. Low Capacity to Global Challenge



OUTLINE

2. FROM TECHNOLOGY POLICY TO INNOVATION POLICY

INNOVATION & INNOVATION SYSTEM : A PERSPECTIVE

1. The views change on innovation :
   - ❑ From "linear-sequential" perspectives (of "technology push" and "demand pull" models) ➡ "market-driven" models : a system perspective/approach of a dynamic and interactive-recursive models.
   - ❑ From 'technical' views ➡ multidimension views (technical, business/economic, socio-cultural, etc.)
2. Among some recent important trends, more attentions have been given on:
   - Interactions and roles of actors (e.g., the *triple helix model*);
   - Local/regional dimensions, where social learning and social capital, and other local specificities play as more and more determining factors (e.g., *regional/local innovation systems* and *industrial clusters*).

INNOVATION SYSTEM : POLICY IMPLICATIONS

- ❑ From '**market failure**' arguments ➡ + **government failures** & **systemic failures**
- ❑ From a **partial-fragmented policy** setting ➡ a more **holistic-innovation policy** framework
- ❑ From a shortsighted & single side policy measure design ➡ a more **longer term & comprehensive policy measure** design
- ❑ From a **top-down** approach ➡ a more **participatory** approach
- ❑ From **individual actions** ➡ **collaborative actions**
- ❑ Among policy implications, a more balanced attention on national and regional contexts/dimensions of the innovation policy has been increasingly acknowledged.

DEFINITIONS

Innovation : a renewal, resulted from social and creative processes, which generate new socio-economic values.

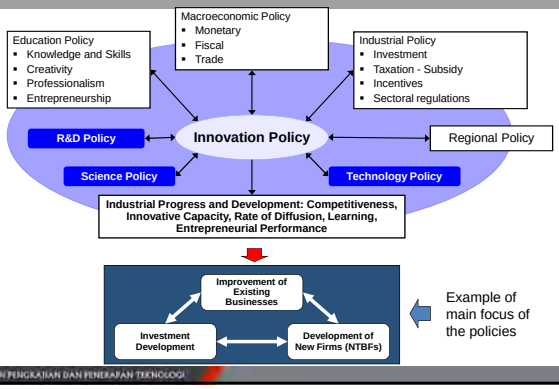
Innovation System : a set (group) of actor (institutions or productive activities) interacting systematically that affect development and pace of innovation, its diffusion (technology and good practices) and the associated learning process *(Taufik, 2008).*

Keywords : INNOVATION , DIFFUSION dan LEARNING PROCESS

•References : Freeman (1987, "institutional network. . ."; Lundvall (1992, interacting and interconnected amongst elements ,.. social system); Nelson dan Rosenberg (1983, group of actors . . .); Metcalf (1995, system that bring different instiutions together . .); OECD (1999, group of institutions . . .)

Innovation Policy : a set of coherent policies that give rise to strengthening of the innovation system.

AN INNOVATION POLICY FRAMEWORK



MARKET FAILURES AND SME INNOVATION

Type of Failure	Nature of Failure	Potential local policy actions
Information failure	Barriers to flow of information on innovation opps. Lead to missing markets & constraints for SMEs in obtaining finance, partners, etc.	Promotion of networks & partnerships. Public support to SME research projects
Public goods	Undersupply of non rival goods & non excludable goods that contribute to SME innovation – e.g. university research	Public policy of basic innovation infrastructure locally
Externalities	Undersupply of activities that benefit others in addition to producers – e.g. training of highly skilled labour; reduced incentives to SME innovation	Direct public support for SME research projects for training of highly skilled labour in local specialisms
Monopolies	Incumbent firms restrict entry through branding & other behaviour, constraining ability of innovative, new & small firms to enter market & compete	"Second best" policies supporting SMEs in order to "level the playing field". Support of new firm entry in local sector specialsims.
Indivisibilities	Indivisible cost in creating knowledge. If marginal cost pricing is used fixed cost is irrecoverable, constraining production of knowledge by SMEs & others	Public funding of public & private research projects with Potential spin offs for SMEs

Source: OECD (2005)

SYSTEM FAILURES & SME INNOVATION (1)

Type of Failure	Nature of Failure	Potential Local policy action
Infrastructure Provision	Underinvestment in local infrastructure with which firms interact – e.g. communications infrastructure	Incentives for private or public communications & knowledge transfer infrastructures
Transition & lock in failures	Firms & localities are highly capable in their own technological areas but in related ones. Unable to switch from existing technologies	Incentives for technological activities that broaden firm & organisational capabilities & nurturing of emerging systems
Institutional failures	Institutional & regulatory context has unexpected negative impact	Monitoring & adjusting local institutions & regulations
Learning failures	Firms may not be able to learn rapidly & effectively	Developing firm capabilities through human capital programmes, support for R&D 7 technology dissemination policies. Opening channels to knowledge sources

Source: OECD (2005), Lundvall & Borras (1997).

SYSTEM FAILURES & SME INNOVATION (2)

Type of Failure	Nature of Failure	Potential Local policy action
Suboptimal balance bet. exploitation & exploration	Local innovation concentrations may work too much on exploitation & not enough on exploration (or vice versa)	Using public procurement & funding to support exploration, introducing diversity in industry by supporting new & small firms; supporting variety through dissemination of codified information
Suboptimal balance bet. selection & variety	Local innovation concentrations may have too rapid selection whereby underperforming firms close, & too little variety, in terms of firms & activities carrying potentially promising technologies	Strengthening competition policies & use industrial & technological policies to support new firms carrying potentially promising technologies (or weaken competition policies & limit use of industrial & technological policies supporting firms that are likely to fail)
Appropriability traps	Too stringent appropriability may limit spread of knowledge within innovation system	Encouraging local knowledge transfers
Complementarities failures	The appropriate complementarities may not be present in local innovation system	Formation of R&D networks; industry university interfaces & bridging systems

Source: OECD (2005), Lundvall & Borras (1997).

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

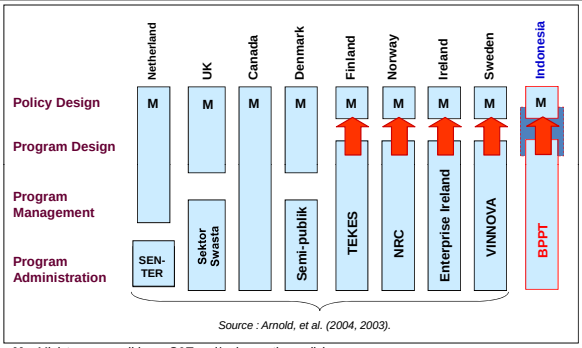
CHALLENGES FOR PARADIGM SHIFTS IN INDONESIA

- Mostly based on natural resource abundance, low knowledge content *vs.* More knowledge-based, innovation, entrepreneurial activities
- Conventional, "business as usual" *vs.* Breaktrough
- Sectoral – partial *vs.* Systemic - holistics
- Individual – fragmented government policy measures *vs.* Integrated – Coherent
- etc…

Need a collaborative framework as a *common platform* to develop/strengthen coherent and synergetic policies and design their implementable actions and measurable targets/achievements.

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

BPPT POSITION : A SIMPLIFIED COMPARISON



Source : Arnold, et al. (2004, 2003).

M = Ministry responsible on S&T and/or innovation policies

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

OUTLINE

GERBANG INDAH NUSANTARA

3 SOME CURRENT INITIATIVES

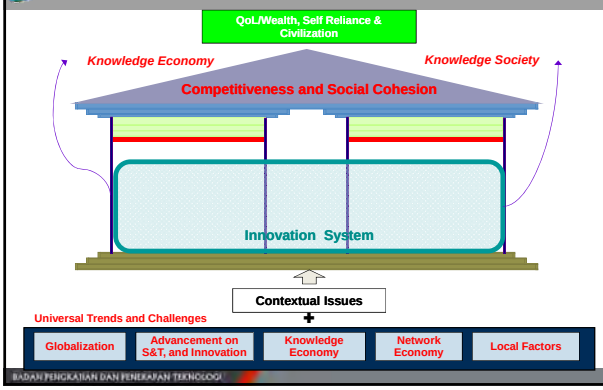
BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

INNOVATION SYSTEM AS NATIONAL COMMITMENT

- PERISKOP study - 2001, BMBF – MRT
- BPPT study since 2004
- Long Term Development Plan 2005 – 2025 (incudes strengthening the National Innovation System/NIS to support knowledge-based economy development)
- National Coordination Meeting on Research and Technology, 2008
- Medium Term Development Plan, 2009-2014
- National Innovation Committee , along with National Economic Committee, 2010
- Master Plan for the Acceleration and Extention of the Indonesian Economic Development (MP3EI), 2011.

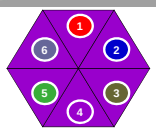
BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

'NEW' PARADIGM : KNOWLEDGE-BASED DEVELOPMENT



BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

COMMON STRATEGIC AGENDA TO STRENGTHEN INNOVATION SYSTEM IN INDONESIA



Innovation Policy Framework : The Hexagon

1. **Develop conducive general framework/conditions for inovation and business.**
2. **Strengthen knowledge institutions and S&T supports, and enhance absorptive capacity of industry (esp. SMEs).**
3. **Develop synergetic collaboration for innovation and its diffusion, and increase knowledge-/technology-based services.**
4. **Foster innovation culture.**
5. **Develop and strengthen integrated efforts of innovation system and industrial cluster development (at the national and regional levels).**
6. **Develop and adapt strategic responses to global changes and challanges.**

National Coordination Meeting on Research and Technology, (2008)

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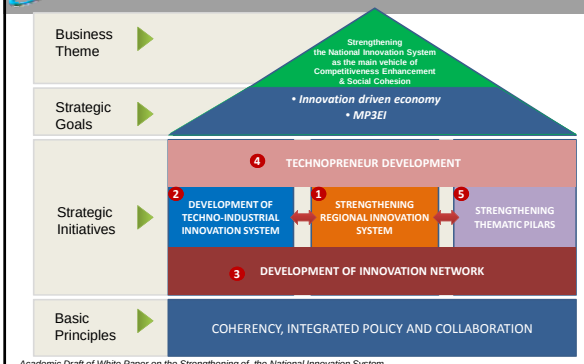
STRATEGIC INITIATIVES



Academic Draft of White Paper on the Strengthening of the National Innovation System

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

THE INNOVATION POLICY FRAMEWORK AND THE STRATEGIC INITIATIVES ON STRENGTHENING THE NATIONAL INNOVATION SYSTEM

Innovation Policy Framework \ Strategic Initiatives	RIS	Industrial Cluster	Innovation Network	Technoprenership	Thematic Pilars
Farmework Conditions	●	●	○	●	●
Institutions, S&T Support, Absorptive Cap.	●	○	●	○	○
Interactions, Techno-based Services	○	●	●	○	○
Innovation Culture	●	○	○	●	○
Integration, Coherence	○	●	○	○	●
Alignment to Global Development	●	●	●	●	●

Academic Draft of White Paper on the Strengthening of the National Innovation System

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

RIS COORDINATION FORUM 2011

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

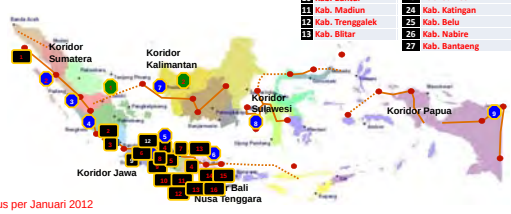
INDONESIA INNOVATION AWARDS 2011

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

SOME REGIONAL INNOVATION SYSTEM PROJECTS (2011)

❖ Percontohan SID Provinsi ❖ Percontohan SID Kawasan Khusus ❖ Percontohan SID Otonom

1 Provinsi Jateng	1 Kabupaten Kep. Anambas	1 Kab. Pelalawan	14 Kab. Gresik		
2 Provinsi Riau	2 Kabupaten Kapuas Hulu	2 Kab. WayKanan	15 Kab. Bangli		
3 Provinsi Jambi		3 Kota Cimahi	16 Kab. Jembrana		
4 Provinsi Sumsel		4 Kota Pekalongan	17 Desa Mlatiharjo–Kab. Demak		
5 Provinsi Jatim		5 Kota Surakarta	18 Kab. Malang		
6 Provinsi Bali		6 Kab. Tegal	19 Kota Tangerang Selatan		
7 Provinsi Kalimantan Barat		7 Kab. Banyumas	20 Kab. Brebes		
8 Provinsi Sulawesi Selatan		8 Kota Semarang	21 Kab. Banyuwangi		
9 Provinsi Papua		9 Kab. Gunungkidul	22 Kab. Ngawi		
		10 Kab. Bantul	23 Kab. Samosir		
		11 Kab. Madiun	24 Kab. Katingan		
		12 Kab. Trenggalek	25 Kab. Belu		
		13 Kab. Blitar	26 Kab. Nabire		
			27 Kab. Bantaeng		



Status per Januari 2012

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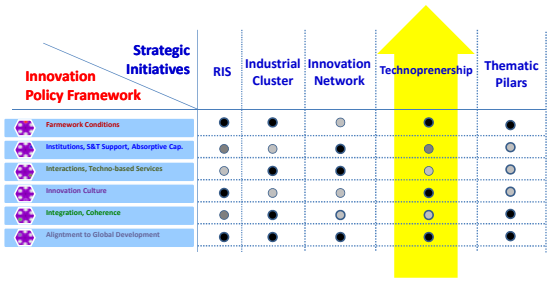
THE INNOVATION POLICY FRAMEWORK AND THE STRATEGIC INITIATIVES ON STRENGTHENING THE NATIONAL INNOVATION SYSTEM



Academic Draft of White Paper on the Strengthening of the National Innovation System

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

GENERAL ISSUES (RELATED TO SMEs)

- The silent majority of business actors (SMEs) ~ Limited 'technological capacity' of existing SMEs
- Low innovative entrepreneurial activities (number of entrepreneurs = 0.26%)
- Limited role of intermediaries (e.g., estimated business incubators = 50; members of Indonesian Business Incubator Association/AIBI = 24)
- Lack of effective government supports (consistency).

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TECHNOLOGY SUPPLY SIDE

- Public R&D institutes and some large universities provide technology supports to SMEs, but the activity outreach is generally still limited
- Most common & a relative easily accessed service : capacity building of SMEs (trainings, knowledge/ information sharing)

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TECHNOLOGY SUPPLY SIDE

- Among limited roles are :
  1. As a talent pool (especially for new/start-up companies)
  2. Provision business & knowledge/technology intelligence
  3. Supports to regulatory compliance (technology assessment/audit)
  4. Provision of proven technology & technology-based services (with adequate technology readiness levels required, a prompt service response, a clear & satisfying IPR arrangements, an affordable business model)
  5. Effective intermediary, e.g. As innovation centers for technopreneurship development (incubators & business development service providers)

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TECHNOLOGY DEMAND SIDE (SMEs)

- Mostly based on natural resource abundance, low knowledge content (low value added/ productivity)
- Limited economies of scale for service providing organizations
- Limited 'formal educational background' & absorptive capacity
- Lack of motivation toward continuous improvement

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TECHNOLOGY/INNOVATION RELATED LINKAGES

1. Institutional gaps & cultural gaps (between R&D institutes/universities and SMEs)
2. Policy supports :
   a. Individual – fragmented government policy measures
   b. Limited adequacy of scope of government intervention
   c. "Rigid" government mechanisms/procedures (e.g., government procurement, funding for innovation initiatives)
   d. Institutional support-related issues, e.g., risk financing (lack of risk capital development)

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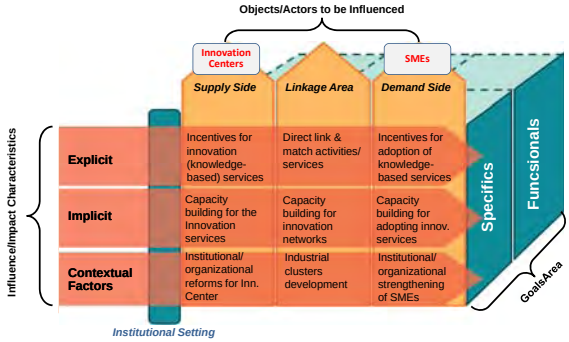
GENERAL SUGGESTIONS

- Innovation system approach to strengthen SME competitiveness (through national flagship programs)
- Needs more holistic & synergetic policy measures
- Collaborative supports from key stakeholders
- National policy agenda with regional & industrial "flavors" (customization) to support local specific potential strenghts.

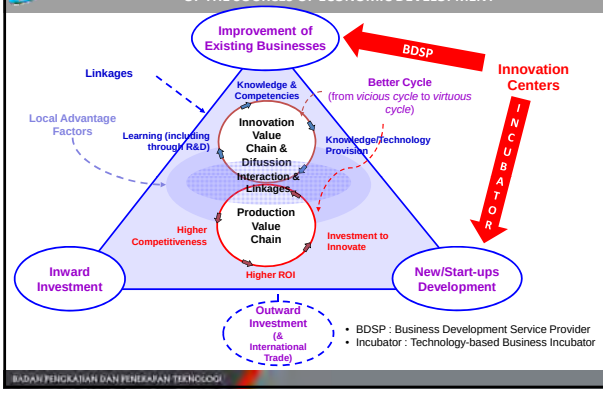
DESIGNING INNOVATION POLICY MEASURES : TECHNOPRENEURSHIP DEVELOPMENT THROUGH INNOVATION CENTERS



TECHNOPRENEURSHIP DEVELOPMENT PROGRAM

- Is an "innovation system approach" flagship program as the main vehicle to foster innovative businesses (especially by providing techno-based supports to existing SMEs and developing new/startup innovative SMEs).
- Components :
  - Policy/technical assistance
  - Organizational/institutional strengthening
  - Innovation & entrepreneurial culture development
  - Financial supports
  - Incentives & Government regulatory reforms
  - Business intelligent services
  - Talent scouting (Technopreneruship camps)
  - Knowledge/technology based services

INNOVATION & MODERNIZATION OF THE SOURCES OF ECONOMIC DEVELOPMENT



"MINIMUM" SERVICES BY AN INNOVATION CENTER

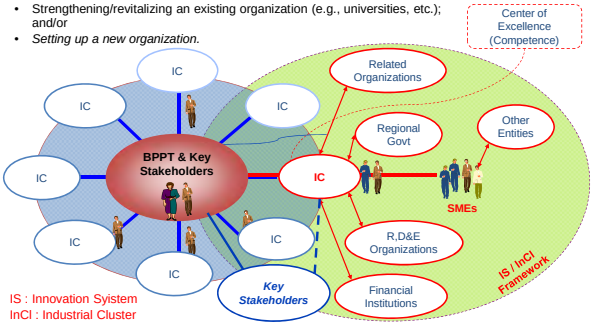
An Innovation Center needs to provide a minimum integrated services, at least in :

1. Technology-based services (e.g., design, prototyping, testing, technology-based business incubation, etc.)
2. Human resource development of businesses (SMEs).
3. Business networking.
4. Facilitating financing (funding) access.

Notes :
1 & 2 : technology/knowledge services as the "core competences" of the Innovation Center
3 & 4 : intermediary roles

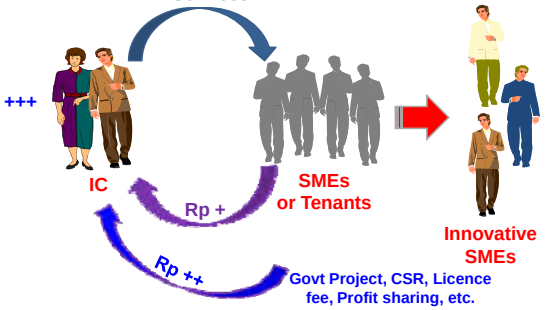
IC DEVELOPMENT IN AN INNOVATION SYSTEM FRAMEWORK

An Innovation Center as a "hub" and an "interface" function by :
- Strengthening/revitalizing an existing organization (e.g., universities, etc.); and/or
- *Setting up a new organization.*



TO START AND DEVELOP *SUSTAINABILITY*

NEEDS TO DEVELOP A "BUSINESS MODEL"



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SOME CURRENT PROGRESS & NEXT INITIATIVES

- 2009 – 2010 : 35 ICs
- 2011 :
  1. Economic/industrial assessments, policy recommendation & policy briefs
  2. 10 related guide books
  3. 6 new regional techno-based business incubators
  4. 1 university techno-based business incubator
- 2012 :
  1. Organizational development (including Indonesian Business Incubator Association)
  2. Continuing regional & university based Innovation Center development
  3. Network of Innovating Indonesia volunteers (including Young Volunteers of Innovating Indonesia).

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OUTLINE

GERBANG INDAH NUSANTARA

4 CONCLUDING REMARKS

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CLOSING

1. Partial approaches are not effective, do not provide significant leverage. Enhancement of innovation for SMEs needs a system approach (i.e., innovation system); and collaborative efforts from all key stakeholders.
2. **Area(s) of collaboration**
   a. An intergovernmental (& interorganizational) co-operation on policy learning on innovation and business/ technopreneurship development.
   b. Specific collaborative pilot projects (e.g., innovation center development).
   c. Capacity building : S&T organization, Human resource development (HR exchange, including for policy makers).
   d. Join knowledge management ~ "cloud" innovation system network.

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CLOSING

3. Develop success stories in 1 – 3 years :
   1. Starts from 'well-defined collaborative activities' critical to the strengthening of innovation system to support SME competitiveness enhancement
   2. Grow as we go
   3. Create excellent achievement
   4. Build community of practice.

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GERBANG INDAH NUSANTARA

Gerakan Membangun Sistem Inovasi, Daya Saing dan Kohesi Sosial di seluruh Wilayah Nusantara
(National movement to develop innovation system, competitiveness, and social cohesion through out the Country)

... in harmony we progress ...

Thank You

Dr. Tatang A. Taufik
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Agency for the Assessment and Application of Technology
Badan Pengkajian dan Penerapan Teknologi (BPPT)
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BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

EXAMPLES OF LEGAL BASES / REGULATIONS

1. **Constitution 1945 – Fourth Amendment: Clause 28c and Clause 31 - Verse 5, and Clause 33 :**
   - **Right to obtain the benefit from S&T and to self advancement**
   - **Government advances S&T.**
   - **National Economy and social welfare (regulated by Laws).**
2. **Act No. 18/2002 :**
   - Goals of S&T National System Development : **to strengthen S&T capacity to accelerate the realization of state's ultimate goals; to enhance competitiveness; to enhance self reliance**
   - **Chapter IV Clauses 18 – 23 : Functions and Roles of Central and Regional Governments**
3. **Act No. 25/2004 on The National Development Planning System**
   - **The Regional Long Term Development Planning (RPJPD) should refer to the National Long Term Development Planning (RPJPN)**

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EXAMPLES OF LEGAL BASES / REGULATIONS

4. **Act No. 17/2007 :**
   - **IV DIRECTION, STAGES, AND PRIORITY OF LONG TERM DEVELOPMENT 2005 - 2025 (IV.1 LONG TERM DEVELOPMENT DIRECTION 2005 – 2025 : IV.1.2 TO ACCOMPLISH AS A COMPETITIVE NATION, Point C Mastering, Developing, and Utilizing S&T) : innovation system strengthening to drive knowledge based economic development.**
5. **Act No. 32/2004 :**
   - Goal of regional autonomy is **to enhance public welfare, public services, and regional competitiveness** (Clause 2, Verse 3); and
   - Regional Executive and Vice Executive have obligation to: advance and develop regional competitiveness (Clause 27, Verse 1, point g).

   See also : Government's Regulation No. 6/2008 on The Guidelines for Evaluating Regional Government Performance

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THE ANATOMY OF GOVERNMENTAL AFFAIRS Based on Act No. 32 Year 2004

GOVERNMENTAL AFFAIRS

ABSOLUTE (CENTRAL GOVERNMENT ONLY)

1. FOREIGN POLICY
2. DEFENSE
3. SECURITY
4. JUSTICE
5. MONETARY AND NATIONAL FISCAL
6. RELIGION

CONCURRENT (CENTRAL, PROVINCIAL, AND CITY GOVERNMENTS)

OPTIONAL (PRIORITY SECTOR)

Example :
- Agriculture
- Industry
- Trade
- Tourism
- Marines, etc

OBLIGATORY (BASIC SERVICES)

Example :
- Health
- Education
- Environment
- Public works
- Transportation, . . .
- Other obligatory affairs mandated by laws and regulation.

Act No. 18/2002

BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI

EXAMPLES OF LEGAL BASES / REGULATIONS

6. **President's Instruction No. 6/2007 on Riil Sector Acceleration and SME Empowerment** (Increasing SME's access to funding sources; Development of Entrepreneur and Human Resources; Enhancing market niche for SME's products; Regulatory reform)
7. **Decree Letter of the Coordinating Minister on Ecocomy No : Kep-47/M.Ekon/07/ 2008 on The Innovation Center for SME (PI-UMKM), dated July 31, 2008**
8. **President's Regulation No. 5/2010 on The National Medium Term Development Plan (RPJMN) 2010 - 2014 :**
   - Period of enhancing the human resource quality including the development of S&T skills as well as economic competitiveness strengthening.
   - Book I : National priorities (11) ~ culture, creativity, and technological innovation.
   - Book II Chapter IV : National innovation system strengthening.
9. **Joint Agreement of 3 Ministries on March 20120 (on the Technology and Business Incubator Development National Action to Generate Innovative Entrepreneur)**
10. **President's Regulation No. 32/2011 on MP3EI**
11. **Etc. . . . . .**

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INTERNAL LEGAL BASES IN BPPT ~ Transitional

1. **Decree of the Chairman of BPPT No. 064/2011 on Special Assignment to the Deputy of Technology Policy Assessment (PKT) to Implement the National and Regional Innovation Systems Programs and Activities :**
   - To support the implementation of national development program in accordance with the national development direction stated in the National Long Term Development Plan (RPJPN) 2005 – 2025 and the National Medium Term Development Plan (RPJPMN) 2010 – 2014.
2. **Decree of the Deputy Chairman of BPPT for Technology Policy Assessment, No. 04/2011 on Special Assignment to all Echelons under the Deputy of Technology Policy Assessment to Implement the National and Regional Innovation Systems Programs and Activities :**
   - **Techno-industry Innovation System Development**
   - **Innovation Network Development**
   - **Regional Innovation System Strengthening**
   - **Technology Audit**
   - **Technopreneurship Development,** including technology-based business incubator.

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National Budget 2011

Presidential Remarks, 16 August 2010

•BUDGET

•Rp.1,086.4 Trillion (120.67 Bio US $ at 9000/USD)

•Loan interests, domestic Rp.80.4, foreign Rp.36 T (10.7%)

•Central government Rp.401.4 Trillion (37%)

•Regional government total Rp.409.4 trillions (37.7%)
- Disbursed to **524** autonomous regions; **33** provinces, **398** Districts, **93** Municipalities.
- Rp. 378.4 Trillion
- Special autonomy regions- Papua and Aceh- Rp. 10.3 T
- Shared revenue to regions- tax, natural resources, Rp. 82 T
- Adjustment for school grant/BOS and civil servant Rp. 39 T

•10 STRATEGIC OBJECTIVES

1. Higher economic growth
2. Fewer unemployment and better job
3. Reduced poverty
4. Increased income/capita
5. Maintained economic stability
6. More significant domestic financing
7. Improved food and water security
8. Improved energy security
9. Higher economic competitiveness
10. Greener development

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CURRENT GOVERNMENT DEVELOPMENT POLICY (2010-2014)

11 National priorities

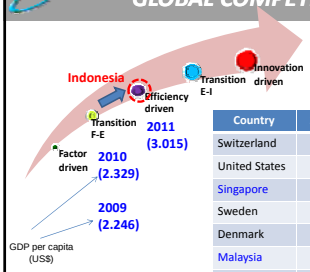
1. Bureaucracy Reform and Governance
2. Education
3. Health
4. Poverty reduction
5. Food security
6. Infrastructure
7. Investment and business climate
8. Energy
9. Environment and disaster management
10. Marginal areas, outer islands/regions, post-conflict ridden areas

11. Culture, creativity and technology innovation

15 President's specific priorities

1. Eradication of court law's "mafia"
2. Revitalization of defense industry
3. Terrorism prevention
4. Nation-wide electricity availability
5. Increased food production and strengthened food security
6. Revitalization of fertilizer and sugar factories
7. Regulatory improvement in land-use and regional planning
8. Infrastructure development
9. Financial/credit support for SMEs amounted to ~US$ 200 Mio/year
10. Financing and investment scheme
11. Reformulation of Indonesia's contribution to climate change and environmental challenges
12. Public health reform
13. Harmonization between education and employment
14. Disaster mitigation and management
15. Central and provincial/district governments synergy.

GLOBAL COMPETITIVENESS INDEX - WEF



Country	2009	Country	2010	Country	2011
Switzerland	1	Switzerland	1	Switzerland	1
United States	2	Sweden	2	Singapore	2
Singapore	3	Singapore	3	Sweden	3
Sweden	4	United States	4	Finland	4
Denmark	5	Germany	5	United States	5
Malaysia	24	Malaysia	26	Malaysia	21
Brunei	32	Brunei	28	Brunei	28
Thailand	36	Thailand	38	Thailand	39
Indonesia	54	Indonesia	44	Indonesia	46
Burundi	133	Chad	139	Chad	142

Source: WEF, 2011

INDONESIA'S COMPETITIVENESS PROFILE IN 2010 AND 2011 (WEF)

2010

- 44 • National Competitiveness
- 36 • Innovation
- 30 • Capacity for Innovation

2011

- 46 • National Competitiveness
- 36 • Innovation
- 30 • Capacity for Innovation

Source: WEF, 2011

INDONESIA'S GCI (2011 VS 2010)

Source: WEF, 2011

TECHNOLOGICAL READINESS & INNOVATION INDEXES (2011)

9th pillar: Technological readiness

9.01	Availability of latest technologies	4.9	74
9.02	Firm-level technology absorption	5.0	54
9.03	FDI and technology transfer	4.7	64
9.04	Internet users/100 pop.*	9.1	117
9.05	Broadband Internet subscriptions/100 pop.*	0.8	103
9.06	Internet bandwidth, kb/s/capita*	0.3	108

12th pillar: Innovation

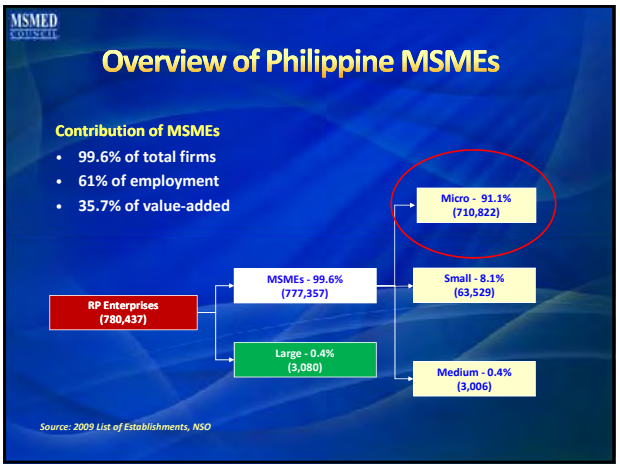
12.01	Capacity for innovation	3.8	30
12.02	Quality of scientific research institutions	3.9	55
12.03	Company spending on R&D	3.7	31
12.04	University-industry collaboration in R&D	4.1	41
12.05	Gov't procurement of advanced tech products	4.1	34
12.06	Availability of scientists and engineers	4.4	45
12.07	Utility patents granted/million pop.*	0.0	86

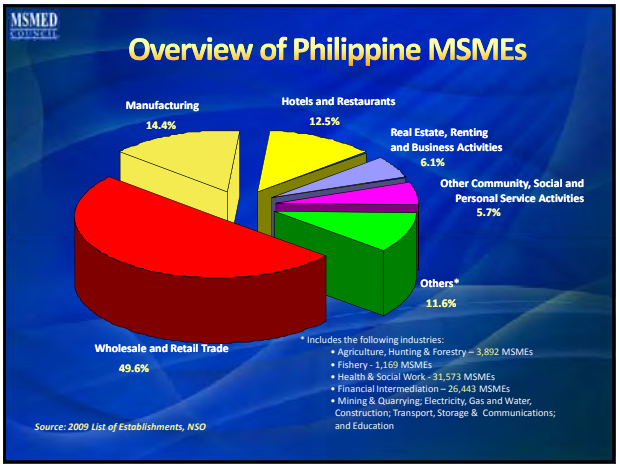
Source: WEF, 2011

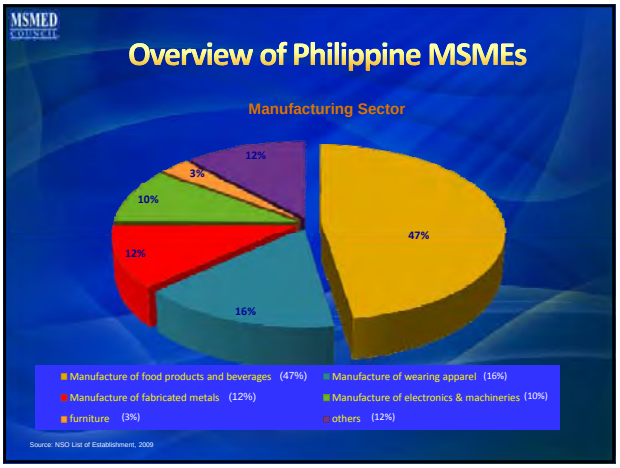
APEC Workshop on
SMEs' Access to Technology
Jakarta, Indonesia, 7-9 February 2012

Annex C

Annex C. Presentations from Workshop Participants







Challenges

Productivity and Efficiency (P&E)

1. The unsteady supply and high cost of water and electricity reduce the productivity of SMEs
2. SMEs lack information and education on productivity
3. The level of productivity of SMEs is reduced by their poor working conditions arising from non-compliance with labor laws
4. The production systems of SMEs are not environment-friendly
5. SMEs lack the knowledge and capacity to comply with international quality standards
6. SMEs suffer from piracy of highly skilled workers

Challenges

Productivity and Efficiency (P&E)

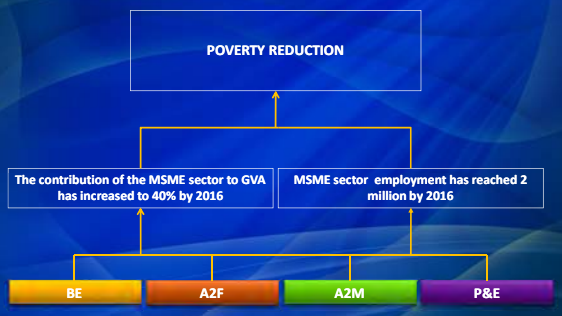
7. Vocational and technical schools do not offer learning programs that are responsive to MSME needs
8. ICT use among SMEs is not pervasive
9. SMEs are not investing in productivity-enhancing technologies
10. The services of government-subsidized technology/packaging centers are expensive
11. SMEs are unable to access productivity programs due to their high cost

MSME Development Plan 2011-2016

The Plan is meant to:

- Create a business environment that will center around a culture of governance that will foster the establishment, development, sustainability, and competitiveness of SMEs
- Improve the availability of reasonably priced financial products, services and support programs that SMEs can conveniently access

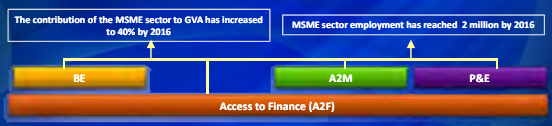
MSMED Plan 2011-2016 Results Framework



BE Results Statements

1. The cost of doing business (taxes, fees, etc.) is affordable to MSMEs.
2. The institutional support structures for the development of start-up and existing MSMEs are in place.
3. The policies necessary to develop the MSME sector are crafted and being fully implemented.
4. Support for MSME development is results based, coordinated, harmonized and sustained by capable stakeholders.
5. An entrepreneurial mindset is pervasive among MSMEs and other MSME stakeholders.
6. Soft and hard infrastructures for MSME development are established.
7. The information needs of MSMEs are available and accessible.
8. MSMEs are gender responsive and environment-friendly.

A2F Results Statements

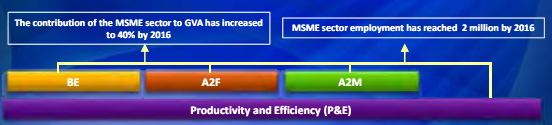


1. The financial products, services and support programs that MSMEs need are sustainably available even to start-up MSMEs and MSMEs operating in the countryside.
2. The cost of obtaining MSME loans is reasonable and affordable.
3. The requirements that MSMEs need to comply with to obtain loans are reasonable and manageable.
4. The process that MSMEs need to follow and documents that must be submitted to obtain loans is simplified and streamlined.
5. MSMEs are trained in financial management and are able to understand and speak the language of financial institutions, while financial institutions are trained to understand and speak the language of MSMEs.
6. Financial products and services for MSME lending are gender-responsive and environment friendly.
7. The information needed by MSMEs to access financial resources are available and easily accessible.
8. The assistance extended by stakeholders to MSMEs in accessing funds are coordinated, relevant and effective.

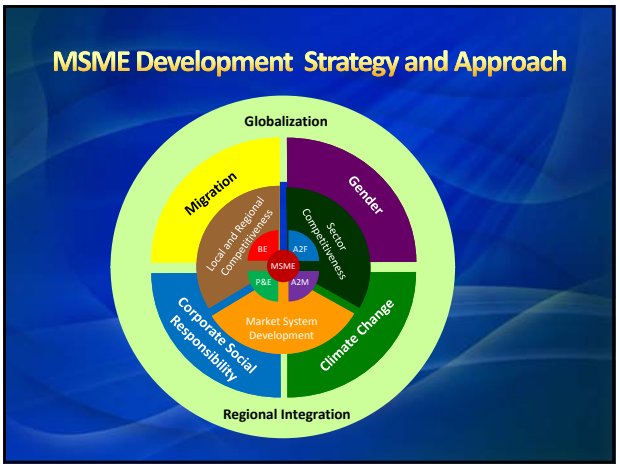
A2M Results Statements

1. MSMEs have maintained their existing markets and penetrated new and emerging markets locally and globally.
2. MSMEs are competitive locally and globally.
3. Marketing support systems are established and are operating on a sustainable basis.
4. MSMEs are implementing the value chain approach and are highly benefited by it.
5. MSMEs are using information technology and intellectual property system to develop a sustainable market share and gain competitive advantage for their products and services.
6. Market information needed by MSMEs is available and freely accessible.
7. MSMEs have considerable share in the sustainable development market locally and globally.
8. Government support programs (e.g. One Town, One Product (OTOP) Program) to help MSMEs access local and global markets are coordinated and highly satisfactory.

P&E Results Statements



1. Government programs and policies on productivity enhancement are coordinated, effective and highly satisfactory.
2. The MSME workforce is highly motivated and is equipped with the appropriate skills and attitude needed by MSMEs.
3. The working environment of MSMEs fosters greater productivity and efficiency among the workforce.
4. MSMEs are using gender-responsive and environment friendly technologies.
5. MSMEs are compliant with international quality standards.
6. MSMEs are using state of the art productivity enhancing technologies.
7. Information on productivity enhancement is available and freely accessible to MSMEs.


MSME Development Strategy and Approach
Globalization
Migration
Gender
Local and Regional Competitiveness
Sector Competitiveness
BE
A2F
MSME
P&E
A2M
Market System Development
Corporate Social Responsibility
Climate Change
Regional Integration


Global Themes
Corporate Social Responsibility
MSMEs can supply raw materials and services to large enterprises
MSMEs can be the beneficiaries of CSR activities such as capacity building or technology transfer programs
MSME operational "code of ethics"


Global Themes
Globalization
Regional Integration
Globalization
promotes the participation of SMEs in global production networks through outsourcing and subcontracting activities
maximizes opportunities for SMEs in a more open and highly competitive market


MSMED
COUNCIL
Thank you.
BUREAU OF MICRO, SMALL AND MEDIUM ENTERPRISE DEVELOPMENT
5/F, Trade and Industry Building, 361 Sen. Gil J. Puyat Avenue, 1200 Makati City, Philippines
Trunkline (632) 7510.384 • Fax (632) 896-7916 • E-mail: bmsmed@dti.gov.ph
www.dti.gov.ph

PERU

SMES ACCESS TO TECHNOLOGY

GOALS FOR SMEs ACCESS TO TECHNOLOGY

- ECONOMY LEVEL:
- Inclusive growth
- Strenghten involvement of SMEs in technology development
- Develop a scheme whereby universities produce new technology /patent rights
- Increase substantially cooperation between different size of companies in R&D.

(continued)

- Setting up of a strong and efficient alliance among governemnt, private sector (SMEs) and universites for technology creation.
- Devise a mechanism to finance access to technology (financing vs. Access to technology)
- REGIONAL LEVEL
- Take advantage of existing Free Trade Agreements to foster technology development in SMEs

(continued)

- APEC LEVEL
- Eliminate nine chokepoints, as defined by the Joint Ministerial Satement of SME & Trade Ministers (Big Sky Montana, USA, 2011). One of them is access to technology, and the main one access to financing.

Department of Commerce & Industry
Papua New Guinea

SME Workshop on Access to Technology

Jakarta – Indonesia 6th –7th February, 2012

Prepared by:
1. Mr. Bede Tomokita – First Assistant Secretary Industry Division
2. Mr. Buckley Tine – Research Analyst Policy, Planning & Information Division

Presentation Outline:

- Overview of PNG Economy
- Main Economic Growth Policy & Framework
- *Sect oral Policies Supporting SME Growth and Expansion;*
- Regional Centre for Technology and Innovation (RCTI)
- Summary
- END

Over View of PNG Economy

- PNG is an agro-based economy and agriculture plays a dominant role. PNG produce and export coffee, cocoa, copra, palm kernels, tea, sugar, rubber and vanilla.
- However, recently Mining & LNG has overtaken agriculture. Becoming the dominant player in the economic growth.
- **Major Exports** include minerals e.g. Gold, copper, silver, nickel and crude oil (LNG), petroleum and agriculture products e.g. Timber, coffee, palm oil, cocoa, and copra.

Cont'

- **Major Imports** includes chemicals, machineries, motor vehicles, electronic and other manufactured goods.

Tea Plantations in the Highland of PNG

The Open cut Panguna Copper Mines in the Autonomous Region of Bouganville .

Main Economic Growth Policies and Framework

VISION 2050- is the overarching roadmap for the prosperity of the country and aspiration of the people of Papua New Guinea for the next thirty years.

WEALTH CREATION PILLAR No. 2

- SME Sector
  - To be the driver in V2050 Wealth Creation under the

National Policies Supporting SME Growth and Expansion;

- Vision 2050 – Wealth Creation
- PNG Development Strategy Plan (DSP) 2010-2030 – Promoting & Supporting SME Sector
- Midium Term Development Plan (MTDP) 2011-2015

Sect oral Policy Supporting SME Growth and Expansion;

- Small And Medium Enterprises Policy (1998)

SME Constrains in PNG

- **Small And Medium Enterprises (SME) Policy (1998) Identified Constraints experienced by the SME Sector**
  - **Lack of access to Technology**
  - Lack of Skilled Human Resources
  - Lack of access to Markets
  - Lack of access to Business information
  - Lack of access to Business Finance
  - Lack of access to Business infrastructure

Regional Centre for Technology & Innovation (RCTI)

- The Appropriate Technology Development Program is a project developed to address the constraints on lack of technologies for the SME Sector as identified in the SME Policy (1998).
- The project is a ten (10) year sectoral plan approved by the National Executive Council to be funded under PIP but it is a major activity of the Small & Medium Industries (SMI) Section, of the Industry Division.

NEC APPROVAL

- NEC DECISION No. 221/2005, Meeting No. 47/2005 dated 3rd October 2005
- Directed Department of National Planning and Monitoring to fund the program under Development Budget (PIP)
- Directed all stakeholders to work with DCI in implementing the program.
- Endorsed donor funding assistance to the program
- Directed that the Regional Centre for Technology and Innovation be established to coordinate all activities of the program.

VISION STATEMENT

"Our vision is to promote downstream processing of locally available natural resources into value added products using appropriate technology."

Objective

- The Industry Division under the Department in rendering its support to the project hope to see the project meet its main objective

Activity

- The main activity of the ID is to monitor the progress of the project (RCTI), guide, promote, and facilitate for other necessary support financially and politically with the aim to see the project a success story.

Resource

- The Industry Division under the Department of Commerce & Industry plays a coordinating role in this project which an officer is required to work closely with the project to provide the necessary support as and when required. In doing so the officer will require K2,000.00 to undertake tasks involved.

Justification

This is a government supported and funded project

FUNDING SOURCES

- NATIONAL GOVERNMENT (PIP)
- PROVINCIAL GOVERNMENTS (Counterpart funding)
- DONOR AGENCIES
- PROJECT SELF FINANCING

Outcome

- To eventually see the expansion of the project which has government support and funding.

Benefit

- The rural population will benefit greatly as they utilize their natural resources, using technologies proven to be appropriate for PNG. The Country will benefit in exports and savings from import substitutions. There will be training of national in manufacture and maintenance of machines. Etc….

IMPLEMENTATION STRATEGIES

1. ESTABLISH COORDINATION CENTRE.
   THE REGIONAL CENTER FOR TECHNOLOGY & INNOVATION (RCTI)
2. NETWORK WITH MAJOR STAKEHOLDERS
3. PROFILE NATURAL RESOURCES
4. PROFILE APPROPRIATE TECHNOLOGIES
5. DESIGN/MODIFY & MANUFACTURE TECHNOLOGIES
6. PILOT TECHNOLOGIES
7. CARRY OUT EXTENSION SERVICES
   - Technical Training & Commercialization
8. CONDUCT PROJECT MONITORING AND EVALUATION

SECTORS TO BE TARGETED

1. AGRICULTURE & LIVESTOCK
2. COASTAL FISHERIES
3. SMALL SCALE FORESTRY
4. LOW-COST HOUSING
5. RENEWABLE ENERGY
6. RURAL TRANSPORTATION

PROGRESS TO-DATE

ESTABLISHMENT OF COORDINATION CENTRE (RCTI)

- SUCCESSFULLY SOUGHT NEC APPROVAL FOR IMPLEMENTATION OF PROGRAM.
- SUCCESSFULLY SOUGHT GOVERNMENT FUNDING UNDER DEVELOPMENT BUDGET. (2007 – 2011)
- LAUNCHED STRATEGIC PLAN IN JANUARY 2008.
- PREPARED DPM SUBMISSION SEEKING APPROVAL OF RCTI ORGANISATION STRUCTURE.

Con't...

NETWORKING WITH MAJOR STAKEHOLDERS

HELD CONSULTATIONS WITH:-

- 1 NATIONAL GOVERNMENT DEPARTMENTS & STATUTORY AUTHORITIES;
- PROVINCIAL GOVERNMENTS/ADMINISTRATIONS;
- 3 RESEARCH AGENCIES;
- 4 FUNDING AGENCIES;
- 5.INTERNATIONAL TECHNOLOGY TRANSFER ORGANIZATIONS;
- 6. PRIVATE/SME & INFORMAL SECTOR REPRESENTATIVES;

Con't..

7. SIGNED MOU WITH UNITECH IN 2004.
8. VISITED PROVINCES IN MOMASE AND NEW GUINEA ISLANDS REGIONS, AND ORO AND MILNE BAY PROVINCES IN THE SOUTHERN REGION, TO SEEK VIEWS AND SUPPORT OF THOSE PROVINCIAL ADMINISTRATIONS.
9. IDENTIFIED NATURAL RSOURCES, SKILLED HUMAN RESOURCES, ENGINEERING AND TRAINING FACILITIES.
10. CURRENTLY WORKING ON MOU'S WITH EDUCATION DEPARTMENT ON CURRICULIM DEVELOPMENT, AND SBDC/SIC ON ENGINEERING FACILITIES.
11. MADE INITIAL PAYMENT OF K100,000 TO UNITECH FOR DESIGNING, MANUFACTURE AND TESTING OF IDENTIFIED APPROPRIATE TECHNOLOGIES

RESEARCH AND DEVELOPMENT WORK (DESIGN/MODIFY & MANUFACTURE TECHNOLOGIES)

RCTI HAS IDENTIFIED (8) PRIORITY INDUSTRIES WITH ABUNDANT NATURAL RESOURCES FOR IMMEDIATE TECHNOLOGY DEVELOPMENT: UNITECH HAS COMMENCED WORK ON IMMEDIATE DEVELOPMENT OF ELEVEN (11) APPROPRIATE TECHNOLOGIES FOR TESTING AND SUBSEQUENT INTRODUCTION TO RESOURCE OWNERS.

1. RICE PRODUCTION
   - 1.1 RICE DRYER
   - 1.2 MANUAL RICE HULLER/MILL (AVAILABLE)
   - 1.3 MANUAL RICE THRESHER
2. COCONUT OIL PRODUCTION
   - 2.1 ELECTRIC COCONUT SCRAPER (AVAILABLE)
   - 2.2 COCONUT OIL EXPELLER
   - 2.3 COCONUT OIL FILTRATION PROCESS
3. CEMENT & CLAY BRICKS PRODUCTION
   - 3.1 CEMENT BRICK MOULD (AVAILABLE)
   - 3.2 CLAY BRICK MOULD (AVAILABLE)
4. PEANUT BUTTER PRODUCTION
   - 4.1 PEANUT BUTTER MAKING MACHINE (AVAILABLE)
   - 4.2 PEANUT SHELLER
   - 4.3 PEANUT ROASTER (AVAILABLE)

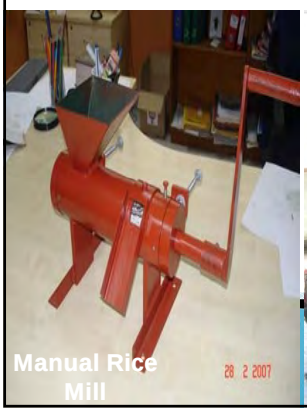
Con't....

5. FRUIT JUICE PROCESSING
6. ROOT CROPS PROCESSING
7. RENEWABLE ENERGY (MINI MICRO HYDROS)
8. RURAL TRANSPORTATION

SOME EXAMPLES OF APPROPRIATE TECHNOLOGIES BEING DEVELOPED BY RCTI AND UNITECH,

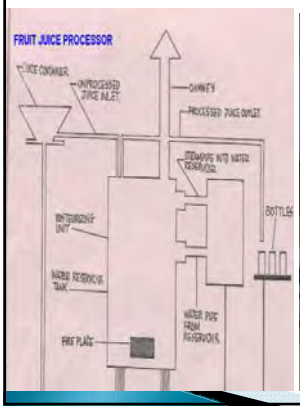
INCLUDING; ……..

AGRICULTURE & LIVESTOCK SECTOR



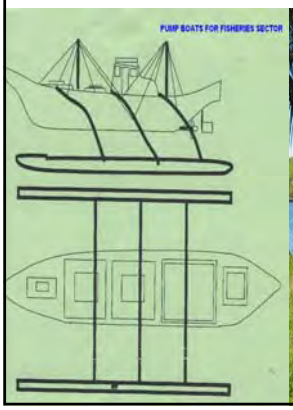
Agriculture Sector. Con't…

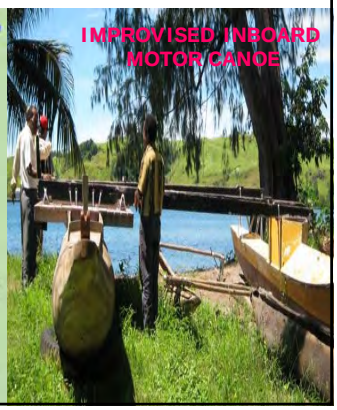
Agriculture Sector, Con't....



Root Crops Grater

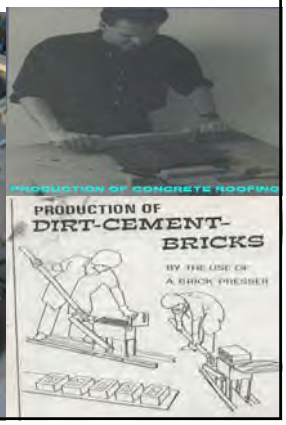
COASTAL FISHERIES SECTOR





LOW-COST HOUSING/CONSTRUCTION SECTOR

Cement Brick Moulds



THANK YOU

EM TASOL (MEANS "THE END" IN PIGIN PNG'S COMMON SPOKEN LANGUAGE)

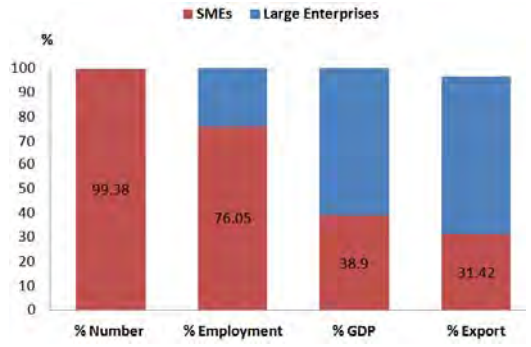
The definition of manufacturing SMEs in Thailand

	No. of employment	Amount of fixed asset
Small and Medium enterprise	less than 200	≤ THB 200 million (~ USD 6.1 million)

Source: The Office of Small and Medium Enterprise Promotion (OSMEP), Thailand

1

Structure of SMEs in Thailand



Note: The rest of percentage is generated by an informal sector or micro business enterprises
Source: 2010 Thailand SMEs Profile, National Science Technology and Innovation Policy Office, Thailand

2

Status of SMEs in Thailand

- The SME sector contributes
  - ✓ 99.38% of total enterprises in Thailand
  - ✓ 76.05% of total employment
  - ✓ only 38.9% of GDP and 31.42% of export
- High risk and economic instability if large enterprises move production base to other countries
- High proportion of SMEs generates income to majority of population
- SMEs is important to Thai economy and competitiveness of the country
- To reduce risk, Thailand needs to strengthen the SME sector in order to improve economic stability and competitiveness

3

SME's Needs related to Technology Perspective

Solve Day-to-day Problem : Inconsistency of quality, low productivity, low efficiency, shortage of raw material and packaging
Reduce production cost, energy consumption
Repair, Rework, Reuse, Recycle
Add value of existing products
Certify standards and regulations
Develop new products, new processes etc.

Technology

Options

1.Buy it
2.Subcontact out
3.Collaboration with alliances
4.Create it by yourself

Obstacle of SMEs

1.Don't know what to do
2.Don't know how to do
3.Don't have staff to do
4.Don't have anyone to help
5.Don't have money to do

4

Problems and difficulties of SMEs to upgrade their technological capability

Internal constraints

- Lack of finance and access to capital fund because they are small
- Lack of accessibility to information of new technology, knowledge and market insight
- Weak links with knowledge providers e.g. university and research institute, thereby inhibiting knowledge and technology transfer
- Limited resources and low internal capability to perform effective R&D or to spot opportunity for technological development and innovation
  - ✓ Lack of S&T personal and managerial skills to manage the effective R&D
  - ✓ Lack of entrepreneurial skills to commercialize their ideas
- Individual perception e.g. risk-adverse, negative to networking with others.

5

Problems and difficulties of SMEs to upgrade their technological capability

State constraints

- Ineffective of SMEs policy deployment to agencies relating to SME innovation promotion
- Weak links and networking among support agencies
- Limited S&T manpower to support an industrial sector
- Limited financial scheme and support for technological development and innovation in SMEs

6

Constraints and success factors for Government-University-Industry network development

From the perspective of public agencies and universities	From the perspective of industry
• Weak policy measures at middle level • Unclear policy for IP management for industrial development projects • No motivation and incentives for academic staff • Unclear procedure and poor administration for collaborative project • Different point of views and management orientation between academia and business • Strict and inflexible process of public agencies that does not support quick response to the demand of industry	• Discontinuous support, political conflict, and conflict between public agencies • Government/universities: slow to response and have different perspectives; lack of active support agencies and information centre • Limited good experts for machine development and technological consultancy • Dishonest of public staff including corruption problem and unfair treat • Ineffective short-course training, and no specific focus and actual implementation (e.g. too basic subjects, and lack of on-site implementation, good teaching materials, and good instructors)

7

Success factors of universities and research staff for industrial collaboration and networking

- Continuous projects and support for long-term development and innovation; and based on actual need of industry;
- Clear action plan, project assessment and follow-up systems in each steps of collaborative projects;
- Trustworthiness, patience, commitment and determination of working staff;
- Ability to adjust and accept attitude and culture differences among various parties involved in the projects;
- Allocation of permanent staff to manage and follow up project progress; and
- Professional practices and proactive actions of public staff

8

Some examples of current SMEs-supporting programs in Thailand

Infrastructure
- 5 Regional Science park : Rental spaces for R&D units of private sector
- University's Business Incubators

Finance
- Co-investment
- Soft loans
- Tax incentives : R&D projects/ donation for R&D

9

IP services
- Patent searching
- Patent preparation & filing
- Licensing
- Benefit-sharing

Technology transfer / Technology Development
- Intermediary to match industrial needs with the right expert

10

Country's interest

- Government support is conducted continually for long-term development
- Monitoring and evaluation system
- Collaboration among SMEs supporting organizations + Systematic workflow
- Intermediary is a catalyst and facilitator to link collaboration between academia and industry
- Country's focus industry and concrete plan to stimulate development and innovation.

11

Country's interest

Industry
- Capital funding for new technology business
- Insufficient number of R&D personnel in industry to increase absorptive capability of industry

Acadamia
- Rewarding scheme should be improved to encourage academia to work for industry : KPI, benefit sharing-scheme
- Most research results are not commercializable.

12

For Region

- Neighbouring : Raw material /create value chain across the region / cluster development
- South and East Asia: Investment in APEC countries
- Latin America: Marketing arm in Latin America Region

- Share information / research results / patents

13

For APEC

- Gather good practices
- Facilitate the adoption of good practices

14

Policy recommendations

- Increase high quality S&T manpower to support the industry (e.g. student and staff exchange program, incentive & award establishment to encourage public-private collaboration)
- Strengthen university and support agencies to provide effective services to SMEs
- Improve S&T infrastructure to support private sector investment in research and technological capability development
  - ✓ physical infrastructure (e.g. science park, testing laboratory)
  - ✓ non-physical infrastructure (e.g. legal system, tax incentives, financial support)

15

Policy recommendations

In developing countries, innovation intermediary should be established as a catalyst of innovation process

- Bridging knowledge providers, support agency and SMEs (mapping & matching supply and demand)
- Strengthening linkages and creating knowledge networks between knowledge producing agents, industry (mainly SMEs), and government policy and support organizations
- Provision of management and support for R&D and innovation
- Financial support for R&D and innovation

16

APEC WORKSHOP ON SME´s ACCESS TO TECHNOLOGY
Jakarta, Indonesia.

PYME SECRETARÍA DE ECONOMÍA
A whole Movement for the Competitiveness of the SME´s in Mexico

"TECHNOLOGY INNOVATION, ENTREPRENEURSHIP SUPPORT STRATEGY AND TRAINING TO FACILITATE THE ACCESS OF THE MEXICAN SMEs IN THE GLOBAL MARKET"

PYME SECRETARÍA DE ECONOMÍA
A whole Movement for the Competitiveness of the SME´s in Mexico

Entrepreneurs' National Program

Strategy 2008-2009

Entrepreneurs' National Program
Objective

The **Entrepreneurs' National Program** has the objective to promote and enhance in the Mexicans' mind the culture and business development that results in the creation of **more and better** enterprises through the **National Incubators' Network**

" Source of Enterprises "
- Entrepreneurs' National Campaign.
- To spread the Entrepreneur Program in all the institutions of middle and higher education.

Entrepreneurs

"Factory of Businesses"
- Creation of aggregate value and longevity businesses.
- Creation and consolidation of Businesses Incubators.

Incubators

"Becoming Mexico in an entrepreneurs land"
Heriberto Félix Guerro

Entrepreneurs' Program

Promote and enhance entrepreneurship and entrepreneurial activity.

Entrepreneurs´ National Campaign

Regional Routes | Advertising Campaign | Entrepreneurs' Events

"Mexico taking business ventures" | "Fntrepreneurial Card" | "Entrepreneurs´ Caravan"




Young Entrepreneurs

Entrepreneurs´ Methodologies | **Printing Promotional Materials**

Training Program for Entrepreneur Leaders

Entrepreneurs' Program

Entrepreneurs´ National Campaign

Regional Tours

Entrepreneurs Tours "Entrepreneurs Day"
- Regional events in 10 different states to promote and encourage entrepreneur activity.
- Exhibition with 50 stands presenting different support options for entrepreneurs, incubators, academic institutions, financial institutions, entrepreneurial organizations and successful graduated business from incubators.
- In addition, 3 thematic conferences, 5 panel discussions regarding to financing, management, innovation, marketing and training.
- Simultaneously, a simulator workshop of traditional and rural businesses.
- This event has the assistance of 1000 entrepreneurs who will receive assistance and information about the range of programs that the Under Ministry for the SMEs offers through the platform "Mexico taking on business ventures".

Entrepreneurs' Program

Advertising Campaign

Print and electronic media to encourage entrepreneurs' activity in Mexico.

Entrepreneurs' Events

Invitation to academic institutions, entrepreneurial agencies, social agencies, ecc. to promote entrepreneurial activity through different events.

"Mexico taking business ventures"

National event with the participation of more than 10,000 young entrepreneurs from all over the country who participated in the Training Program for Entrepreneur Leaders.

Entrepreneurs' Program

"Entrepreneurs' Cards"

- We recognize entrepreneurship through this card, which benefits are a free incubation process, a credit pre-approved of capital seed and the membership to the SME business community.
- The winners in contests and entrepreneurial events, get this card as an award.

"Entrepreneurs' Caravan"

- The Entrepreneurs' Caravan is a mobile unit (truck trailer) which will go through all the country offering options and opportunities for the entrepreneurs.
- The Caravan will have a simulator, personal assistance, business opportunities, employment opportunities, etc.

Entrepreneurs' Program

Young Entrepreneurs

Methodologies for Entrepreneurs

- Support for academic institutions that do not have their own entrepreneur methodology and printing materials for this purpose.

Training Program for Entrepreneur Leaders

- It is a training program for youths that have received some methodology for entrepreneurs before, and that present profiles of highly leadership (Enterprising Elite).
- Through motivational contents and business skills, the entrepreneurs will work during 10 weeks with multidisciplinary and interinstitutional groups, of 100 youths of each region, will become the source of businesses.

Líderes Emprendedores

Entrepreneur s Program

Goals 2008 - 2012

"The Enterprises' Creation"

Vision 2008

- 1.5 MD
- 5 PFLE
- 1 Mobile unit
- 10 tours
- 100 Cards
- 50 Methodologies (30%)
- 100,000 Entrepreneurs

Vision 2012

- 9.5 MD
- 90 TPEL
- 4 Mobile units
- 90 Tours
- 500 Cards
- 450 Methodologies (100%)
- 450,000 Entrepreneurs

SME Fund

Supports 2008

ENTREPRENEURS

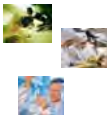
- Tours and awareness campaigns for entrepreneurs
- Design and printing materials
- Project detection, recruitment and selection Brigades
- "Entrepreneur Cards"
- Consultancy for projects incubation "Entrepreneur Card"
- Implementation and transfer of methodologies and printing materials

SME FUND 2009

Business Incubators

Enterprises' Factory

The National Incubators' Network is a tool to foster economic growth, to contribute in the creation of **more and better entrepreneurs, more and better enterprises, more and better employments.**



- ✓The objective is to create and enhance the incubators' network at national level ensuring the best incubator practices and programs and the appropriate customers services.
- ✓To assist in the creation of innovative enterprises with more added value and longevity.

500 incubators with the best incubator practices

Operate the BEST Incubator Policy.

Classifying the Business Incubators

According with the different kind of the created enterprises, the business [illegible] ed by:

Traditional Business Incubators

To support the creation of businesses in traditional sectors with basic requirements of operation. In this classification, incubators [illegible] rural sector [illegible] tourism.

Intermediate Technology Business Incubators

To support the creation of enterprises with technological and physical infrastructure requirements, as well as operation mechanisms and semi-speci[illegible]

High Technology Business Incubators

To support the creation of businesses in specialized sectors such as Information and Communication Technologies (ICT's), microelectronic MEM' S systems, biotechnology and pharmaceutical, and other

Incubators
Strenghts in Incubator Systems around the World

Business Incubators
Strategies

Creation and Consolidation of 500 incubators with the best incubation services

- Creation of specialized incubators, development of providers.
- Consolidation of weak incubators, helping them to reach international standards.
- Implementing a regional strategy to supervise incubators and report information in real time. (Independent work for each kind of incubators)

A call for Enterprises for the Incubation Process

- Through a national call at least 30 % of the projects will be selected to receive the incubation process in 2008.
- **National Prize for Entrepreneurs**
- Through the "Entrepreneur Card" the citizen will receive direct benefits.

National Incubators Trust

- Creation of a national trust to strengthen incubators and resource management, working as a leadership body for incubators.
- Creation of 8 regional trusts with the same functions at the national and regional levels.
- The trust will be integrated by members of the community with a great degree of acceptance amongst the stakeholders.

Creation of New Incubators

- Through the presentation of feasibility studies according to the particular attributes of the region.
- A Special Committee integrated by a representative of the ministry of economy, the local government, specialists, etc.
- The feasibility study will be evaluated considering the country necessities, the qualities of the project, its added value and its strengths.

Strengthening Institutional Relations

- Visits to all incubators starting with the top 50 around the country, with the purpose of strengthening relations and commitments with the authorities.
- The General Director will take part in the tour around the incubators and there will be a register of each visit.

Strengthening and Standardizing Incubators

- Since this year, incubators receive financial support only if they are complying with the standards for the creation of enterprises.
- Special support has been established to those incubators complying with the standards.
- The process to design a certification norm for incubators.
- By the end of 2008, the process of certifying the consultancy team of the incubators will start.

National Council for Business Incubators

- Promoting the change of chairman in the Council and extending the membership, as well as, getting new responsibilities and commitments.
- The Council will work as an operative body analyzing the performance of the National Incubators 'System.

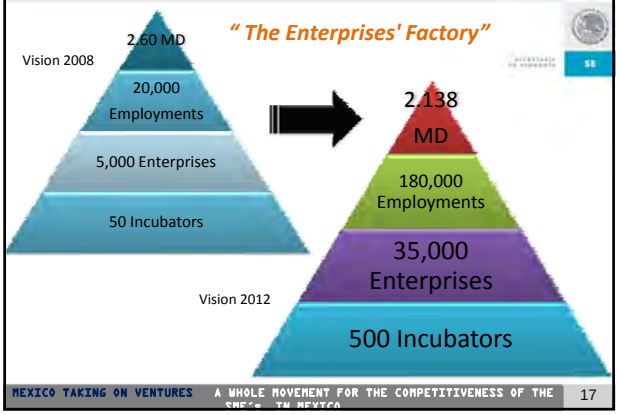
Entrepreneurial Community

- 60 incubators will integrate 100 enterprises into the community through the card "SME taking on business venture".
- In a strategic alliance with entrepreneurial bodies this community will grow and consolidate the links to exchange information.

Operating Intermediate Bodies

- Core strategy operating through intermediate bodies working as leaders of a net responsible for requesting the SME Fund resources, executing them according to results, following -up incubators and their projects, etc.

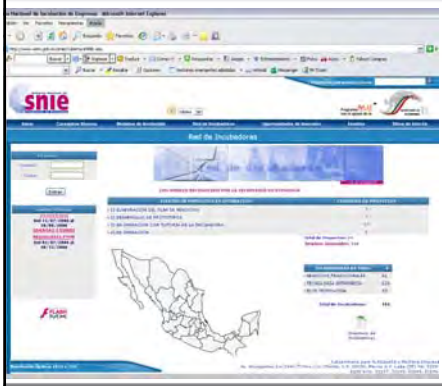
Incubators
Goals 2008 - 2012



SME Fund
Supports 2008

Business incubators´ national Program

Website - www.siem.gob.mx/snie



- Recognized Models
- Incubators´Network
- Investment Opportunities
- General information

Incubators' National Program

Global vision 2008 - 2012

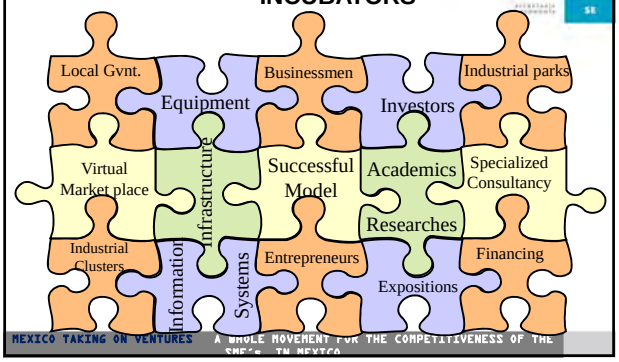
Year	Enterprises	Employments	Business Incubators
2008	5,000	20,000	450

Vision 2008

Vision 2012

Year	Enterprises	Employments	Incubators	MD
04-06	10,320	26,019	300	About 18.9
2007	4,900	16,000	400	About 16.2
2008	5,000	20,000	450	About 25
2009	9,000	36,000	450	About 34.7
2010	10,000	40,000	500	About 38.5
2011	10,000	40,000	500	About 43.4
2012	10,000	40,000	500	About 48.2
	59,220	**218,019**	**500**	**About 216.6**

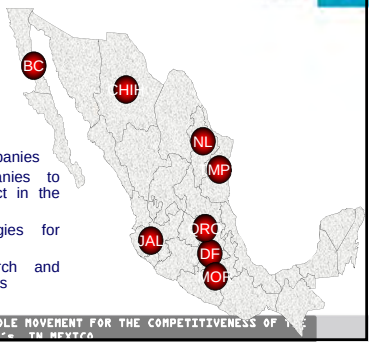
NATIONAL SYSTEM OF BUSINESS INCUBATORS



INNOVATION CLUSTERS

Critical route to transform an economic region in a "Technopolis"

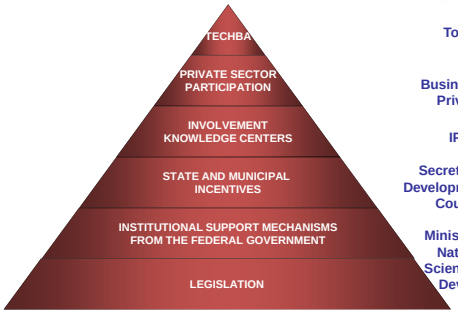
- To create local technology companies
- To attract high-tech companies to generate a trickle down effect in the region
- To develop new technologies for emerging industries
- To promote applied research and development in local Universities



BENEFITS

- **Accelerated companies will improve their sales, increasing their national and/or international market share.**
- **Businesses will contribute to the production of innovative products generating new patents.**
- **Its strategic location will allow companies to have more contact with angel and venture capitalists getting the opportunity to expand through this type of financing.**
- **Companies will capitalize the opportunities from joint development of products, processes, materials and/or services of the 25 companies with Universities, Technological Centers and Businesses in Mexico and the United States, generating wealth and jobs in both sides of the border.**
- **The Ministry of the Economy of Mexico considers TechBA to be the top of the iceberg of a whole system of innovation and technology**

THERE IS A WHOLE INSTITUTIONAL STRATEGY TO SUPPORT TECHBA



Top of the Iceberg

Business Organizations Private Companies

IPN, ITESM, UP

Secretaries of Economic Development or Promotional Councils or Boards

Ministry of the Economy National Council for Science and Technology Development Banks


THANK YOU FOR YOUR
KIND ATTENTION
MEXICO TAKING ON VENTURES
A WHOLE MOVEMENT FOR THE COMPETITIVENESS OF THE

Annex D

Annex D. LIST OF WORKSHOP PARTICIPANTS

1. APEC SPONSORED WORKSHOP PARTICIPANTS

No	Title	Name	Economy	Position	Organization	Email, Phone Number	Task
1	Ms	Men Shu	China	Project Manager	China Centre for Promotion of SME Development, Ministry of Industry and Information Technology of P.R.China	menshu@gmail.com mens@sme.gov.cn	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
2	Ms	Ji Feng	China	Project Manager	China Centre for Promotion of SME Development, Ministry of Industry and Information Technology of	jif@sme.gov.cn evyyon@hotmail.com	To attend, as required and invited, all sessions and to actively participate in workshop exercise..

					P.R.China		
3	Mr	Sujanarto	Indonesia	Head of Competence Development and Technology Transfer, Center for Craft and Batik	Ministry of Industry Republic of Indonesia	bbkb_depperin@yahoo.com (0274) 546111, 512456, 543582	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
4	Ms	Ratna Utarianingrum	Indonesia	Head of Footwear Industry Development Indonesia	Ministry of Industry Republic of Indonesia	e_ratnautarianingrum@yahoo.com (031) 8855149 08156805059	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
5	Mr	Mohd Shazni Saringat	Malaysia				To attend, as required and invited, all sessions and to actively participate in workshop exercise..

6	Mr	Mohammed Hanif Mohamed Tamin	Malaysia				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
7	Mr	Ivan Ornelas Diaz	Mexico				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
8	Ms	Rocio Vazquez Perez	Mexico				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
9	Mr	Buckley Tine	PNG	Research Analyst – Policy	Department of Commerce & Industry	buckleytine@gmail.com	To attend, as required and invited, all sessions and to

				Division			actively participate in workshop exercise..
10	Mr	Bede Tomokita	PNG	Acting First Assistant Secretary - Industry Division	Department of Commerce & Industry	btomokita@gmail.com	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
11	Mr	Pedro Reategui	Peru				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
12	Mr	Sandro Esposito	Peru				To attend, as required and invited, all sessions and to actively participate in workshop exercise..

13	Mr	Noly Guevara	Philippines			Dticav_pdnoly@yahoo.com	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
14	Ms	Zenaida Pre	Philippines			Zpre2000@yahoo.com	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
15	Mr	Yongyos Protpakorn	Thailand				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
16	Ms	Thitapha Smitinont	Thailand				To attend, as required and invited, all sessions and to

							actively participate in workshop exercise..
17	Mr	Cao Thi Thuy Quynh	Vietnam				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
18	Mr	Pham Thai Son	Vietnam				To attend, as required and invited, all sessions and to actively participate in workshop exercise..

2. APEC NON-SPONSORED WORKSHOP PARTICIPANTS

No	Title	Name	Economy	Position	Organization	Email, Phone Number	Task
1	Mr	Alfonso GARSON Mendez	Columbia				To attend, as required and invited, all

							sessions and to actively participate in workshop exercise..
2	Ms	Maria Mercedes MUNOS Gomes	Columbia				To attend, as required and invited, all sessions and to actively participate in workshop exercise..
3	Mr	Ir. I Wayan Dipta, M.Sc	Indonesia	Deputy Minister of Research and Development for Cooperatives and SMEs Resources	Ministry of Cooperatives and SMEs, Republic of Indonesia	wayan_dipta@yahoo.com (021) 7942721 08121914126	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
4	Mr	Ir. Martono Djohari, MABM	Indonesia	Deputy Assistant for Research Resources	Ministry of Cooperatives and SMEs, Republic of Indonesia	martono_djohari@yahoo.com (021) 79182019 08128119350	To attend, as required and invited, all sessions and to actively participate in workshop

							exercise..
5	Mr	Djoko P. Djatmiko	Indonesia	Head of Organization	Ministry of Cooperatives and SMEs, Republic of Indonesia	djatmiko60@yahoo.com 08159886255	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
6	Mr	Leonardi Pratama, SH	Indonesia	Staff	Ministry of Cooperatives and SMEs, Republic of Indonesia	leonardi_p@yahoo.com 081218850850	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
7	Mr	Wahyu Purwanto, SE	Indonesia	staff	Ministry of Cooperatives and SMEs, Republic of Indonesia	ucok_ipb@yahoo.com (021) 7942721 085293347494	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
8	Mr	DR. Derry	Indonesia	Director of the Centre for Competitiveness	Center of assessment and	derry@ceo.bppt.go.id (021) 3169441-2, 3169378	To attend, as required and

		Pandjadarma		Policy	application of technology (BPPT), Republic of Indonesia	0818983442	invited, all sessions and to actively participate in workshop exercise..
9	Mr	Ir. Dharmawan	Indonesia	Researcher	Center of assessment and application of technology (BPPT), Republic of Indonesia	dharma@ceo.bppt.go.id (021) 3169441-2, 3169378 08128374185	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
10	Mr	Ir. Karimuddin, MM	Indonesia	Deputy Assistant for SME Research	Ministry of Cooperatives and SMEs, Republic of Indonesia	karimuddin_ukm@yahoo.com PENELITIAN_UKM@hotmail.co.id (021) 7996382 081280006810	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
11	Ms	Husna Leila Y, SE. MM	Indonesia	Member of the Center for Industrial	Trisakti University	husnaleila@gmail.com (021) 7375365 081318000940	To attend, as required and invited, all sessions and to

				Studies, SMEs and Competition			actively participate in workshop exercise..
12	Ms	Adwitya Kristy Hapsari	Indonesia	Staff at the intra-regional Cooperation Director ASPASAF	Ministry of Foreign Affairs, Republic of Indonesia	adwitya.kristy@kemlu.go.id (021) 3811083, 3844867 0818877380	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
13	Ms	Airin Rachma	Indonesia	Staff at the intra-regional Cooperation Director ASPASAF	Ministry of Foreign Affairs, Republic of Indoensia	airinrachma@gmail.com (021) 3811083, 3844867 0818624040	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
14	Mr	Bayu Fajar Nugroho	Indonesia	Staff at the Director General of Small and Medium Enterprises	Ministry of Industry Republic of Indonesia	bfnugroho@yahoo.com (021) 5251761, 5251449 08111889700	To attend, as required and invited, all sessions and to actively participate in workshop exercise..

15	Ms	Lia Puji Lestari	Indonesia	Staff at the Director General of Small and Medium Enterprises	Ministry of Industry Republic of Indonesia	einno_kagayaki@yahoo.com (021) 5251761, 5251449 081310323790	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
16	Mr	Ari Gunawan, SE	Indonesia	Head of research procedure	Ministry of Cooperatives and SMEs, Republic of Indonesia	085711221144	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
17	Mr	M. Supriyadi, ST	Indonesia	Staff	Ministry of Cooperatives and SMEs, Republic of Indonesia	0818678525	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
18	Mr	Indra Wiryawan	Indonesia	Staff	Ministry of Cooperatives and SMEs, Republic of	087886686400 08978645433	To attend, as required and invited, all sessions and to

					Indonesia		actively participate in workshop exercise..
19	Mr	DR. Ir. Ugay Sugarmansyah	Indonesia	Director of the Center for Technology Innovation Policy Assessment	Center of assessment and application of technology (BPPT), Republic of Indonesia	(021) 3169447	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
20	Mr	Drs. Syamsuddin, MM	Indonesia	Deputy Assistant for cooperative research,	Ministry of Cooperatives and SMEs, Republic of Indonesia	(021) 7991424 081314082145	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
21	Mr	Mohammad Iqbal	Indonesia	General Manager	Dharma Bhakti Astra Foundation (YDBA)	(021) 65310146, 65310147	To attend, as required and invited, all sessions and to actively participate in workshop

							exercise..
22	Mr	L Pandu Pamardi	Indonesia	Manager	Dharma Bhakti Astra Foundation (YDBA)	(021) 65310146, 65310147	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
23	Mr	Alex Widjaja	Indonesia	Manager	Dharma Bhakti Astra Foundation (YDBA)	(021) 65310146, 65310147	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
24	Ms	Raeti	Indonesia	Chairman of Public Relations	Farmer and Patchouli Entrepreneur Association of Indonesia	081272542017	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
25	Mr	Syihabuddin, SE	Indonesia	secretary-	Farmer and Patchouli	08121048330	To attend, as required and

				general	Entrepreneur Association of Indonesia		invited, all sessions and to actively participate in workshop exercise..
26	Ms	Nuraini	Indonesia	Direktor	PT Niaga Nilam Nangroe	082161077666	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
27	Ms	Gita Triantika	Indonesia	Direktor	PT Pemalang Agro Wangi	087875255889	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
28	Ms	Ida Busneti, SE. MM.	Indonesia	Secretary of the Center for Industrial Studies, SMEs and Competition	Trisakti University	(021) 7375365 081316393375	To attend, as required and invited, all sessions and to actively participate in workshop

							exercise..
29	Ms	Firdayetti, SE. MM	Indonesia	Member of the Center for Industrial Studies, SMEs and Competition	Trisakti University	(021) 7375365	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
30	Mr	Akhmad Junaedi, SE, MM	Indonesia	Researcher	Ministry of Cooperatives and SMEs, Republic of Indonesia	(021) 7942721	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
31	Mr	Ir. Prijadi Atmadja, MBA	Indonesia	Researcher	Ministry of Cooperatives and SMEs, Republic of Indonesia	(021) 7942721	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
32	Mr	DR. Anwar Sitompul	Indonesia	Researcher	Ministry of Cooperatives	(021) 7942721	To attend, as required and

					and SMEs, Republic of Indonesia		invited, all sessions and to actively participate in workshop exercise..
33	Mr	Suharyanto	Indonesia	Head of Technology Transfer and Incubation, Center for Craft and Batik	Ministry of Industry Republic of Indonesia	0274) 546111, 512456, 543582	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
34	Mr	Ir. Patoni A Ghafar, M.Sc	Indonesia	Head of Competence Development and Technology Transfer, Center for Agro Industry	Ministry of Industry Republic of Indonesia	(0251) 8324068, 8323339	To attend, as required and invited, all sessions and to actively participate in workshop exercise..
35	Mr	Dr. Ir. Rizal Alamsyah, M.Sc	Indonesia	Head of Facilities and Standardization Research, Center for Agro	Ministry of Industry Republic of Indonesia	(0251) 8324068, 8323339 08129909695	To attend, as required and invited, all sessions and to actively participate

				Industry			in workshop exercise..

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Annex E

Annex E. LIST OF SPEAKERS

1. APEC SPONSORED SPEAKERS

- LIST OF INVITED SPEAKERS, TOPICS, AND GUIDANCE IN WRITING THE PRESENTATION FUNDED BY APEC

No	Name of Speaker and Institution (Program, dates invited)	Address	Topic of Presentation	Guidance for Presentation Content
1	DR. Lih- Woe Chen, Division Director, Venture Incubation & Investment Division of Commercialization and Industry Service Center (CIS) of Industrial Technology Research Institute (ITRI) 7-8 February 2012	lewislwc@itri.org.tw	**Current State of the Art of Technology Development in SMEs and Their Constraint in Access to Technology**	How is the performance of SMEs, especially with respect to output growth, productivity, export intensity, concentration or diversification of products, subcontracting with large enterprises (LEs), including multinational companies (MNCs), involved in regional/global supply chains/production networks? How SMEs have been doing in developing their technologies and conducting innovations? What are the main sources of technology for SMEs: LEs/MNCs, universities, R&D institutes, or government agencies (e.g. Ministry of Industry)? What are the main constraints that SMEs facing in access to advanced technology and knowledge and how they cope with those constraints? What is the best practice for SMEs to improve their technology and to increase their ability to do innovations?
			The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs	How has the government been doing in supporting capacity building in SMEs, especially with respect to technology and innovations? Has technology development or innovation been given

				the highest priority in SME policy? What kind of programs introduced by the government, and do they meet the real needs of SMEs? Are they effective; if not, what are the main problems?
2	Prof. Shigeo Kagami, Professor, General Manager – Science Entrepreneurship and Enterprise Development (SEED), Division of University Corporate Relations, The University of Tokyo 7-8 February 2012	Kagami@ducr.u-tokyo.ac.jp	**Key Determinants behind the Success Stories of Technology Development in SME** **The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs**	What are the key determinants of successful SMEs in capacity building in technology and innovations? Do the level of entrepreneurship and the level of education of the owners play key roles in those successful SMEs? Are market structures and trade regime (i.e. free trade versus protectionism) effect the successful SMEs in innovations? Are 'external factors' (e.g. business environment, economic stability, government supports, market structure, infrastructure, demand/competition pressure) more important than 'internal factors' (e.g. social and educational background, and motivation of the owners, skills of the workers, capital) in determining the capability of SMEs to improve their technology and to do innovations? What are the roles of Business Development Services in technology development for SMEs? How has the government been doing in supporting capacity building in SMEs, especially with respect to technology and innovations? Has technology development or innovation been given the highest priority in SME policy? What kind of programs introduced by the government, and do they meet the real needs of SMEs? Are they effective; if not, what are the main problems?

3	Mr. Junghwa Lee, Director, Small Medium Business Administration(SMBA) of Korea 8February 2012	wooyang@smgba.go.kr	**The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs**	How has the government been doing in supporting capacity building in SMEs, especially with respect to technology and innovations? Has technology development or innovation been given the highest priority in SME policy? What kind of programs introduced by the government, and do they meet the real needs of SMEs? Are they effective; if not, what are the main problems?
4	Prof. Tulus Tambunan, Professor-Economics, The Center for Industry, SME and Business Competition Studies Faculty of Economics, University of Trisakti., Jakarta, Indonesia 7 February 2012	sjahrir@rad.net.id	**Current State of the Art of Technology Development in SMEs and Their Constraint in Access to Technology**	How is the performance of SMEs, especially with respect to output growth, productivity, export intensity, concentration or diversification of products, subcontracting with large enterprises (LEs), including multinational companies (MNCs), involved in regional/global supply chains/production networks? How SMEs have been doing in developing their technologies and conducting innovations? What are the main sources of technology for SMEs: LEs/MNCs, universities, R&D institutes, or government agencies (e.g. Ministry of Industry)? What are the main constraints that SMEs facing in access to advanced technology and knowledge and how they cope with those constraints? What is the best practice for SMEs to improve their technology and to increase their ability to do innovations?

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2. APEC NON SPONSORED SPEAKERS

No	Name of Speaker and Institution (Program, dates invited)	Address	Topic of Presentation	Guidance for Presentation Content
1	DR. Tatang A Taufik, BPPT, 7-8 February 2012		**The Role of R&D Institutes/Universities in Supporting Technology Development/Innovations in SMEs (Including transfer of technology to SMEs)** **The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs**	How have R&D institutions and universities been playing a role in transferring technologies to SMEs or have they been the key source of technology for SMEs? In what forms or how have SMEs being supported for their technology upgrading and innovation by R&D institutes and universities? What are the main obstacles, from the perspective of suppliers of technology and knowledge (i/e/ R&D institutes and universities) as well as from the perspective of potential users of technology and knowledge (i.e. SMEs), in doing collaborations between SMEs and the suppliers in technology development and innovation? What is the best practice to strengthen the cooperation between SMEs and the suppliers of technology and knowledge? How has the government been doing in supporting capacity building in SMEs, especially with respect to technology and innovations? Has technology development or innovation been given the highest priority in SME policy? What kind of programs introduced by the government, and do they meet the real needs of SMEs? Are they effective; if not, what are the main problems?
2	Mr Lucas T Prawira, CISCO 7 February 2012		**Key Determinants behind the Success Stories of Technology Development in SME**	What are the key determinants of successful SMEs in capacity building in technology and innovations? Do the level of entrepreneurship and the level of

				education of the owners play key roles in those successful SMEs? Are market structures and trade regime (i.e. free trade versus protectionism) effect the successful SMEs in innovations? Are 'external factors' (e.g. business environment, economic stability, government supports, market structure, infrastructure, demand/competition pressure) more important than 'internal factors' (e.g. social and educational background, and motivation of the owners, skills of the workers, capital) in determining the capability of SMEs to improve their technology and to do innovations? What are the roles of Business Development Services in technology development for SMEs?
3	Mr Mike Orgill, Google 8 February 2012		**The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs**	How has the government been doing in supporting capacity building in SMEs, especially with respect to technology and innovations? Has technology development or innovation been given the highest priority in SME policy? What kind of programs introduced by the government, and do they meet the real needs of SMEs? Are they effective; if not, what are the main problems?
4	Mr. Franz Gelbke, German Advisor for Business and Technology Transfer, Ministry of Research and Technology, Republic of Indonesia 7 February 2012	gelbke@btc-network.com	**The Role of R&D Institutes/Universities in Supporting Technology Development/Innovations in SMEs (Including transfer of technology to SMEs)**	How have R&D institutions and universities been playing a role in transferring technologies to SMEs or have they been the key source of technology for SMEs? In what forms or how have SMEs being supported for their technology upgrading and innovation by R&D institutes and universities? What are the main obstacles, from the perspective of suppliers of technology and knowledge (i/e/ R&D institutes and universities) as

				well as from the perspective of potential users of technology and knowledge (i.e. SMEs), in doing collaborations between SMEs and the suppliers in technology development and innovation? What is the best practice to strengthen the cooperation between SMEs and the suppliers of technology and knowledge?
			Key Determinants behind the Success Stories of Technology Development in SME	What are the key determinants of successful SMEs in capacity building in technology and innovations? Do the level of entrepreneurship and the level of education of the owners play key roles in those successful SMEs? Are market structures and trade regime (i.e. free trade versus protectionism) effect the successful SMEs in innovations? Are 'external factors' (e.g. business environment, economic stability, government supports, market structure, infrastructure, demand/competition pressure) more important than 'internal factors' (e.g. social and educational background, and motivation of the owners, skills of the workers, capital) in determining the capability of SMEs to improve their technology and to do innovations? What are the roles of Business Development Services in technology development for SMEs?

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Annex F

Annex F. Notes of Workshop Discussion Sessions

1. **Presentations on " Current State of the Art Technology Development in SMEs and Their Constraint in Access to Technology".**

From the discussion, it has been found that in overcoming these constraints, governments can have a significant role in encouraging SMEs to utilize advanced technologies. It was recommended for the governments to formulate policy assessment on national advantages and disadvantages that could provide some insights and directions for the SMEs on what the customers really need. Conducive business environment is also necessary to support R&D activities among SMEs, such as provision of incentives thus the technologies become more affordable to the SMEs, as well as subsidizing and funding program.

2. **Presentations on "The Role of R&D Institutes/Universities in Supporting Technology Development/Innovations in SMEs (Including Transfer of Technology to SMEs"**

From the discussion, it has been found that intermediaries are significant to play a role between research institutions and SMEs. In a country like Japan, local banks serve to meet the gaps between two parties and support in terms of licensing, patents and agreements. Government can also have a role in boosting the quantity of companies which are willing to cooperate with research institutions by providing them tax subsidy and incentives.

3. **Presentations on "Key Determinants behind the Success Stories of Technology Development in SME".**

From the discussion, it has been found that the most important key determinant factor is working more with the market demands. Moreover, to strengthen the cooperation between universities and SMES, it is stated that legal enforcements are necessary. It should be obliged by the law for universities to support community development such as in research and create start-up models for SMEs. To address the issue on bringing financial supports for projects, there are several approaches that can be taken, such as:

- Through collaborated research projects with private companies
- Collaboration between government, universities and SMEs in gathering the funds. The government might double the modal in funding the project.

4. Presentations on "The Difference between Experience in Formulating and Implementing Technology Development Policy for SMEs".

From the discussion, it was found that government has an important role to reduce the barrier in bringing their business online. The government should also invest in facilitating and educating SMEs to use internet as means for business. In the discussion about what proper security net should provide in case of failure, there were best practices from Japan and Korea. In Japan, there is a mentoring system to assist the university start-ups entrepreneur to go the right path. In Korea, failures do not awarded with penalty. If a certain SME fail, they are given another chance to apply one more time in the program.