




Development of Science and Technology Park (STP) Using the Innovation System Strengthening Framework (Case Study: The Pelalawan Technopolis)

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ABSTRACT

The Government of Indonesia has a new initiative to establish and develop 100 Science and Techno Parks (STPs) within the next five years starting 2015. The development of STP is as a policy instrument to revitalize local economic development utilizing science, technology, and innovation, moving from natural resources driven economy to innovation driven economy. BPPT (The Agency for the Assessment and Application of Technology), a non ministerial government Agency of Indonesia, has been mandated to facilitate the development of 8 out of 100 STPs. In planning and developing STPs, BPPT uses the innovation system strengthening framework consisting of 5 strategic initiatives: innovation ecosystem, industrial cluster, innovative capacity, technopreneurship, and green technology for people basic need.

This presentation will discuss the implementation of this framework and the lessons learned, with a case study of the Pelalawan Technopolis in the Province of Riau, Indonesia.

Keywords: science and techno park, regional innovation systems, Pelalawan Technopolis

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AGENDA

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2. INNOVATION SYSTEM STRENGTHENING FRAMEWORK
3. CASE STUDY: THE PELALAWAN TECHNOLIS
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INTRODUCTION

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INTRODUCTION (1)

- Science & Techno Parks (STPs) are a rapidly growing phenomenon and an increasingly common tool of national and regional economic development [6].
- No two countries have the same pattern of development of STPs due to local context [1].
- The Government of Indonesia initiated in 2015 to build 100 STPs within the next five years [3].
- However, there is no specific approach prescribed yet to plan and implement the STPs in Indonesia.
- The Agency for the Assessment and Application of Technology (BPPT) and the Local Government of Pelalawan Regency initiated the planning and implementation of an STP - the Pelalawan Technopolis - using the innovation system strengthening framework.


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INTRODUCTION (2)

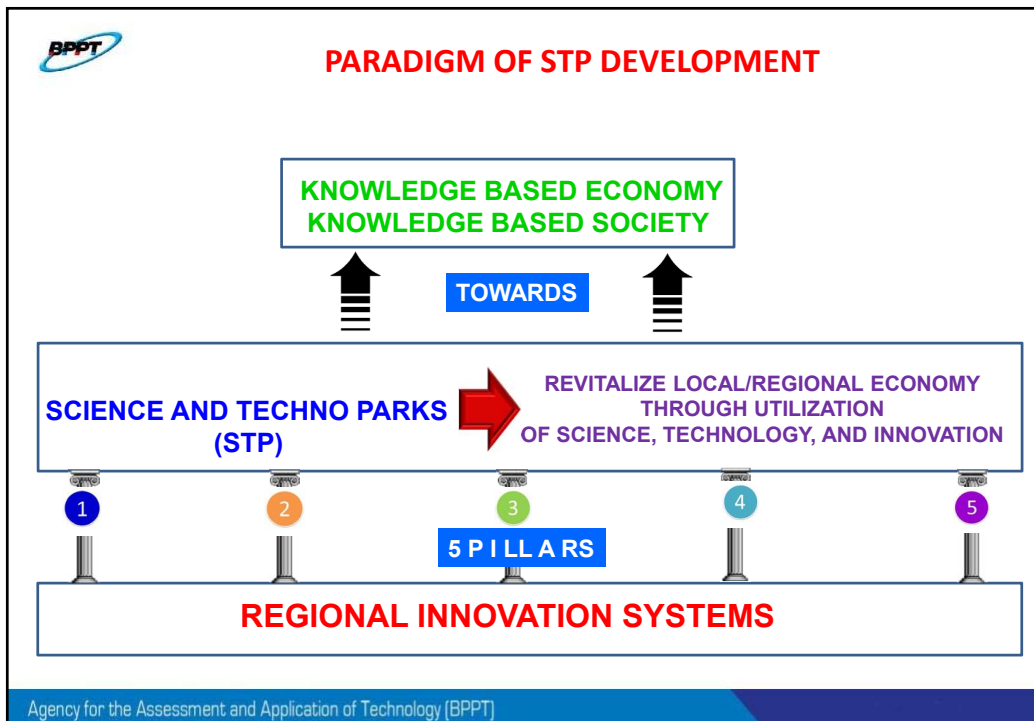
- The Pelalawan Regency has abundant of natural resources, especially palm oil plantation. The area of plantation is about 366,928 hectare producing 1,764 million tons of crude palm oil (CPO) per year [4]. Most of the CPO is for export such that the local added value is relatively low.
- The Pelalawan Technopolis is designed as an science, technology, and innovation (STI) based region to support developing the down stream palm oil industries in order to increase the added value of Palalawan's natural resources.
- The Pelalawan Technopolis is intended as a new center of economic growth in the Province of Riau, in particular, and in the Sumatera Island, in general.

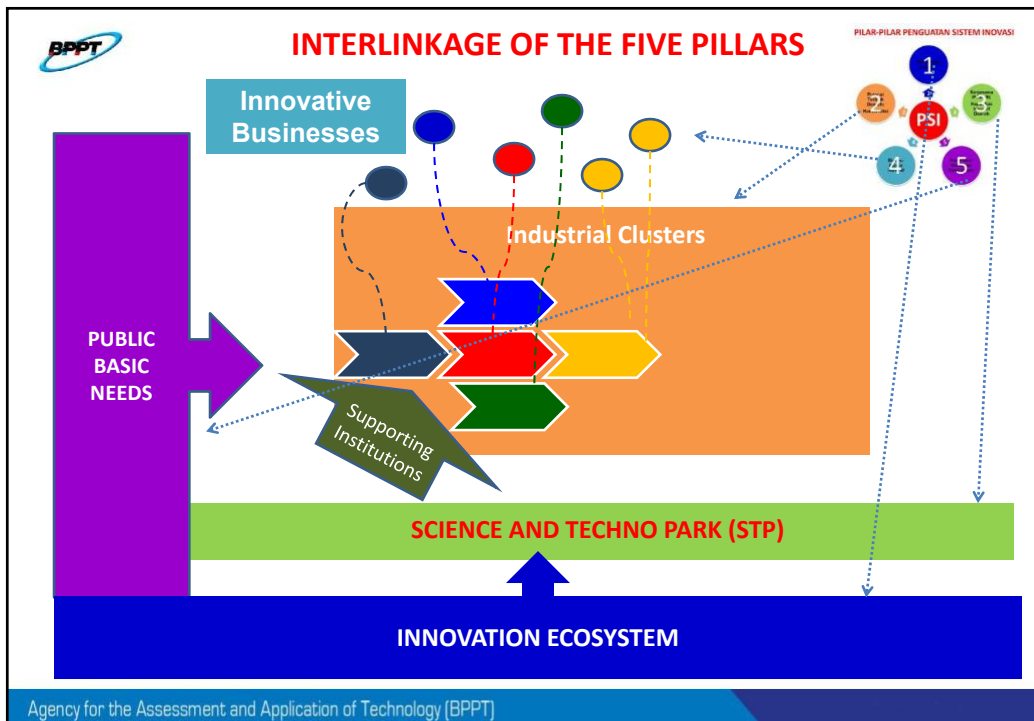
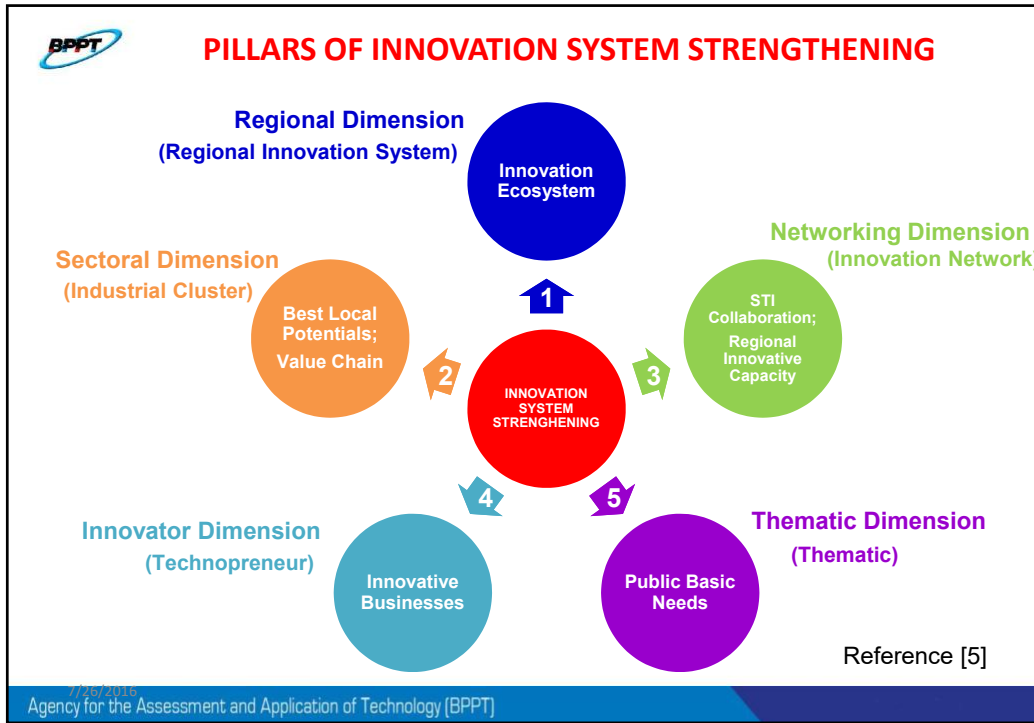
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INNOVATION SYSTEM STRENGTHENING FRAMEWORK

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 DETAILED KEY PERFORMANCE INDICATORS (KPIs)		
Long Term KPIs (5 yrs)	Quick Win KPIs (< 3 yrs) (Outcome)	KPIs of Output
Innovation Ecosystem : Local innovation ecosystem developed to support smart and green regions 1	1. Competitive permit 2. Served benefit receivers increased 3. Innovation culture developed	1. Increasing of services or improvement of business & investment permit 2. Facilitators governance established and functioning 3. Techno park facilitators formed and functioning 4. Number of people educated on innovation increasing
Industrial Competitiveness: Increased added value and productivity of industrial cluster 2	1. Industrial cluster productivity increasing 2. Innovative product from industrial cluster developed 3. Number of products (from industrial cluster) complying national and regional (ASEAN) standards increased	1. Value chain of industrial cluster strengthening 2. Business model in industrial cluster developing 3. Science and technology based capability of stakeholders in industrial cluster increasing
Innovative Capacity: 1. Science and Techno Park functioning to support local innovation 2. Science and Techno Park functioning to support local economic development utilizing science, technology, and innovation 3	1. Techno park functioning 2. Intellectual assets managed and increasing 3. Beneficiaries of techno park services increasing 4. Knowledge management functioning	1. Number of registered IPRs 2. Technology diffused 3. Facilities available & functioning 4. Professional techno park management available/increasing 5. Operational funding of techno park available 6. Techno park management formed & functioning 7. Techno park preparation (including master plan, infrastruktur, etc.)
Innovative SMEs: 1. Local innovative products/SMEs increasing 2. Local innovation center functioning 3. Financial scheme for local innovative businesses available 4	1. Number of innovative SMEs increasing: a. Graduating start up companies b. SMEs served 2. Innovation Centers functioning 3. Funding schemes for innovative SMEs functioning	1. Number of tenants to incubate selected 2. Number of SMEs served 3. Number of farmers served 4. Innovation Centers Managers trained 5. Financial systems for innovative SMEs formed
Fulfillment of Basic Needs: Local public basic needs through green technology and innovation fulfilled 5	1. Access to basic needs increasing 2. Basic need structure and infrastructure increasing and functioning 3. Basic need management system functioning 4. Environmental damage reduced	1. Technology and innovation intermediary functioning 2. Technology and innovation diffusion implemented 3. Capacity of basic need management increasing 4. Basic need management system established 5. Environmental management system established


MAIN CATEGORIES OF ACTIVITIES IN DEVELOPING REGIONAL STPs

- Technical assistance in preparing concept and implementation of STPs' **PLATFORM** along with its supporting elements,
- **DIFFUSION** of technology (with TRL [4] /technology readiness level > 7) as well as its technology transfer know-how, and
- **CAPACITY BUILDING** for local beneficiaries and stakeholders

PLATFORM	➔	PLANNING & IMPLEMENTATION	}	INFRASTRUCTURE & SUPRASTRUCTURE
DIFFUSION OF TECHNOLOGY	➔	TECHNOLOGY TRANSFER		
CAPACITY BUILDING	➔	SKILL & KNOWLEDGE TRANSFER		

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CASE STUDY: PELALAWAN TECHNOPOLIS

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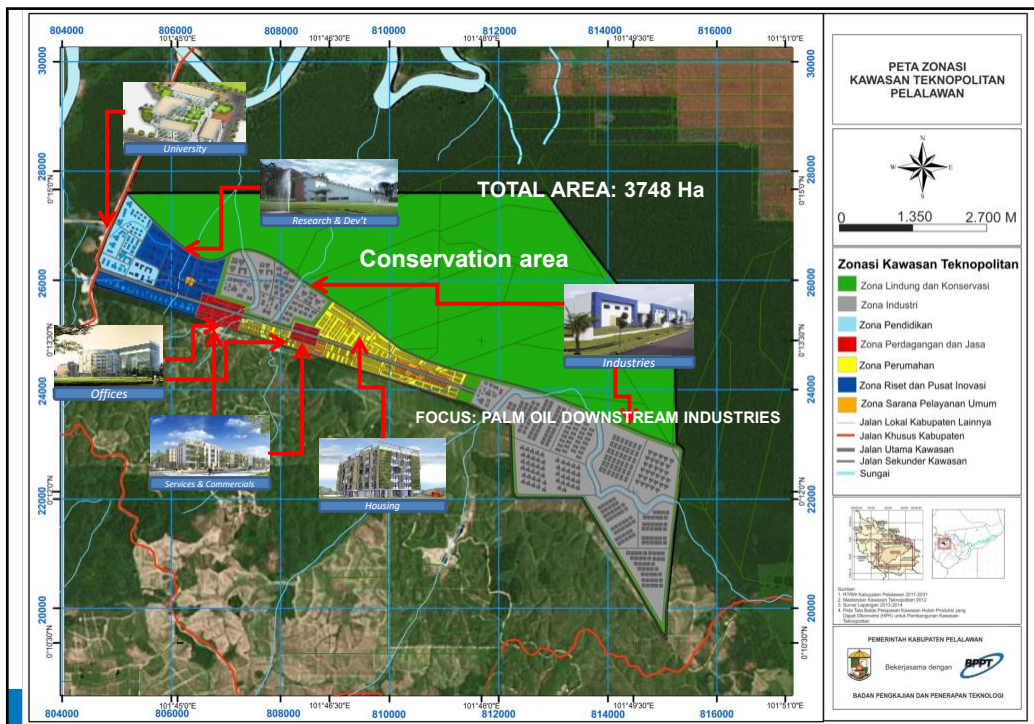



LOCATIONS OF THE PELALAWAN TECHNOPOLIS



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PELALAWAN TECHNOPOLIS

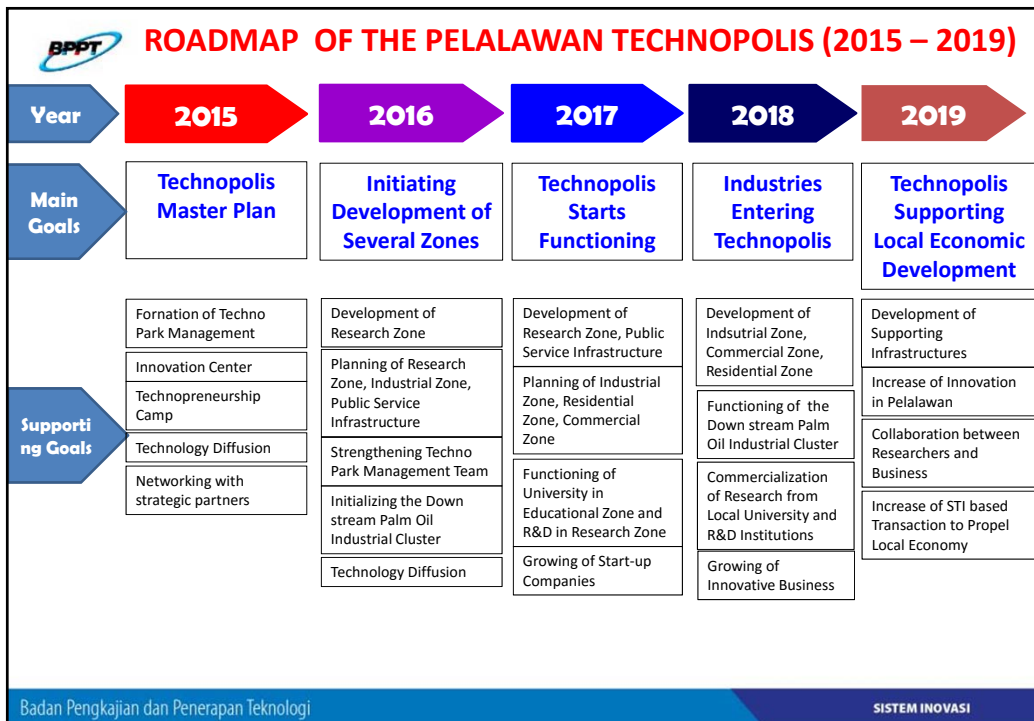
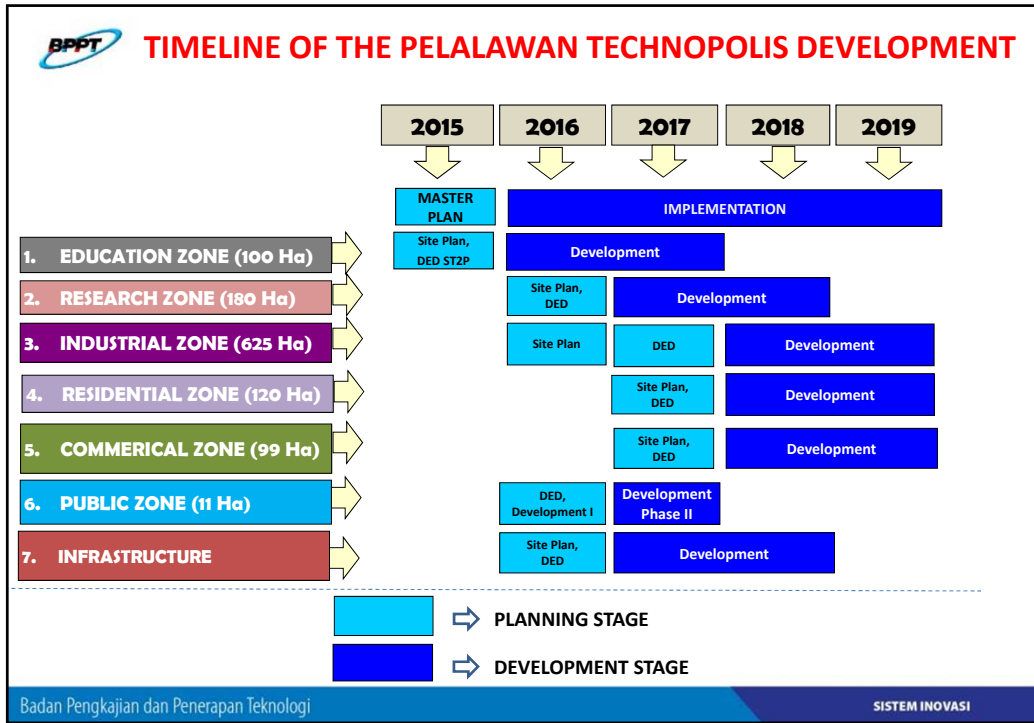
- An area of 3748 Ha located in the Regency of Pelalawan, Province of Riau. It is divided into several zones:
 - Educational Zone (100 Ha),
 - Research Zone (180 Ha),
 - Industrial Zone (625 Ha),
 - Residential Zone (120 Ha),
 - Conservation Zone (2228 Ha),
 - Commercial Zone (99 Ha),
 - Public Zone (11 Ha).

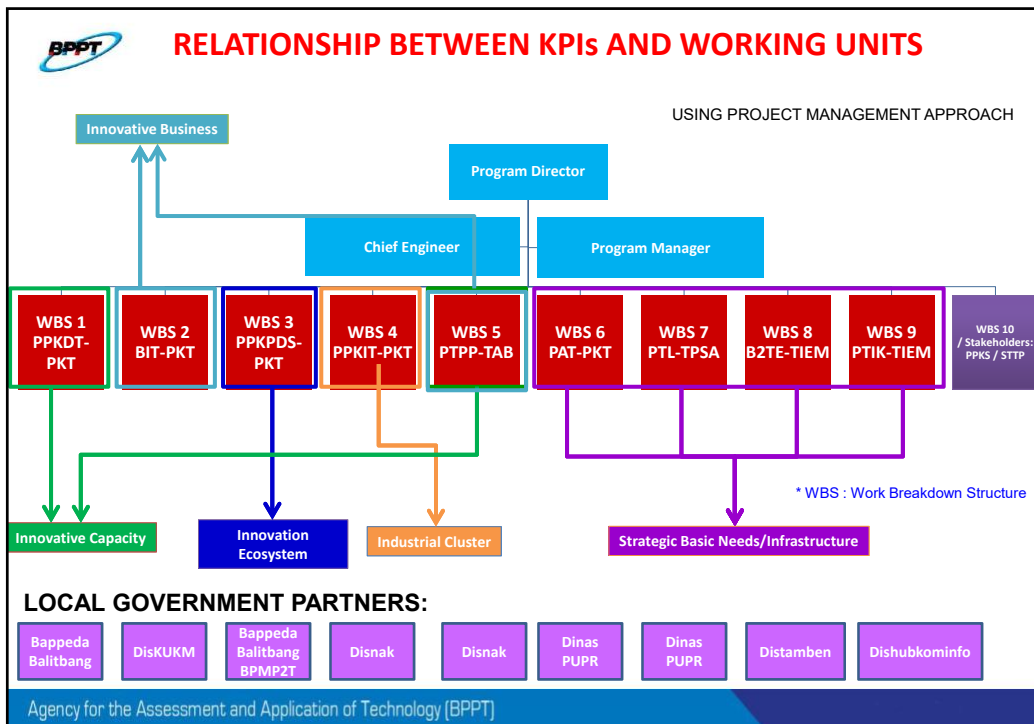


The planning and development of zones are implemented step by step multi yearly.

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CATEGORIES OF OUTPUTS IN 2015

		Number of Outputs	Outcome's Duration	KPIs' Grouping
I. PLATFORM				
A. Spatial Planning			> 1 year	
	Spatial Pattern	2		3, 5
	Supporting Infrastructure	3		1, 5
	Spatial Structure	5		5
B. Governance		5		3
C. Conducive Climate		3		1, 3
D. Economy Sector		6		2, 4
II. DIFFUSION OF TECHNOLOGY		6	< 1 year	3, 5
III. CAPACITY BUILDING		12	< 1 year	1, 2, 3, 4, 5

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TARGETS ACCOMPLISHED IN 2015
Components of Five Pillars

Five Pillars		Evidences
1	Innovation ecosystem to support technopolitan increasing	<ul style="list-style-type: none"> Improvement of local regulations supporting innovation and business Improvement of local government in development planning that support innovation in general and science and techno park in particular
2	Productivity of industrial cluster increasing	<ul style="list-style-type: none"> Study on the potential of developing downstream palm oil industrial cluster
3	Preparation of Technopolitan development developed	<ul style="list-style-type: none"> General Masterplan of the Pelalawan Technopolis Decree of the Regent of Pelalawan on the Governance of Pelalawan Technopolis Decree of the Regent of Pelalawan on the Management Team of Pelalawan Technopolis Business Model of Pelalawan Technopolis Diffusion of Technology
4	Innovative SMEs developing	<ul style="list-style-type: none"> Decree of the Regent of Pelalawan on the Establishment of Innovation Center (Incubator and Business Development Units) Decree of the Regent of Pelalawan on the Management Team of Innovation Center Incubation process for start-up
5	Fulfillment of public basic needs increasing	<ul style="list-style-type: none"> Completion of ICT (Information and Computer Technology) masterplan for Technopolis Completion of Clean Water and Energy masterplan for Technopolis Completion of liquid waste management and drainage planning document for Technopolis Installation of clean water and drinkable water treatment pilot plant


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LESSONS LEARNED

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LESSONS LEARNED (1)

- This project is still underway. These lessons learned were derived from the initial stage of the project.
- It is very important **to link** the planning and implementation of the science and techno park (STP) **to the initiatives of strengthening the local/regional innovation systems**. Otherwise, STP will be just an enclave area not related to the regional economic development. STP is designed to flow the knowledge from the source of knowledge (universities, R&D organization) to the user of knowledge (companies, industries, communities) to produce more innovations.

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LESSONS LEARNED (2)

- The **commitment of top level management** of local government (mayor, regent) is required to the success of STP development. It is important to have STP program as part of the medium term (5 years) and long term (25 years) local development planning. Therefore, the change of the regime due to the local general election should not impact the support/commitment required to sustain the STP.
- To successfully plan and implement the five pillars of the innovation system strengthening, **all elements of local area should participate** i.e. local government (G), academicians (A), business people (B), and communities (C).
- STP should focus on the **best local potentials** of resources that is able to provide best leverage for local economic growth.

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LESSONS LEARNED (3)

- The STP should be able to **generate new technopreneurs** (technology based entrepreneurs) from the local youth. The innovative culture should be introduced to the local youth to change from “consuming/using” to “creating” paradigm. Two examples: technopreneurship camp for public and technopreneurship curriculum for college students.
- The innovation systems strengthening frameworks is intended to build/develop the system systematically. We should first identify the important elements of STP to function using the framework and then start building the system from there.

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SISTEM INOVASI



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

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