Commercialization of Green Technologies: Experience of Indonesian Institute of Sciences

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Outline

Pengantar

- LIPI dan STP

Brief Review STP

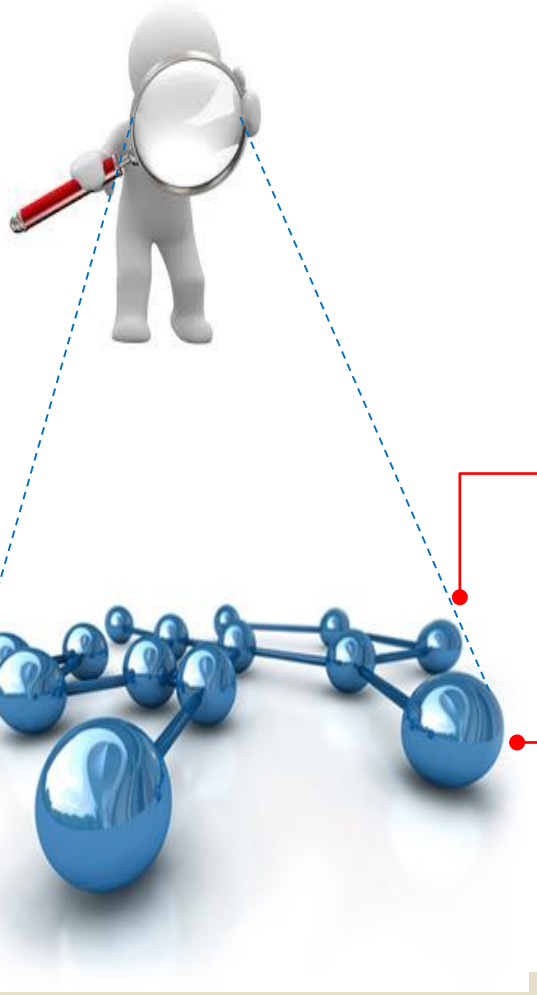
STP LIPI

- Ekosistem
- Perkembangan
  - Tahun 2015 dan Tahun 2016-2019

Penutup

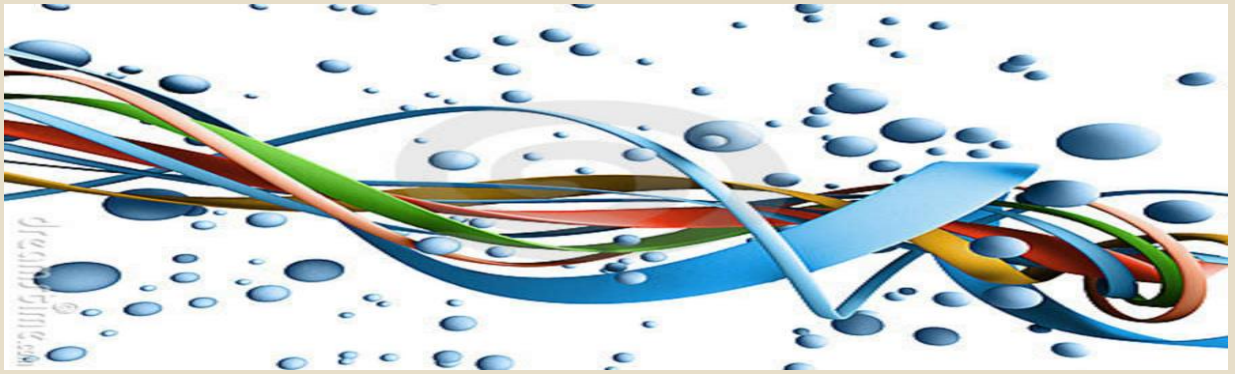
"Introduction to LIPI in Brief"

Indonesian initiative on STP



Cibinong STP LIPI

Kegiatan Alih Teknologi LIPI



INTRODUCTION TO LIPI

A Stasiun Maninjau, **Sumatera Barat**
Maninjau Station, West Sumatera

B Unit Pelaksana Teknis (UPT) Loka Uji Teknik Penambangan dan Mitigasi Bencana Liwa, **Lampung Barat**
Technical Implementation Unit (TIU) for Mines and Geological Hazard Mitigation Liwa, West Lampung

C UPT Balai Pengolahan Mineral **Lampung**
TIU Mineral Lampung

D UPT Loka Uji Teknik Penambangan, **Jampang Kulon**
TIU Jampang Kulon

E UPT Loka Pengembangan Kompetensi SDM Oseanografi, **Pulau Pari**
TIU Pari Island

F **Jakarta dan Serpong.** Pusat Inovasi; Pusat Penelitian (P2) Oseanografi; P2 Kemasyarakatan dan Kebudayaan; P2 Ekonomi; P2 Politik; P2 Kependudukan; P2 Sumber Daya Regional; Kantor Pusat dan Biro; Inspektorat; P2 Perkembangan IPTEK; Pusat Dokumentasi dan Informasi Ilmiah ; Pusat Penelitian Sistem Mutu dan Teknologi Pengujian; Balai Media dan Reproduksi; P2 Metalurgi; P2 Kalibrasi, Instrumentasi, dan Metrologi; P2 Kima; P2 Fisika.
Jakarta and Serpong. *Center for Innovation; RC for Oceanography, RC for Society and Culture; RC for Politics; RC for Population; RC for Regional Resources; Head Office and Bureau; Inspectorate; RC for Development of Science and Technology; RC for Quality System and Testing Technology; TIU LIPI Press; RC for Metallurgy; RC for Calibration, Instrumentation, and Metrology; RC for Chemistry; RC for Physics.*

G **Cibinong dan Bogor.** P2 Biologi; P2 Bioteknologi; P2 Limnologi; Pusat Pembinaan, Pendidikan, dan Pelatihan Peneliti; Pusat Konservasi Tumbuhan Kebun Raya Bogor; UPT Balai Penelitian dan Pengembangan Biomaterial; UPT Balai Konservasi Tumbuhan Kebun Raya Cibodas
Cibinong and Bogor. *RC for Biology; RC for Biotechnology; RC for Limnology; The National Training and Education Center for Researcher Development; Center for Plant Conservation Bogor Botanical Garden; TIU for Biomaterial; TIU Cibodas Botanical Garden.*

H UPT Balai Besar Pengembangan Teknologi Tepat Guna, **Subang**
TIU for Development of Appropriate Technology, Subang

I **Bandung,** P2 Geoteknologi; P2 Fisika; P2 Kimia; P2 Informatika; P2 Tenaga Listrik dan Mekatronik; P2 Elektronika dan Telekomunikasi; UPT Balai Informasi Teknologi; UPT Balai Pengembangan Instrumentasi; UPT Loka Pengembangan Instrumentasi; UPT Loka Pengembangan Signal dan Navigasi.
Bandung, *RC for Geotechnology; RC for Informatics; RC for Electrical Power and Mechatronics; RC for Electronics Telecommunication; TIU Information Technology; Instrumentation Development ; TIU for Signal and Navigati*

J UPT Balai Informasi dan Konservasi Kebumian, **Karan Sambung , Jawa Tengah**
TIU Karang Sambung , Central Java

K UPT Balai Pengembangan Proses Teknologi Kimia
TIU Gunung Kidul, Central Java

L UPT Balai Konservasi Tumbuhan Kebun Raya, **Purwodadi**
TIU Purwodadi Botanical Garden

M UPT Balai Konservasi Tumbuhan Kebun Raya Eka Kary **Bali**
TIU Bedugul Botanical Garden

N UPT Loka Pengembangan Bio Industri Laut **Mataram**
TIU Mataram

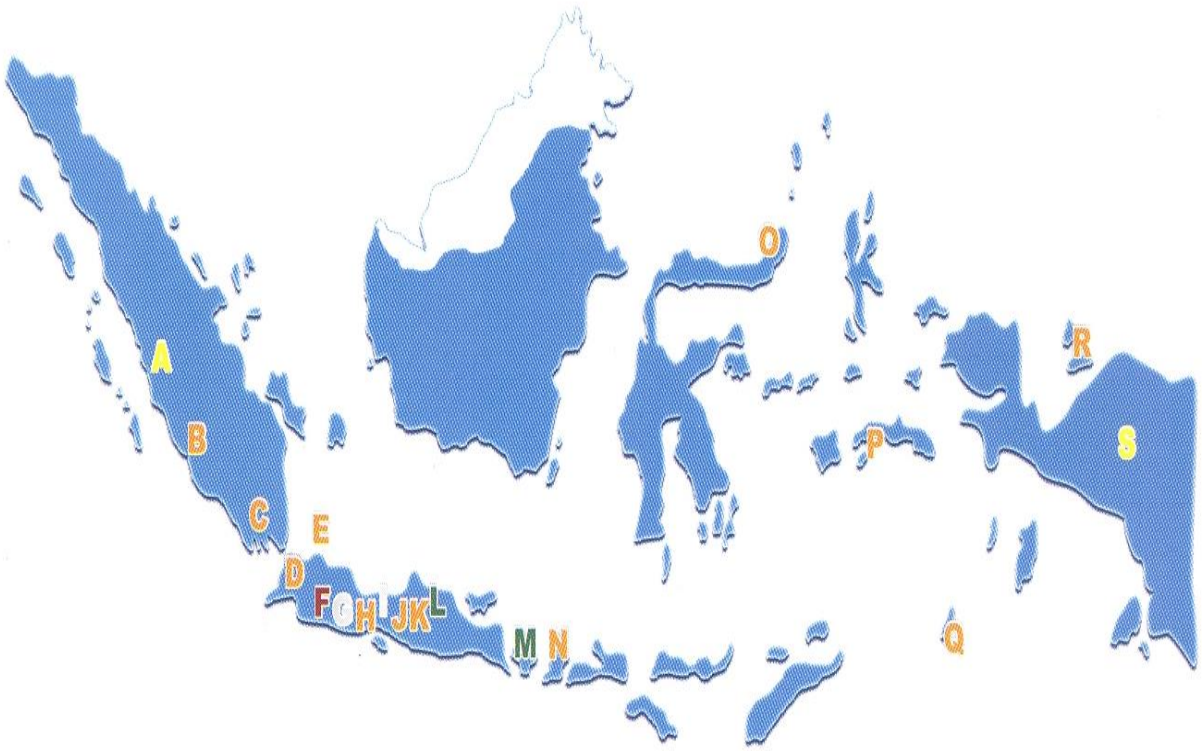
O UPT Loka Konservasi Biota Laut **Bitung, Sulawesi Utara**
TIU Bitung

P UPT Balai Konservasi Biota Laut **Ambon, Maluku**
TIU Ambon

Q UPT Loka Konservasi Biota Laut **Tual, Maluku Tenggara**
TIU Tual

R UPT Loka Konservasi Biota Laut **Biak, Irian Jaya**
TIU Biak

S Stasiun **Wamena**
Wamena Station

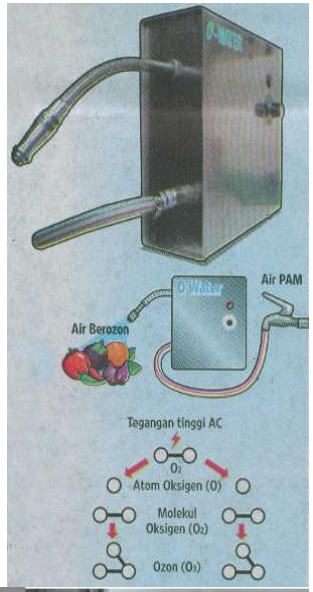


- 26 R&D Centers (Technical Sciences, Life Sciences, Social and Humantieis, Scientific Services, Erath Sciences)
- 18 Technical Implementation Units
- Managing 4 botanical garden

WHY STP LIPI

- 560 LIPI registered patents till 2015
- Law . 18 /2002 dan Govt Regulation No. 20 /2005
- R&D Results must be disseminate to industry and other users for people wellfafe

RESEARCH FACILITIES



COOPERATION

Japan Society for the Promotion of Science (JSPS), Jepang; Chinese Academy of Sciences (CASS), China; the Royal Botanic Garden Edinburgh; Academy of Sciences of the Czech Republic; The Korea Research Institute of Standards and Science of the Republic of Korea (KRISS); Kyushu University; The Deutsche Forschungsgemeinschaft; The National Museum of Natural History Naturalis, Leiden, the Netherlands; The International Rice Research Institute (IRRI); Koninklijk Instituut Voor Taal-, Land-En Volkenkunde (KITLV); Guangxi Botanic Garden of Medicinal Plant; Korea Ocean Research and Development Institute; Kyoto University; Chiba University; Research Institute for Humanity and Nature (RIHN); Fraunhofer (Gesellschaft Zur Forderung Der Angewandten Forschung e. V.); Korea Research Institute of Standards and Science, Korea; Man of Forest Foundation (MOF); Georg-August Universität Göttingen; Regents of University of California; Earth Observatory, Nanyang Technological University; Nadaoka Laboratory, Graduate School of Information Science and Engineering; Swiss German University; Hoseo University, Korea Selatan; Department of Ecology and Evolutionary Biology University of California; Sookmyung University; KOICA; Tokyo University of Agriculture, Japan; Flinders; JICA; PCG- Portugal; Universiti Putera Malaysia; The Third Institute of Oceanography, The State Oceanic Administration – PRC.

CAPAIAN LIPI (Bahan raker LIPI-DPR, BPK 2014)

Food Security

Organic fetilizer(POH) beyonic LIPI.

Soybean seeds

New Variety of rice for dry land
Varietas Inpago LIPI Go2

Biotek Peternakan Modern

Energy

Micro Hydro Power Generator (PLTMH)

Biomass-based Bioetanol

Environment and Disaster

KR ENREKANG

KR KUNINGAN

KR KATINGAN

KR

Pengembangan Kebun Raya
Pengembangan kebun raya daerah sebagai pusat konservasi *ex-situ*

IPAG60: Penjernih Air Gambut
Air gambut dapat diolah menjadi air bersih dengan kapasitas 60 liter per menit.

CAPAIAN LIPI

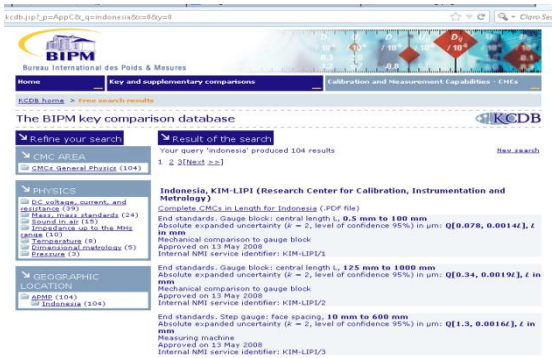
Program Rehabilitasi Terumbu Karang (COREMAP II)

Sistem Peringatan Dini Bencana Lingkungan Perairan
Sistem ini telah di-*install* di berapa lokasi (Danau, Waduk dan Lingkungan Perairan Tambang)

MARITIM

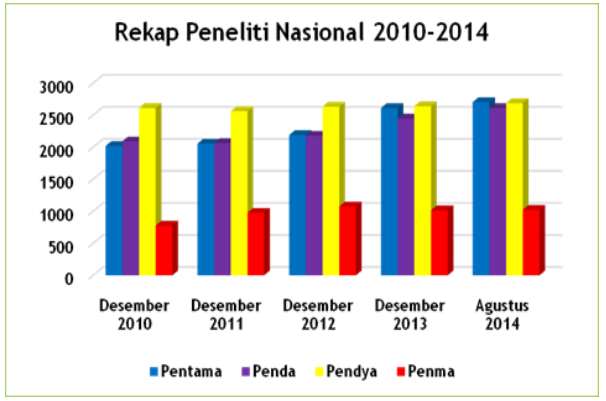
Laboratorium Pengujian

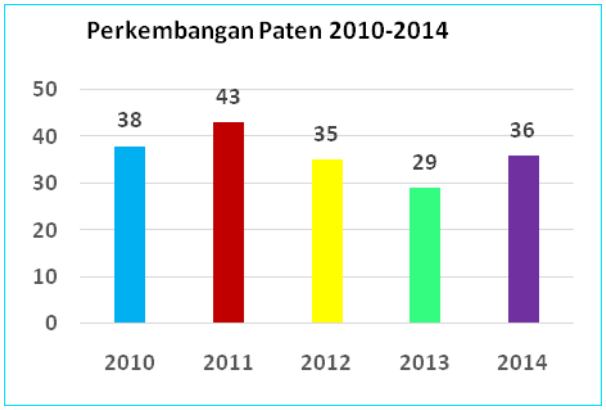
Radar ISRA untuk Wilayah Pantai



National Metrologi Institute
Laboratorium metrologi LIPI sebagai nasional *Institute* dan laboratorium metrologi acuan nasional

INDUSTRI





Perkembangan Peneliti Nasional dan Perkembangan Paten LIPI 2010-2014

LAINNYA

Local licensing

Technology :

- Patent registered No. P00201000878
- Coastal Surveillance Radar
- Supporting by RISTEK in terms of research funding

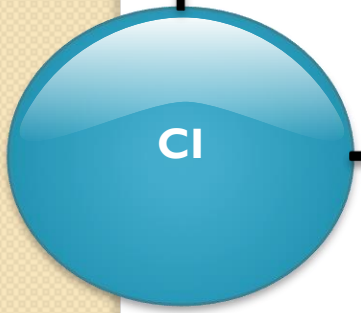
Technology Transfer Means :

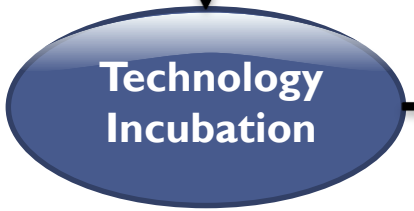
- Licensing with exclusive rights

Licensee :

- PT. INTI
- State Enterprise with business core in ICT business.

Services of Center for Innovation





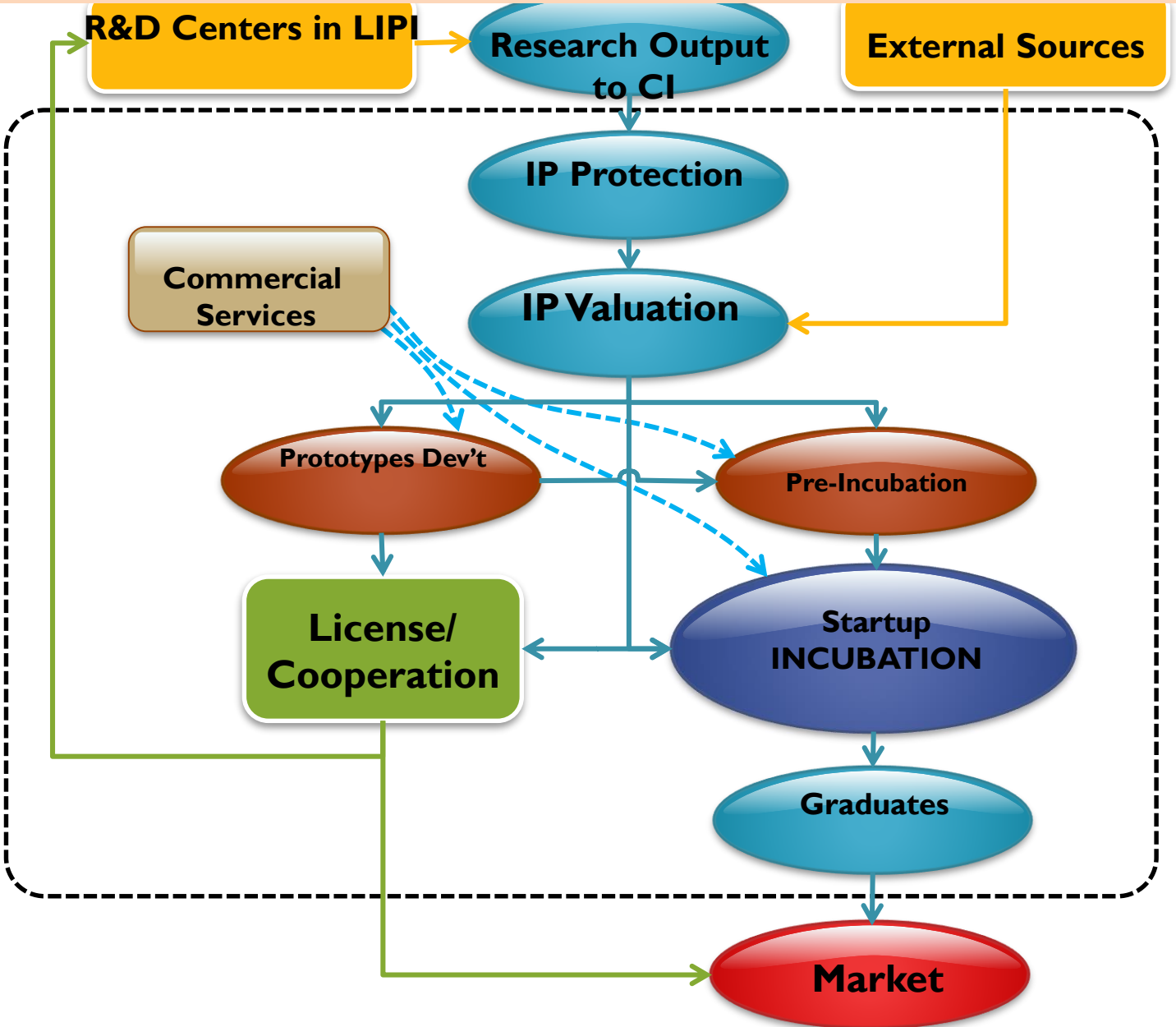
Services

1. IP Protection and IP Valuation
2. Technology Licencing
3. Business Matching
4. Business Planning
5. Technology appraisal

Services

1. Mentoring
2. Office space
3. Production facility
4. Training on business management
5. Facilitation:
   - Access to market
   - Access to funding
   - Access to expertise and lab

Technology Commercialization Process in Indonesian Institute of Sciences



Cibinong STP LIPI

Objectives of Cibinong STP LIPI 2015-2019

Objectives

- To accelerated the growth of technological innovation-based industry as a significant pillar or economy in the region
  - Creating a conducive innovation ecosystem
    - Policy instruments and regulation
    - Infrastructure
    - networking

To accelerate the development and transfer of technology from technology provider to industri and society

- Commercialiation and dissemination

Cibinong STP LIPI

CIBINONG NATIONAL SCIENCE AND TECHNOLOGY PARK

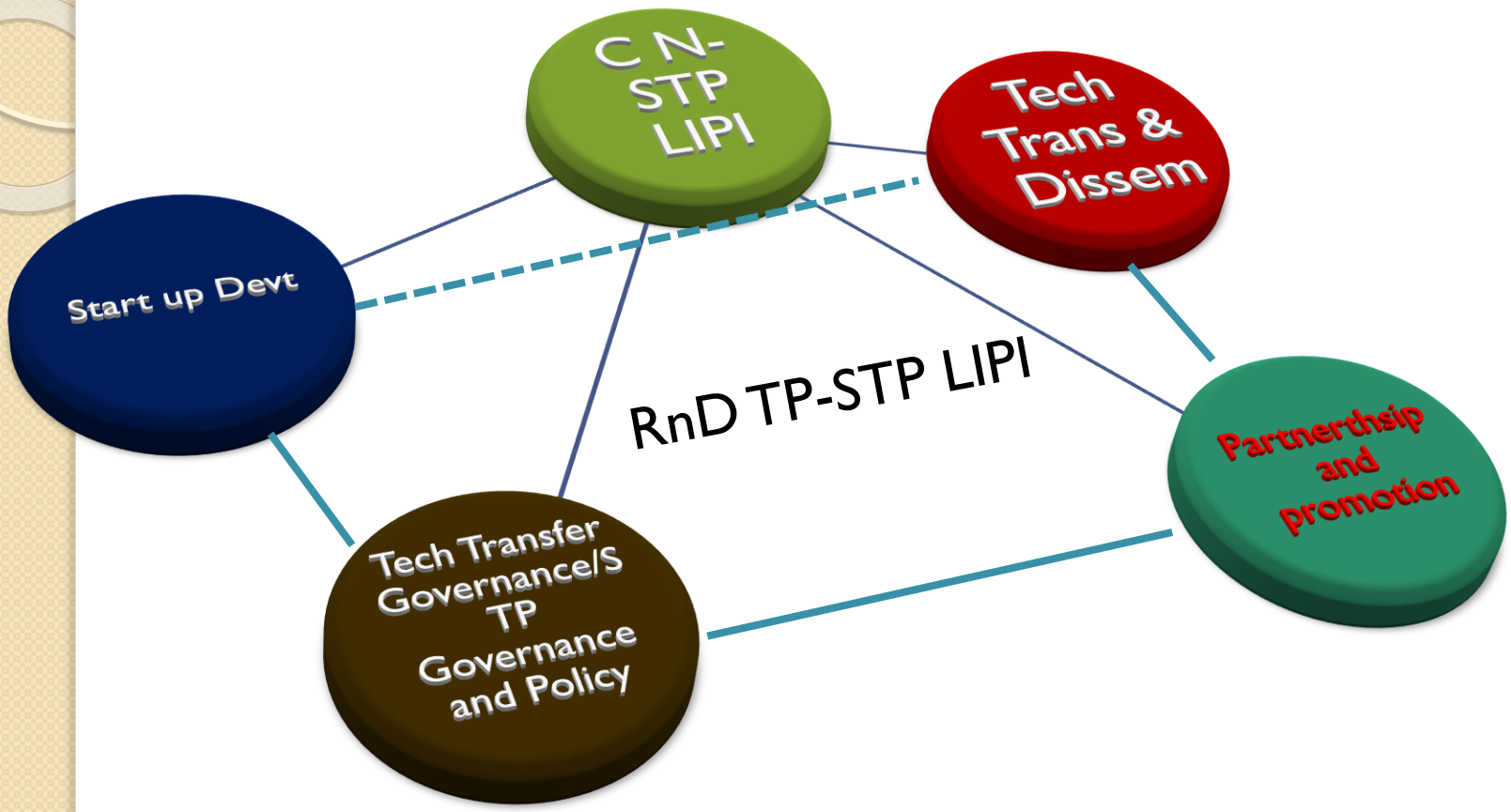
LEMBAGA ILMU PENGETAHUAN INDONESIA (LIPI)

A. Pusat Inovasi (saat ini): Atas-Manajemen Kekayaan Intelektual, Inkubasi, dan Alih Teknologi; Bawah-Tenant Inkubator, display produk
B. Workshop: ruang produksi skala terbatas untuk tenan inkubator
C. Pilot plant: Produksi skala pilot untuk tenant STP, start up, lemlit, UKM
D. Kantor, ruang pengembangan dan ruang produksi skala terbatas untuk industri tenant STP
E. STP Gues House
F. Convention Center, Training Center
G. Networking Center: amenities, startup cafe, health center

Tahap 1 : Pilot Plant (2016); Gedung Kantor dan Produksi skala terbatas Tensnt STP (2017)

Tahap 2 : STP Gues House (2018), Conventian Center, Technopreneurhsip Tranining Center, dan Newtoarking center (2019)

Cibinong N-STP Strategy



Diamond Program C N- STP-LIPI

Output of Cibinong STP LIPI 2017

Facilitation of establishement of **623startups**;

Dissemination of 11 technologies to industry , SMEsand community;

Implementation of 14 training packages to support tech dissemination,

7 technology showcase,

Governance strengthening,

Mentoring,

Development of STP infrastructure (in 2 stages)

Roadma Cibinong N-STP LIPI

MatureStage:
- Facilitation of 6 Startup, 11 tech dissemination, 2 new product for industri, 2 teh licency, train 120 SMEs/comm, Pilot plant and spacemakers, , Pilot plant and spacemakers, Industry Zone, Conv. Center

Growing Stage:
- Facilitation of 6 Startup, 11 tech dissemination, 2 new product for industri, 2 teh licency, train 120 SMEs/comm, Pilot plant and spacemakers, , Pilot plant and spacemakers, Industry Zone, Conv. Center

2019

2018

2017

Development Stage:
- Facilitation of 6 Startup, 11 tech dissemination, 2 new product for industri, 2 teh licency, train 120 SMEs/comm, Pilot plant and spacemakers

2016

Growing Stage:
- Facilitation of 6 Startup, 11 tech dissemination, 2 new product for industri, 2 teh licency, train 140 SMEs/comm, Pilot plant and spacemakers, Industry Zone

2015

Conception Stage:
- Advocacy of the STP concept, 5 Startup, 11 tech dissemination, 2 new product for industri, train 100 SMEs/comm, Masterplan

Startup/Tenant Center for Innovation LIPI

Statistik selama 3 tahun (2014 – 2017)

25 tenant

12 Inwall

10 Outwall

2 Graduate

3 Startup to be graduated

9 Startup succeed raised fund

Rp **1,9B** Total funding raised

75+ New Employment

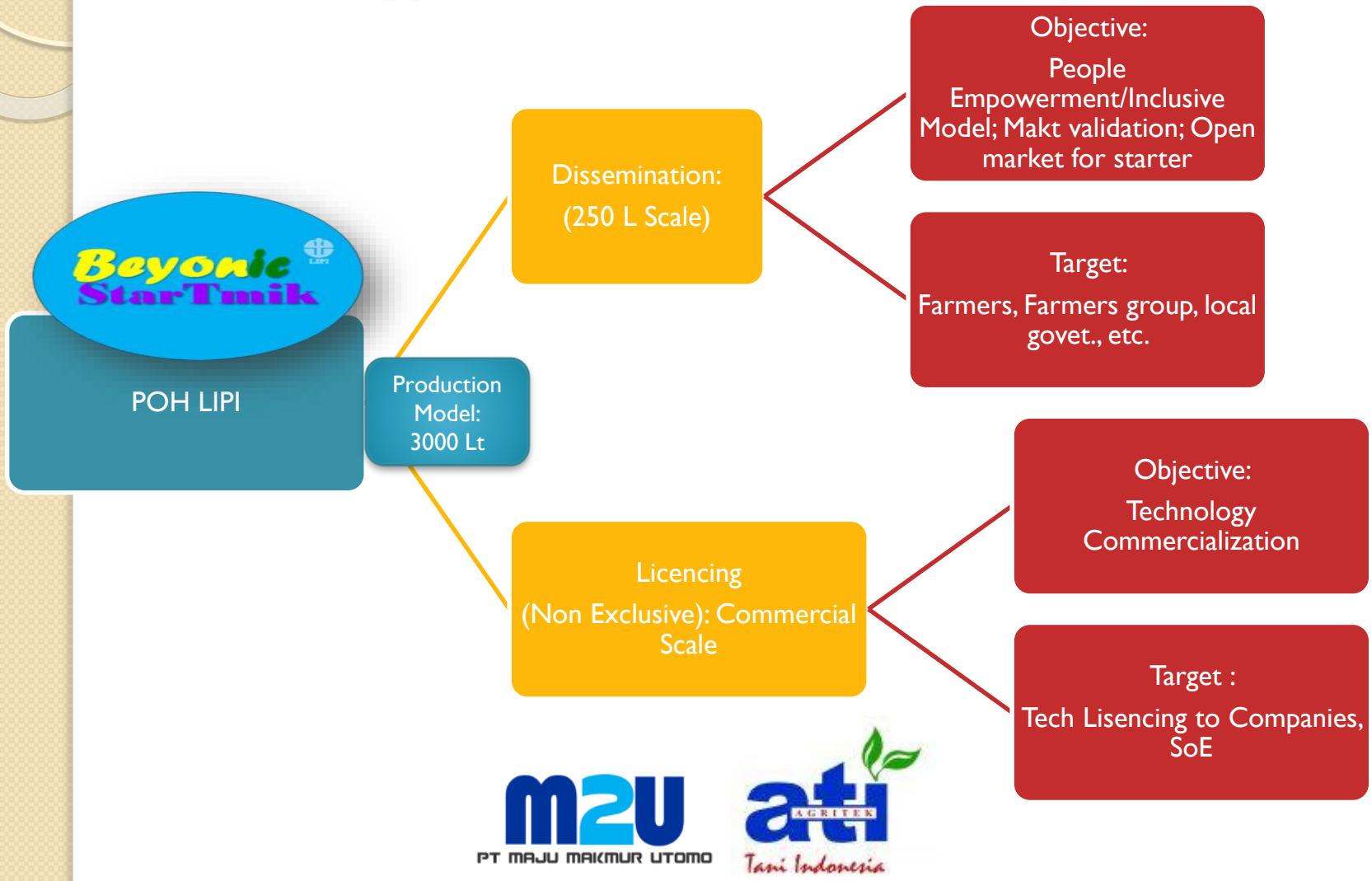
Case of Commercialization of Bio-Fertilizer: The Farmers' "*Friends*"

General Description of Bio-Fertilizer

- Bio-Fertilizer (POH/ByoMi
  - 1 registered patent
  - Consortium of more than 1
    yeast

- Environmental Benefit:
  - Reduce the use of Inorganic Chemical fertilizer up to 50%
- Performance:
  - Can increase harvest between 15% to 40% -

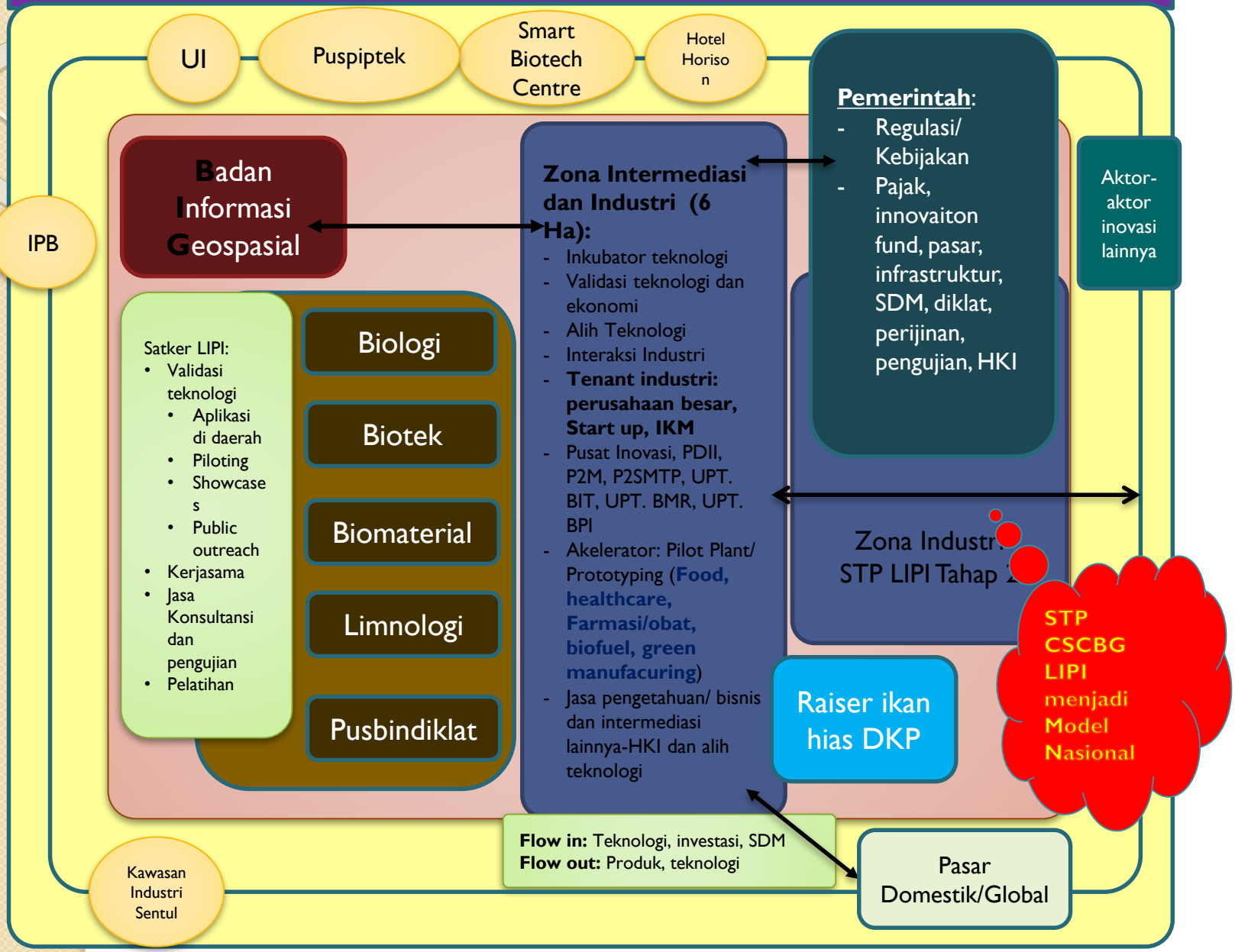
Technology Commercialization Strategy of Bio-Fertilizer (POH)



Bio-Fertilizer Overall Achievement

2 technology licencees	3 Licencing under negotiation	2 New Companies	Disseminated at 68 District across the country

GAP STP LIPI – CSC BG dan Ekosistem Inovasi Regional



Closing Remarks

Some Key Success Factors of Green technology commercialization

- Rapid experimentation
  - Validate technical and economical aspects
- MVP-mini/pilot scale demonstration/production
- Flexible model of technology commercialization

THANK YOU