

MODEL OF TECHNOLOGY COMMERCIALIZATION FROM GOVERNMENT RESEARCH INSTITUTIONS TO PRIVATE SECTOR IN INDONESIA

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I. INTRODUCTION

Two channels for technology transfer by government research institutions in Indonesia:

1) Public domain



2) Commercialization

a) Technology incubators to SMEs

b) Direct cooperation with private sectors
(license)

II. THE REGULATIONS

The purpose of technology transfer of IP and the results of R & D activities are:

- Disseminating science and technology
- Improving the ability of communities to utilize and master science and technology for the benefit of society and the state

(Government Regulation No. 20 of 2005 on Technology Transfer)

“In order to conduct the process of commercialization and management of intellectual property rights (IPR), government research institutes are required to establish a center for IPR management and technology transfer of IP and the results of R&D activities”

(Article 16 Government Regulation No. 20 of 2005 on Technology Transfer)

“Universities and R & D institutions have an obligation to transfer the technology of IP and the results of R & D activities generated by research and development activities that are financed fully or partially by the Government and/or Regional Government as long as not in the contrary to public order and legislation”

(Article 16 of Law No. 18 of 2002 on the National System of Research, Development and Application of Science and Technology, and Article 2 of Government Regulation No. 20 of 2005)

“Royalties for inventors” has been regulated in the :

- Law No. 13 of 2016 on patents

- Law No. 18 of 2002

- Government Regulation No. 20 of 2005

- Minister of Finance Regulation No. 72 of 2015 and No. 06 of 2016

that contribute to the acceleration of technology commercialization in Indonesia.

III. EXISTING COMMERCIALIZATION MODEL

Cooperation on Technology Commercialization between Government Research Institutes and Private Sectors in Indonesia, 2011-2015

No	Institution	Business Commercialization	
		Status	Information
1	Indonesian Institute of Sciences (LIPI)	Echelon 2	Managing incubator and direct cooperation
2	Agency for The Assessment and Application of Technology (BPPT)	Public Service Board/Echelon 2	Incubator is managed by a separate unit
3	National Nuclear Energy Agency of Indonesia (BATAN)	Echelon 2	NA
4	Agency for Health R & D	IPR Center non-echelon	There is no incubator management unit
5	IAARD	Echelon 3	New incubator initiation stage

Technology commercialization Models :

a) Through Technology Incubator

- Indonesian Presidential Regulation No. 27 of 2013 on the Development of Entrepreneurial Incubator.

- 3 stages : Pre-incubation, Incubation and Post-incubation.

- 7 S (space, shared office facilities, service, support, skill development, seed capital, synergy).

- 56 tenants joint BIT but only 16 tenants graduated from incubator or the survival rate is 29% (2002-2014)

BIT = Technology Based Business Incubator (BIT) that manages the technology incubator, which is a technical implementation unit at BPPT.

Infrastructure
(software and hardware)

Incubation stage

Development stage

Tenants

Talent
Scouting
and
partnership

Technology
Transfer
and
Business

Access to finance,
innovation network,
human resource
development

Techno
preneur

Pre-Incubation

Incubation

Post-Incubation

Supporting Infrastructure

Institutional Development

Stages of Technology Incubation Services

b) Through License

- The process :

Technology selection using Technology Readiness Level (TRL) or Innovation Readiness Level (IRL)

Promotion to private sectors (business meeting, good relationship, informal communication etc)

MOU (License)

- Royalty to be paid (at MoA ranging from 1-5%)
- Annual audit from sales report
- Royalty is perceived as the government's non tax revenues. Government research institutions can utilize 95% from the total of government's non tax revenues, with the following distribution:
 - 40% for research institutions to purchase research equipment, capacity building, and laboratory or experimental station renovation.
 - 40% for the inventors.
 - 20 % for technology transfer office.

Commercialization cooperation between Government Research Institutions and Private Sectors, 2011-2015

No	Institution	Number of cooperation	
		Technology incubator	Direct Cooperation
1	Indonesian Institute of Sciences (LIPI)	18	92
2	Agency for The Assessment and Application of Technology (BPPT)	16	250
3	National Nuclear Energy Agency of Indonesia BATAN	NA	32
4	Agency for Health R & D	0	8
5	IAARD	6	137

Dominated by license model (> 75%)

IV. CHALLENGES AND SOLUTIONS

- Technology incubator has not yet developed as it should be, due to:
 - (a) The limitations of operational facilities
 - (b) Lack of seed capital
 - (c) Low commitment and government support
 - (d) Tenants have experienced technical problems (related to the equipments that are not functioning well)
 - (e) Marketing the products
 - (f) The role of mentor

- Direct commercialization through license facing problem related to :
 - a) Technology readiness for commercialization, due to not sufficient funding available to develop the scientific results (level 5 or 6 in average) in order to achieve the highest TRL (level 9).
 - b) Company readiness to compete in the market (they want to get government projects).
- In the case of IAARD, from 108 agreements in 2014, 35 agreements have problems related to the quality of technology, the process for obtaining the license for market distribution, cannot compete in the market, internal management issue.

Solutions :

- IAARD has developed TRL tool to assess the readiness of the technology.
- External funding scheme to develop scientific results to be ready for commercialization (for example : RISPRO provides funding maximum of US \$ 151.515.
- Intensive communication between government research institutions and private sectors to get input for planning the research that meet the market needs.

V. CONCLUSION

- Cooperation between government research institutions with private sectors principally is intended as an effort to accelerate the delivery of innovation to the end user. The private sectors with their networks are expected to assist the government research institutions in delivering research results to potential users in massive scale and effectively.

- Currently, direct cooperation with the private sectors is still dominating the commercialization cooperation between the private sectors and government research institutions. This relates to the marketing networks and the speed of market penetration. While the incubation pattern is still developing in a variety of patterns and requires a strong commitment and support from the government.
- Onwards, both cooperation still needs to be synergized to accelerate the innovation transfer from government research institutions by overcoming the existing issues.

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