

BUKU  
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Editor:  
**Dr. Guspika, MBA., dkk.**

# DIREKTORI **ACTION PLAN**

STAFF ENHANCEMENT - AFIRMASI -  
MAGANG DALAM NEGERI

## PROFESSIONAL HUMAN RESOURCE DEVELOPMENT IV

Pusat Pembinaan, Pendidikan, dan Pelatihan Perencana  
Badan Perencanaan Pembangunan Nasional

# DIREKTORI **ACTION PLAN**

Staff Enhancement - Afirmasi -  
Magang Dalam Negeri

PROFESSIONAL  
HUMAN RESOURCE  
DEVELOPMENT

IV

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Badan Perencanaan Pembangunan Nasional

**DIREKTORI ACTION PLAN STAFF ENHANCEMENT AFIRMASI MAGANG  
DALAM NEGERI: PROFESSIONAL HUMAN RESOURCE DEVELOPMENT IV JILID 2**

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DIREKTORI  
**ACTION PLAN**

Staff Enhancement - Afirmasi -  
Magang Dalam Negeri





# KATA PENGANTAR

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Dalam rangka menjamin pencapaian tujuan pembangunan nasional diperlukan adanya rencana pembangunan yang berkualitas, baik di pemerintah pusat maupun pemerintah daerah. Perencanaan yang berkualitas tersebut dibangun oleh Aparatur Sipil Negara (ASN) yang kompeten di instansi perencana pusat dan daerah.

Sesuai dengan Permen PPN/Bappenas No. 4 Tahun 2016, Pusat Pembinaan, Pendidikan, dan Pelatihan Perencana (Pusbindiklatren) pun melaksanakan salah satu tugas dan fungsinya dari Kementerian PPN/Bappenas, yaitu memfasilitasi para pegawai Kementerian PPN/Bappenas serta perencana di instansi pusat dan daerah melalui program beasiswa pendidikan dan pelatihan. Program beasiswa pendidikan dan pelatihan tersebut ditujukan sebagai upaya peningkatan kualitas Sumber Daya Manusia (SDM) perencana di pusat dan daerah melalui penyediaan beasiswa pendidikan gelar jenjang S2 dan S3 serta pelatihan nongelar di bidang perencanaan pembangunan.

Program beasiswa pendidikan dan pelatihan secara rutin diselenggarakan setiap tahun, sehingga tentunya telah menghasilkan banyak hasil penelitian dan kajian. Bagi penerima beasiswa pelatihan serta magang, baik di dalam negeri maupun di luar negeri dituntut menghasilkan sebuah *Action Plan* yang disusun mulai dari perencanaan sampai pada implementasinya dengan berbasis *SMART* (*Specific Measureable Achievable Realistic Timely*). Mengingat manfaat yang dapat diperoleh dengan tersebar luasnya *Action Plan*-*Action Plan* tersebut, maka Pusat Pembinaan, Pendidikan, dan Pelatihan Perencana (Pusbindiklatren) memandang perlu untuk menerbitkannya dalam bentuk sebuah buku *Direktori Action Plan Staff Enhancement PHRD*.

Buku *Direktori Action Plan Staff Enhancement PHRD* ini terdiri atas dua seri buku. Kedua buku memuat topik-topik *Local Economic Resources Development* (LERD), *Public Private Partnership* (PPP), *Urban Planning* (UP), dan *Waste Management* (WM). Semoga dengan kehadiran buku ini dapat memberikan manfaat dan kontribusi positif terhadap peningkatan

kompetensi sumber daya manusia aparatur pemerintah yang bertugas pada bidang perencanaan pembangunan, baik di pemerintah pusat maupun di daerah dalam melaksanakan reformasi birokrasi di instansi masing-masing.

Jakarta, September 2020

**Kapusbindiklatren**

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# 1

## Development of Furniture Industry Based on Rubber Wood in North Barito Regency

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### A. Introduction

Despite having the largest natural rubber (*Hevea brasiliensis*) plantation in the world (3.4 million hectares), Indonesia's natural rubber productivity is relatively low, averaging 862 kg/ha/ year. Lower than other producers such as Thailand (1,875 kg), India (1,727 kg), Vietnam (1,483 kg) and Malaysia (1,330 kg). Domestic consumption reached 15% (414 thousand tons) of which 65% - 70% is consumed by tire factories (Rahman and Haris, 2010).

In Indonesia, 85% of rubber plantation are belong to small farmers, 8% state plantation and 7% belong to private sector. This low productivity is mainly belong to smallholders due to the use of nonprior clones (seedling), the number of damaged trees, dead and disease and has exceeded the productive ages. Approximately 400,000 hectares need to be rejuvenated and replaced with superior clones (Ministry of Agriculture, 2015).

In North Barito regency, small holder rubber plantation area of 46,211 hectares spread in nine districts was commodity that has been a mainstay for a long time. The area is larger than area of palm oil (3,597 hectares) and cocoa (556 hectares) or 91.25% of total plantation areas. Besides, there are also oil palm plantations managed by three large private companies and domestic investment of 25,245 hectares (Regional Profile of North Barito Regency Year 2015). Data from Ditjenbun (2016) showed that rubber area in North Barito consisting of 31,385 hectares of mature plants and 3,050 hectares of immature plants with production of 10,908 kg of dry rubber or 348 kg/ha/year which put the regency's productivity at position 13th of 14 regencies as shown in Tabel 1. The problems are similar; non-prior clones, dead/damage rubber trees and out of productive ages.

**Tabel 1.**  
**The productivity of Natural Rubber in Central Kalimantan by Regency**

No.	Regency	Immature Plants (ha)	Mature Plants (ha)	Damage Plants (ha)	Total Areas (ha)	Prod (ton)	Productivity (kg/ha/yr)	Total Farmers
1	South Barito	3.115	18.475	49	21.639	19.444	1.052	8.795
2	Sukamara	1.200	2.406	27	3.663	2.433	1.011	2.179
3	Kapuas	2.986	12.794	760	16.540	8.852	692	13.838
4	Pulang Pisau	3.756	16.385	932	21.073	11.253	687	18.206
5	West Kotawaringin	1.824	6.943	169	8.936	4.420	637	4.015
6	Gunung Mas	6.726	36.294	342	43.362	16.567	456	27.611
7	East Kotawaringin	3.727	25.803	754	30.284	11.660	452	16.738
8	Murung Raya	6.016	26.290	14	32.320	11.538	439	14.672
9	Seruyan	2.309	6.343	17	8.669	2.607	411	6.798
10	Katingan	2.591	5.017	229	7.838	1.969	392	5.823
11	Lamandau	1.434	2.003	--	3.437	768	383	2.503
12	Palangka Raya City	342	2.900	3	3.245	1.071	369	2.063
13	North Barito	3.050	31.385	17	34.452	10.908	348	14.184
14	East Barito	4.617	29.843	476	34.936	9.615	322	13.276
	<b>Total</b>	<b>43.693</b>	<b>222.881</b>	<b>3.789</b>	<b>270.363</b>	<b>113.105</b>	<b>507</b>	<b>150.701</b>

Sumber: Ditjenbun (Indonesia Plantation Statistics, 2016)

Ministry of Agriculture (2005) stated that long term goals (2010 - 2025) of development of natural rubber Indonesia were:

1. Rubber production reaches 3,5 - 4 million tons, which 25% is for domestic industry.
2. Productivity increased to 1.200 – 1.500 kg/ha/yr and minimum wood yield 300 m<sup>3</sup>/ha/cycle.
3. Small farmers use 85% of superior clones.
4. Farmerr earnings up to US \$ 2.000/ year with rubber price level is 80% of FOB price.
5. The development of rubber-based downstream industry.

Ministry of Agriculture (2005) and Anwar (2006) recommended on farm strategies such as: (a) the use of high yielding clones with high productivity (2-3 ton/ha/yr); (b) acceleration of old rubber rejuvenation of 400 thousand hectares up to 2009 and 1,2 million hectares up to 2025, and off-farm strategies such as increased value added through the development of downstream industries based on latex and rubber wood. Even in 2016, the target of replanting increased to 1 million hectares of rubber area.

To increase national rubber productivity, central government since 2005 has rolled out a plantation revitalization program targeting 50.000 hectares of expansion and 250.000 hectares of rejuvenation. One of the constraints of this revitalization was because the bank as the borrower of the capital did not dare to disburse funds to farmers because there was no guarantor company (avalist). Regulation of the Minister of Finance No. 117/PMK.06/2006 on Plantation Energy Development Credit and Plantation Revitalization required the existence of a guarantor company in the banking credit distribution. This is also stated in Regulation of the Minister of Agriculture Number: 33/Permentan/OT.140/7/2006 on Plantation Development Through Plantation Revitalization Program. Avalist is a partner company established by the Directorate General of Plantation which provides assurance of plantation development.

In Bank Indonesia Regulation no. 17/12/2015 mentioned in order to encourage the provision of Credit and Banking Financing to Micro Small and Medium Enterprises (MSMEs), Bank Indonesia has required Commercial Banks to provide Credit or Financing to MSMEs, with achievement stages in 2013 and 2014 adjusted to the ability of commercial banks, by 2015 set

the lowest by 5%, by 2016 the lowest by 10%, by 2017 the lowest by 15% and since 2018 the lowest by 20%. (LPPI and BI, 2015).

The Indonesian government itself has actually provided a clear legal umbrella for the development of MSMEs by issuing Law No.20 / 2008 on MSMEs. Article seven of the first paragraph states that the Government and the Regional Government develop the business climate by stipulating legislation and policies covering aspects of funding, facilities and infrastructure, business information, partnership, business licensing, business opportunity, trade promotion and institutional support. For large companies willing to partner with MSMEs, the government will provide facilities as mentioned in Presidential Decree No. 28 of 2008 on the National Industrial Policy Article 4 (1): The government may provide facilities to industries engaged in partnership with micro, small, medium, or cooperative enterprises. Criteria of MSME based on Law no. 20/2008 is shown in Table 2.

Tabel 2.  
Criterias of MSME in Indonesia

Scale of enterprise	Criterias
Micro enterprise	<ul style="list-style-type: none"> <li>• Have maximum net properties of Rp50 millions (excluding land and business building)</li> <li>• Have annual sales up to Rp300 millions</li> </ul>
Small enterprise	<ul style="list-style-type: none"> <li>• Have net properties more than Rp50 millions up to Rp500 millions (excluding land and building)</li> <li>• Have annual sales of more than Rp300 millions up to Rp2.5 billions</li> </ul>
Medium enterprise	<ul style="list-style-type: none"> <li>• Have net properties more than Rp500 millions up to Rp10 billions (excluding land and building of business premises)</li> <li>• Have annual sales of more than Rp2.5 billions up to Rp10 billions</li> </ul>

The role of MSMEs in Indonesia itself cannot be underestimated. Data from Bank Indonesia (2015) cited by Sofyan (2017) mentioned that in terms of contribution to the workforce, MSMEs contributed 96.7% with details of 87% (99.3 millions) micro enterprises, 5.7% (6.5 million) small enterprises, 4% (4.5 million) medium enterprises and the remaining 3.3% (3.76 million) large enterprises. Kristianti (2017) in her study stated that small and medium enterprise has strategic role in national economic development, because of their role in the economic growth and employee recruitment as well as their role in developmental products distribution. During the economic crisis happened in Indonesia few years ago that affected to the collapse of many big scale firms, SMEs proved tougher in facing the crisis.

Referring to the national policy on smallholder natural rubber plantation, the local government was planning to rejuvenate about 11,025 hectares of smallholder rubber plantations to be replaced by superior clones. To that end, local government provided assistance for the provision of prior rubber seeds for free. But for farmers it is not that simple. Rejuvenation means they have to cut down some their rubber trees that are considered unproductive. Though the rubber trees can be regarded as a source of their income. Rejuvenation will have a direct impact on decline of rubber farmer income. In addition, these rejuvenation activities will also require funds from cutting, land clearing, preparing land for planting and planting. Therefor there should be alternatives and incentives for rubber farmers to be willing to rejuvenate. One of them is utilizing the rejuvenated rubber wood as raw material of furniture industry.

In context of local economic development (LED) the word “local” refers to a process of valuing the endogenous potential, making optimal use of the already existing local capacities. While the word “economic” is directed towards the identification of investment opportunities, supporting entrepreneurial activities and facilitating the access to (new) markets. And the word “development” is the process that is aimed at promoting an improvement in the living and working conditions of the community through the creation of new jobs, the retention of existing jobs and the generation of income.

So, the development of furniture industry based on rubber wood in this regency is very strategic in terms of:

1. Local government programs that want to rejuvenate some people’s rubber plantation with the latest generation of productive clones, with productivity of more than 1000 kg/ha/year but were hampered because rubber farmers were reluctant to lose some of their income during the rejuvenation.
2. For the development of local economy because raw materials, labor, technology and market are still very open. So far, the need for furniture products for offices and schools is almost 100% always imported from South Kalimantan, especially Hulu Sungai Utara Regency.
3. The level of technology and skills required both skill and knowledge for this business can be relatively fulfilled by local people.



4. Addressing the delays or breakdown of local and central government programs targeting the rejuvenation of 400,000 hectares of rubber plantation in Indonesia, especially on the islands of Borneo and Sumatera by providing a larger income alternative.
5. Assisting the absorption of funds available in commercial microfinance institutions according to Bank Indonesia regulations which required to dispense at least 20% of total loans to MSMEs in 2018.

## **B. Results and Discussion**

### **1. Characteristics and Potential of Rubber Wood**

Rubber wood was classified as hardwood grade II which means equivalent to natural forest woods such as ramin wood, perupuk, acacia, mahogany, pine, meranti, durian, ketapang, keruing, sungkai, riding, and nyatoh (Sulastiningsih et al., 2000). Rubber wood classified as preservation V or equivalent to ramin wood, but the level of rubber wood vulnerability to insects and blue mushroom (blue stain), greater than ramin wood. Therefore, for its utilization, need more intensive preservation than ramin wood, especially after sawing (Boerhendhy et al., 2003; Boerhendhy and Agustina, 2005).

Other prominent basic properties of rubber wood, the wood is easily sawed and the surface of the sawing is quite smooth, and easily soluble by producing and had smooth surface. Rubber wood was also easily nailed, and has good sticking characteristics with all types of adhesives. The distinctive characteristic of rubberwood was its yellowish white color when freshly cut, and will turn pale yellow like straw color after it was dried. It's attractive colors and textures were similar to ramin wood and perupuk that was smooth and flat, rubber wood was very easy to be colored so it is preferred in making furniture (Boerhendhy et al., 2003). The quality of fibreboard from rubber wood is equivalent to plywood derived from natural forest (Basuki and Azwar, 1996).

Unlike Malaysia, India and Thailand, the timber industry in Indonesia generally has not used rubber as raw materials. The use of rubber wood in Indonesia for the carpentry industry only reached 30%. Approximately 80% -85% of Malaysian furniture products use rubber wood where the export

value of furniture from rubber wood is about USD 1.1 billion. Thailand also uses rubber wood as raw material for its furniture industry with a total export value of approximately USD 300 million annually (FAO, 2005; Manurung et al., 2007; Welivita and Amarasekara, 2008; Ratnasingam and Wagner, 2009). Even Malaysia's furniture exports in 2004 had surpassed Indonesia, whereas the Malaysian rubber area is only 1.54 million hectares.

In China, rubber wood is often called "ivory wood". Uniform color, beautiful wood grain, medium density (about 0.6 gram/cm<sup>3</sup>), homogeneous texture, good mechanical processing properties, good stability measure, good surface abrasion resistance made rubber wood into high quality raw material for furniture, veneer for decoration, paneling and flooring. While small rubber wood is used for particleboard, plywood and MDF (Yongdong et al., 2007; Kamaruzzaman and Yahy, 2008; Yisheng et al., 2008).

Assesing from the physical, mechanical, and other basic properties such as the color and texture of rubber wood, the availability of rubber wood raw materials in rubber plantations, and the development of rubber processing and pickling technology in recent years, it is possible that rubber wood can be utilized as natural wood substitution, especially to meet the needs of the timber industry. At the national level, according to Ministry of Agriculture (2005) the need for timber reaches 58 million m<sup>3</sup>/year, while total timber production is only about 52 million m<sup>3</sup>/year. Especially with the tight control of the government against illegal logging practices, this will increase the opportunity of rubber wood utilization as industrial raw materials as well as household appliances such as particle board, parquet, MDF (Medium Density Fiberboard). MDF can be processed into wood pulp, further into particle board, pulp, and paper. This strict regulation of illegal logging has resulted in a number of plywood factories in Banjarmasin and other places lacking raw materials. This is an opportunity for rubber farmers (Boerhendly and Agustina, 2006).

## 2. Development Constraints

Assesment using ISM method indicated that the main constraints of location development are Capital Shortage, Absence of Assistance, and Lack of Information Access are independent factors as shown in Figure 2 and Figure 3. This condition caused the farmers to continue using the seedling-clone (inferior varieties), The strong dominance of intermediary traders

and the farmers do not know the fluctuation of price are linkage factors that affects the absence of incentives for farmers and low productivity of farmers and low quality of rubber material.

According to Arifin (2005) and Akiefnawati et al. (2008), the low productivity and quality of rubber material supply is caused by:

1. The old rubbers, damaged, and derived from seedlings. Non-prior clones.
2. The demand for raw materials from the crumb rubber industry does not encourage the improvement of rubber material quality.
3. The dominance of intermediate traders who have long been formed in rubber material marketing.
4. The unfavorable pattern of partnership between the rubber plant and the farmers.

In order to support the financing aspect for MSMEs, the Indonesian government through Law no. 20 year 2008 Article 8 (d) stated: to assist Micro and Small Business actors to obtain financing and other services / financial products provided by banks and non-bank financial institutions, both using conventional and syariah systems with guarantees provided by Government. And the term of development in this Law included guidance and assistance in the form of bussines development services-providers.

Basically, the problems faced by MSMSs generally can be simplified into two groups, namely the low ability of business managers, mainly due to the low quality of human resources and the limited access of SMEs to productive resources. Human resources problem is the critical factor that determines most to achieve success in various activities or business, both SMEs and large business. This condition occured because of the low level of education, knowledge, and experience in the business sector. Limitations that are almost common to MSMEs are particularly prominent in aspects of entrepreneurial competence, management, production engineering, planning, quality control and product development, accounting, and marketing techniques.

The limited human resources degrade product quality, resulting in low ability to penetrate new markets for the business sector. Increased knowledge and expertise is needed to improve the ability in business management,

especially in the era of globalization is needed to encourage the increasing competitiveness of SMEs products in the international market.

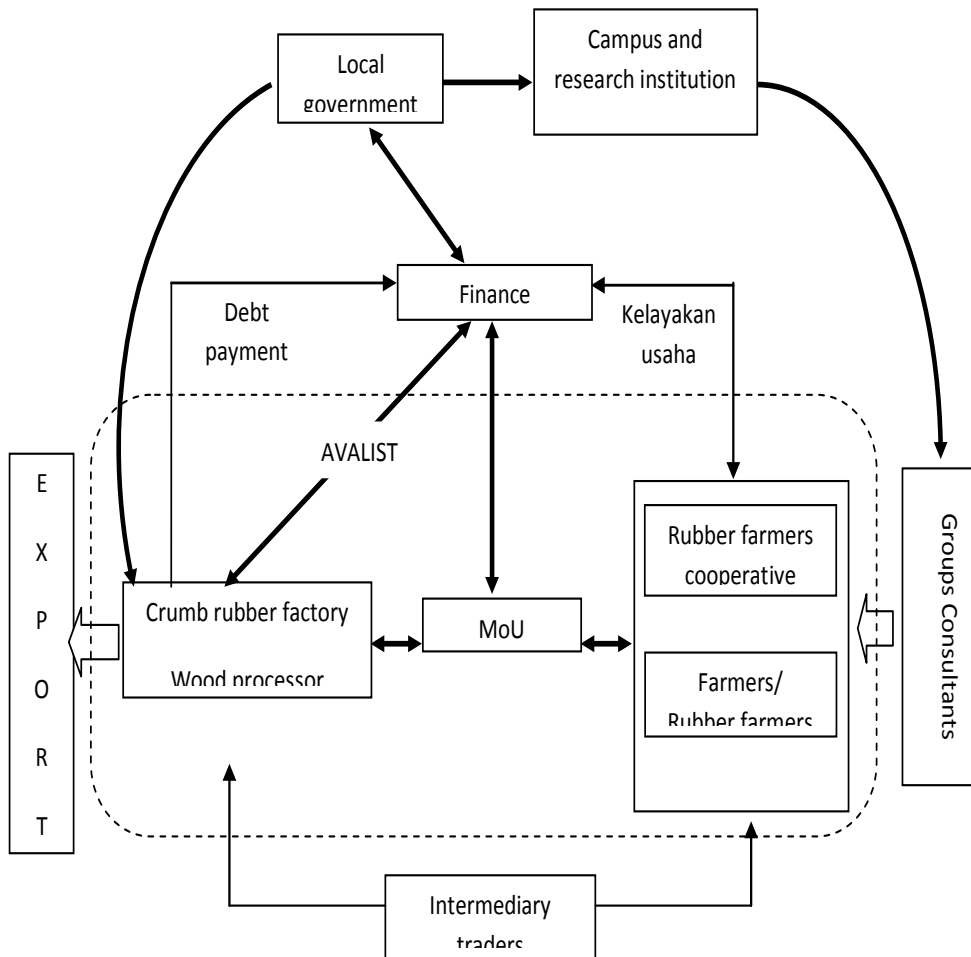
The second problem, which is mostly faced by UMKM, is the limited access to productive resources, especially marketing, capital, and technology. Some aspects related to marketing issues are the level of intense competition in both the domestic market and the export market. Meanwhile, as has been described in general the quality of products and level of productivity of MSMEs in Indonesia is low, coupled with the unfavorable business climate in the country, which raises high economic costs, such as expensive licensing arrangements, with lengthy procedures, not officially participate weaken the competitiveness of MSMEs products.

Matamanda and Chidoko (2017) in their study concluded that the biggest barriers to SME financing are lack of collateral, a small equity base and information asymmetry. The study recommends that banks and SMEs must form alliances and strategic partnerships to formulate solutions that will remove barriers and improve SME access to financing. Wahyudin et al. (2016) in their study which involved 500 SME in manufacturing. Showed that capital grants and loan policy by local government in Surakarta has positive effect to SME assets, capital and turnover. Capital grant is more effective compare to other government assistance such as equipment grants and loan to increase SME's business performance. Industrial policy for SME is not limited to business regulation but it also include direct assistance from local government for these business organizations.

### 3. Institutional Analysis

The study on the stakeholders involved in institutional development activities using the ISM method indicates that Local Government is the most influential actor, followed by Finance Institutions, Rubber Industry and Exporter as independent factor. Research Institutions are linkage factors, while Assistants, Intermediate Traders, Farmers Groups, and Farmers are dependent factors influenced by other actors. Local government need to be actively and directly involved in development activities and encourage formation of latex and wood rubber industries.

Based on the results of the above analysis, institutional mechanisms are designed as shown in Figure 4.



**Figure 4.**  
Institutions Mechanism

Analysis using AHP method showed the order of importance level (%) of each element is:

- Development Factors: Markets (25.3), capital (17.3), information (16.6), raw materials (11.6), human resources (10.8), technology (6.9), socio-cultural (4.0), legality (3.9) and ecology (3.6).
- Development Goals: Business continuity (16.1), continuity of raw materials (15.2), price and quality assurance (12.4), and appropriate value-added (12.4), environmental sustainability (11.5), information access (10.4), farmer self-reliance (8.5), local economic development (7.2), local revenue (4.5).
- Alternative patterns of rejuvenation: RAS-1 (63.7), RAS-2 (25.8) and RAS-3 (10.5).

#### 4. Rubber Rejuvenation with Agroforestry Systems

Agroforestry concept was developed by Nair (1989), one of its patterns was rubber agroforestry. This system is widely recommended for sustainable forest management and sustainable plantation crops, as well as good functions for agro-tourism and carbon supply (Nair et al., 2009). There were three rubber agroforestry systems (RAS) that can be applied to different farmers and land conditions (Budi et al., 2008), namely:

1. RAS-1, an extensive rubber agro-forestry system whose management is equivalent to a smallholder rubber plantation, where the rubber planting material is replaced by clonal rubber that is able to grow and adapt well in an environment that resembles secondary forest as in agro-forestry systems.
2. RAS-2, a complex agroforestry system with intensive management, where clonal rubber is intercropped with crops, fruits and timber, rattan or resin crops.
3. RAS-3, a complex agroforestry system built to rehabilitate weeds grassland with rubber planting along with other fast-growing plant species that can inhibit the growth of weeds.

Based on the General Guidelines of the Plantation Revitalization Program, Central Kalimantan is included in the Regional Cost Unit V. Unit Cost is the maximum amount of cost per unit of activity volume that can be financed through KPEN-RP, stipulated by the Minister of Agriculture or Officials authorized annually. Based on the decision of Dirjenbun No. 60/2008, Unit Cost of rejuvenation for Region V is Rp25.004.000/ha for partnership pattern and Rp22,552,000/ha for non-partnership pattern with the revitalization target of rubber plantation from 2007 to 2010 consists of 300 thousand hectares. Rubber rejuvenation has the potential to produce rubber wood of 300 m<sup>3</sup> per ha per cycle. (Boerhendhy et al., 2003; Ministry of Agriculture, 2007).

Clones used for rejuvenation such as recommended by Sembawa Rubber Research Center (2006) is clone IRR 112 which is released as seeds of development by Minister of Agriculture Decree Number. 511/kpts/SR 1209/2007. Clone IRR 112 is the result of crossbreeding and selection of Indonesian Sungei Putih Rubber Research Center. The advantages possessed by the IRR 112 clone as a clone of Latex-Wood producer. The average growth rate of stem germination at TBM (immature) is 13 cm/

year and 6 cm/year in TM (mature). Tapping can be done at the age of 3.5 years, relatively thick skin, quite resistant to *Corynespora* and *Colletotrichum* diseases. The average production potential is 2.546 kg/ha/year and the cumulative production up to the age of 9 years is 22,493 kg. The gradual rejuvenation of 10,000 hectares with agroforestry system type 1 will increase productivity from 0.348 tons to 1.1 tons/ha/yr and sufficient timber to ensure continuity of raw material supply.

Some of the alternative newest clones that can also be used as an alternative are the 100 series of wood latex producers capable of producing 300m<sup>3</sup> / ha with productivity of 1.58 - 2.05 tons/ha/yr as presented in Table 3.

Table 3.  
Some Recommended New Clones for Rejuvenation

No.	Name of Clone	Productivity (Ton/ha/yr)
1	IRR 107	1,94
2	IRR 112	2,05
3	IRR 118	1,92
4	IRR 119	1,75
5	PB 260	1,71
6	BPM 24	1,58

Source: Aidi-Daslin, 2014. Yield of 10 years taping

Initial rejuvenation according to available land is 10,000 hectares done gradually over 15 years so that rubber farmers do not lose their livelihood. Rejuvenation per hectare (assuming 150 m<sup>3</sup>/ha of rubber wood) gradually over 15 years (on average 36 trees per year/ha, 1 ha = 550 stems) will theoretically obtain 100 m<sup>3</sup> of log per year. The price of mixed jungle of Region I (Sumatra, Kalimantan, Sulawesi and Maluku) based on Kepmenperindag 444/2003 is Rp300.000/m<sup>3</sup> and Rp500.000/m<sup>3</sup> for the type of meranti. In this study used the price of log rubber wood Rp200.000/m<sup>3</sup>. If gradually within a year of rejuvenated 36 stems / ha, then in 10,000 hectares rejuvenated as many as 360,000 stems/year (equivalent to 655 ha/year), so as to obtain log wood of 100,000 m<sup>3</sup>/year (value Rp20 billion). The value obtained from the sale of rejuvenated timber can be used as collateral for the government and funding agencies. The economic feasibility indicators for these business units are presented in Table 4.

**Table 4.**  
**Summary of feasibility and business integration results**

No	Unit of business	Investment needs (Rp. millions)	NPV (Rp. millions)	IRR (%)	PBP (years)	Net B/C	Period of business (years)	Assumptions
1	Smallholder rubber plantation	16.5	27.15	5	11	0.04	15	Not feasible. The assumption of rubber price is Rp10,000 / kg even in the real field is Rp5,000/kg
2	Rejuvenation	27.0	42.13	26	4.6	1.6	15	
3	Sawn timber industry	4,823	4,462	60	2.2	1.58	5	Capacity 10.000 m <sup>3</sup> /yr, conversion factor 0,60 yields processed wood 20 m <sup>3</sup> /day, price of processed wood Rp2.8 million/m <sup>3</sup>
4	Furniture Industry	5,082	6,196	40	2.3	1.73	7	Capacity 20 m <sup>3</sup> per day raw material cost reach 85%
5	Sawn timber+ Furniture industries	5,554	5,137	51	2.1	1.6	5	Wood processed 20 m <sup>3</sup> /day entirely absorbed by the furniture industry so there is a cost savings of furniture raw materials Rp16.8 billion per year
6	Rejuvenation + Sawn timber industry	4,622	6,871	57	1.6	2.0	5	10,000 m <sup>3</sup> rejuvenated timber directly processed in sawmills; no log timber and no raw material purchases



No	Unit of business	Investment needs (Rp. millions)	NPV (Rp. millions)	IRR (%)	PBP (years)	Net B/C	Period of business (years)	Assumptions
7	Rejuvenation + Sawn timber + Furniture Industries	5,505	8,660	58	1.6	2.1	5	Log processed 10,000 m <sup>3</sup> /year (equivalent to 67 hectares), rejuvenation cost Rp. 1.8 billion/yr involving 35 rubber farmers. Income from latex sales is not taken into account

## 5. Development of Rubber Wood Based Industry

Assuming of 150 m<sup>3</sup>/ha of wood production and rubber wood price of Rp.200.000/m<sup>3</sup> then obtained from the rejuvenation of Rp30 millions. The amount of funds needed for the rejuvenation was Rp. 10.5 million per hectare (surplus Rp19.5 million). If gradually within a year of rejuvenated 37 stems/ha/year, then in 10,000 hectares rejuvenated as many as 360,000 stems/year (equivalent 655 ha/year), obtained 100,000 m<sup>3</sup>/year timber wood (Rp20 billions/year) or Rp300 billions in 15 years, reduced cost of rejuvenation hence obtained positive cash equal to Rp195 billions. The clones used are IRR112 which is released as seeds of development by Minister of Agriculture Decree Number. 511/kpts/SR 1209/2007. Average production potential is 2,546 kg/ha/yr, cumulative production up to 9 years old 22,493 kg. Experimental results in the Bungo and Sanggau areas showed that clonal rubber in agroforestry systems yielded three times higher yields. Mature clonal rubber tapping faster than local rubber. Rubber farmers earn more income from their rubber estates (Akiefnawati et al., 2008; Budi et al., 2008; Wulan et al., 2008; Ekadinata et al., 2010).

Murwanto's (2007) study showed that rubber wood processing to processed wood produces 28% added value (Hayami method) with conversion factor 0,68. Input of raw materials 10 m<sup>3</sup>/day for Rp. 1.4 millions/m<sup>3</sup> and product selling price Rp5.22 millions/m<sup>3</sup>. Nominal value added obtained Rp. 1.01 millions/m<sup>3</sup>. The availability of 10% (10,000 m<sup>3</sup>/year) or 33.3 m<sup>3</sup>/day (10,000 m<sup>3</sup>/year) rejuvenated rubber raw material is used as raw material for a rubber wood processing industry unit with a processed wood product of

20 m<sup>3</sup>/day (factor conversion assumption 0.60). Selling price of processed wood Rp2.8 millions/m<sup>3</sup>. The rest is sold in the form of logs for capital and loan repayment. The increase of added value is done through processing wood into furniture with capacity of 20 m<sup>3</sup>/day (Table 4).

Integration of wood processing industry and furniture industry will save raw material cost for furniture industry Rp16.8 billions/year representing 85% of total operating expenses, excluding revenues from timber sales. If integrated from rejuvenation, the cost of raw materials of 10,000 m<sup>3</sup>/year (Rp2 billions) can be saved, and the area that needs to be rejuvenated is 67 hectares at a cost of Rp. 1.81 billions, involving about 35 rubber farmers. Integration at all levels of activity showed improved performance and efficiency.

Bank Indonesia (2003, 2008) reviewed the feasibility of the processed timber and furniture business and stated that the business was feasible to be financed by an integrated partnership pattern mechanism. Furthermore, rubber farmers who joined in this business can form a group of joint ventures or cooperatives with the assistance of expert consultants. However, farmers are more advisable to engage in equity participation, because business continuity is not only about capital, but also market certainty, access to price and market information, human resources, technology, legality and managerial skills, experience and relationship/other sectors. It requires the involvement of all stakeholders from governments, industries, exporters, funding agencies, research institutions, companions, universities to intermediary traders.

This is reinforced by Bank Indonesia Regulation no. 17/12/2015 which encourages the provision of Credit and Banking Financing to Micro Small and Medium Enterprises. Bank Indonesia has required Commercial Banks to provide Credit or Financing to MSMEs, with stages of achievement in 2013 and 2014 adjusted to the ability of Commercial Banks, by 2015 set the lowest by 5%, by 2016 the lowest by 10%, the year 2017 is the lowest by 15% and since 2018 is the lowest by 20%. This is a golden opportunity for rubber farmers to grow this business.

One of the key successes of Malaysia and Thailand to develop rubber-based industries and exports was the government's policy on rubber wood production, including financial support to rubber farmers and technical assistance to the downstream rubber processing industry (Shigematsu

et al., 2011). The government can take institutional development initiatives such as those in several locations in the form of local economic development of coconut sugar and cassava chips in South Lampung, and facilitate the acceleration of regional economic empowerment involving Bappeda, BI Bandar Lampung and Unila Lampung even IMF (Zakaria, 2009). In the next stage, the role of the government is diminishing and the role of the business world grows larger as the group grows. While the role of universities and research institutions is more focused on efforts to mentoring, development and application of science and technology that can improve the competitiveness of regional products at the global level.

## C. Conclusion

1. Rejuvenating smallholder rubber plantations gradually over 15 years is more profitable than maintaining the current rubber plantation with a higher feasibility indicator of NPV 42.13 millions, 25.8% IRR, Net B/C 1.6 and PBP 4.6 years. Another advantage is the productivity per hectare increased from 348 kg/yr to 1.1 tons/yr. While maintaining rubber farming on current conditions is clearly unfavorable and economically not feasible.
2. The absence of guarantor in the revitalization of smallholder rubber plantation could be overcome by making the rejuvenated rubber timber as collateral, where within 15 years the rejuvenation of 10,000 hectares of old rubber plant will produce at least 1.5 millions m<sup>3</sup> timber or Rp300 billions of fund.
3. Business integration starting from wood processing and furniture industry technically and economically is feasible to run and will save total investment with NPV feasibility indicator Rp. 8.6 billion, IRR 58%, Net B/C 2.1 and PBP 1.6 years for a 5 years business periods.
4. Farmers have the opportunity to own shares in all stages of agro-industry development activities either in the form of land participation or capital participation from the sale of rubber wood.
5. So far, government support to MSMEs in Indonesia in the form of laws, regulations, and facilitation in fact is already adequate. What has not been optimal is in terms of realization and application and monitoring of the implementation of those policies. However in the end that determines the result is the man behind the gun.

## D. Suggestion

This study is only limited to processed wood industry and furniture industries that utilize the rejuvenation timber. There is still a need for techno economic studies and analysis for other industries for the utilization of rubber wood raw materials for other industries such as plywood, particle board, parquet, MDF (Medium Density Fiberboard) and so on to achieve a zero waste rubber industry based in an integrated and sustainable in one certain region.

## E. Actions Plan

No	Action	Objectives	Strategies	Time Frame
1	Socialization of potential development of furniture industry based on rubber wood	The common perception of the importance of developing rubber wood-based furniture industry and its contribution to local economic development	Focus Group Discussion, Workshop, Conference	3 months
2	Socialization and coordination with related institutions	Dissemination of information and synchronizing the perception about local economic resource development concept	Focus Group Discussion, Workshop, Conference	1 month
3	Formation of assessment team for potential local resource and superior products	Availability of assessment team to fulfill local needs	Collaboration between local government, academicians and related institution	3 months
4	Studying on excellent products from all sectors, products and services	Provided accurate data of the superior products, mainstay and potential products and services for priority of development	Literature review, observation, questionnaire, depth interview	3 months
5	Conduct a study for the establishment of production centers for superior products with clusters and OVOP concept/ approach	Provided a clear picture about location and production of superior products	Literature review, observation, questionnaire, depth interview, local pilot project	3 months
6	Encouraging active participation of the public to engage in partnerships quadruple helix (Academician-Businessman-Government-Community)	Creating a sense of belonging in community to get full support	Socialization of equal partnership benefits for local community and SME's	2 months

No	Action	Objectives	Strategies	Time Frame
7	Encouraging increase in the budget for R & D activity and local economic development	Availability of adequate funds to local economic resource research and development activities	Propose budget increasing gradually each semester through the local parliament with a work plan attached	6 months
8	Providing and training junior local researcher	Availability of junior local researcher needed to support development process	Training for local junior researchers	3 months
9	Monitoring and evaluation	Ensuring that all programs is running according to plan and expectations	Checklist of success indicators and periodically reviews every month.	6 months





# 2

## **Increasing Regional Competitiveness Through Local Economic Resources Development in Agricultural and Tourism Industry**

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### **A. Introduction**

Producing the biggest agricultural product (rice, corn and soybean) in Indonesia, has no significant impact to the Grobogan regency's citizen welfare. According to the data released by the national bureau of statistic, the number of the poor in Grobogan reaches up to 175.000 people or about 13 per cent of its total population. With income per capita below US\$ 1.000 per year, Grobogan regency is considered to



be one of the poor regions in Central Java Province. In addition, surrounded by the beauty of nature and many historical sites, tourism industry does not have any significant impact to boost local economic in Grobogan regency. With many programs and policies made by local administration, the distinctive result is still under the expectation both in agricultural and tourism sectors.

The top down economic policy that was conducted in the last decades in Indonesia is failed to boost economy growth and lead to create a big disparity between the rich and the poor. The shifting paradigm from top down policy to collaborative planning becomes the good alternative to maximize all the local potential. Mudrajat (2004) states that the collaboration between local government and community is needed to manage its resources to create new jobs and opportunities to boost local economy in the name of local economic development (LED). Furthermore, Local Economic Development (LED) offers local government, the private and non-profit sectors, and local communities the opportunity to work together to improve the local economy by focusing on enhancing competitiveness, increasing sustainable growth and ensuring that regional economic growth is inclusive (UCLG, 2016).

Japan is considered the developed countries that can be the role model in implementing LED program to boost economy growth and increase the competitiveness of its product in global market. Besides known as the modern technology country and to be one of the highest and competitive economic countries in the world, Japan is also known as the best role model in developing local economic in the agricultural and tourism sectors. Collaboration between government, private sector and local community to maximize all local resources is considered to be the key success of agricultural and tourism development in Japan.

Therefore, this study try to find out how the Japanese integrate and manage all their resources to improve the quality of life of the local community. Is there any policy and strategies made by local government to intervene the local product so that can compete in the local and global market. Furthermore, this study also to figure out the role of local community and private sector in the agricultural and tourism development in Japan.

## **B. Theoretical (Conceptual) Framework**

To find the answer of these research questions as mentioned in the previous chapter, there are three main concepts and theories are used as tool of analysis. These are local economic development, government intervention and public participation. These theoretical frameworks are used to broader our understanding of the best practice in the agricultural and tourism development in Japan. These are also used to find the role of involving stakeholders in the decision making process related to increase local community welfare.

## 1. Local Economic Development

Local economic development (LED) is defined as a participatory process in which local people from all sectors (government, private sector and community) work together to stimulate local commercial activity by creating the various new jobs and improving quality of life for local community resulting in a resilient and sustainable economy (UN-Habitat, 2005). Through LED, all stakeholders have the same purpose to “mobilise the local economic potential by bringing innovation to all its growth dimensions which range from infrastructure, to local Small and Medium Enterprises and their skills, to attracting foreign direct investment, fostering territorial competitiveness, strengthening local institutions, better management of the development process and internalising local resources” (Rodriguez-Pose,2008).

LED has been promoted in the last years based on the fact that each community has a unique set of local conditions that either enhance or reduce the potential for local economic development, and it is these conditions that determine the relative advantage of an area in its ability to attract generate and retain investment (UCLG, 2016). Kamara (2017) states that LED usually refers to actions initiated at the local level, typically by a combination of partners, to address socio-economic problems or to respond to economic opportunities. Therefore, LED has been implemented in many countries recent years due to the fact that this program is believed can lead to economic solutions that “fit” the local areas (UN-Habitat, 2013).

## 2. Government Intervention

In term of economic intervention, Hyun (2005) states that government has the role to control the economy in the state by conducting mobilization and allocation of resources, stabilization of the national economy and promotion of technological development. The government intervention in the economy of the state is necessary to correct market failures and to achieve a more equitable distribution of income and wealth among the citizens (Van der Walt, 2015).

## 3. Public Participation

Public participation is regarded as an important aspect in the decision- making process since there was a failure of the central policies to overcome the problems at the grassroots level. Sanderock (1983) mentions that there will be no real socio-economic change at the lowest level if the development policies ignore public involvement. He also points out that over-centralism government policies and unresponsive public authorities are the strong reasons why public participation is needed to achieve the development objectives.

In the context of community participatory in LED program, responsiveness is manifested by determining the local potential / concerns that will be a priority to be developed and promoted. Responsiveness is also related to the level of involvement of organizations / institutions in the decision making process. Pratchet (1999) states that the higher the position of the decision-making authority who involve in the decision making process, the more responsive the resulted decisions. While representative in this case demonstrated by representatives of local community and private sectors in the decision making process to develop all local resources.

## 4. Theoretical Framework

According to the concepts and theories mentioned above, it can be simplified to create a theoretical framework to analysis how the Japanese integrate all factors to develop the local potential to increase local economic welfare. The detailed theoretical framework is shown in the figure below.

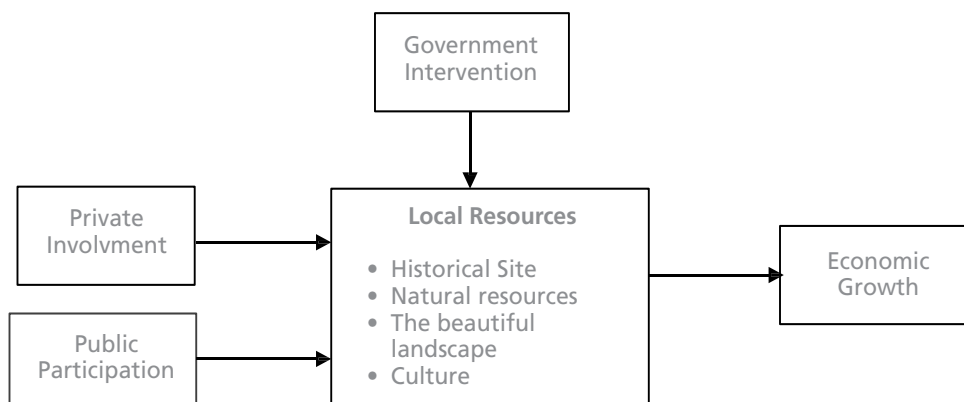


Figure 1.  
Theoretical Framework

## C. Method

This paper is conducted by using the case study method to find the answer of the research question. To find the data and information, there are three ways has been conducted during the research, namely in-depth interviews, observation and study literature. To complete the primary data and information gathered, The relevant literature and journal related to the topic of the research were previously reviewed before and after conducting interviews and observation.

In this study there are two cities will be chosen as the references to find the answer of the research question, namely Minami-uonuma City, Niigata and Obuse Town, Nagano. These cities are chosen as the case study based on several reasons. First, Both Minami-uonouma City and Obuse Town have the similar characteristic with the Grobogan regency, they rely on their local revenues from agricultural and tourism industry. Second, Minami-uonuoma city in Niigata prefecture is known as the one of famous agriculture product producers in Japan. How the local farmers, private sectors and local government collaborate to manage this agricultural sectors to be the main local economic booster are the main reason why this area to be chosen in this study. Third, the role of private sectors (JAC, Local Agri Park and Michi No Eki) to promote and brand the local product is also the main factor to choose this area. Meanwhile, Obuse Town is chosen as the case study references due to the fact that this town is famous as the producer some agriculture products such as apple, grape and chestnuts. In addition, this town is also known as the tourism destination for some historical sites and traditional events. How the local government integrate between tourism and agriculture sectors is the main reason why this site also chosen as the case study references of this study.

## **D. Case Analysis**

### **1. Overview of Agricultural and Tourism Development in Japan**

Some policies are issued by the central administration to maintain the agricultural sector sustainability and increase productivity are as follows (MAAF, 2018):

#### **a. Promoting structural reform of agriculture**

This strategy is conducted through consolidation of farmland through operation of the public corporation for farmland consolidation to core farmers through renting and subleasing (farmland banks).

#### **b. Developing and conserving agricultural production infrastructure**

There are three main project is conducted, namely (1) the development of strong farming infrastructure meeting business farmers' needs, (2)

the extension of service lives of irrigation facilities indispensable for continuing farming production and (3) the prevention and reduction of disasters to protect agriculture and rural areas from disaster risks.

**c. Promoting measures to enhance agricultural production competitiveness**

**1) Promoting smart agriculture**

Initiatives to use advanced technologies for agriculture in cooperation with the industrial world such as using robot and a remotely controlled water control system

**2) Moves to lower Agricultural input prices**

The farmers have the opportunity to compare and select agricultural material sellers. Therefore, the lower cost is needed to production process and has impact to the increasing profitability.

**3) Promoting farming safety measures**

**d. Promotion of environmental policy such as responses to climate change**

1) As some agricultural products have had quality losses on global warming, the introduction of varieties mitigating such quality losses is promoted.

2) Ecofriendly agriculture including organic farming contributes to conserving the habitat/growth environment for living things.

In the tourism industry, over the past three years, the Abe administration has implemented a number of reforms in the tourist industry, including the strategic relaxation of visa requirements, a significant increase in duty-free stores, and in increase in flights to Japan. As a result, international visitors increased to 20 million people in 2015, more than doubling from three years ago. Spending by international visitors increased to 3.5 trillion yen, more than triple the figure for three years ago and nearly as much as earned by the exportation of automobile parts (MAFF, 2016).

There are a limited number of countries that excel in all of the four fundamental pillars required for a strong tourist industry: a diverse natural environment, a rich history and culture, seasonal diversity and world-class cuisine. By leveraging these to-date un-developed tourism resources, Japan

should be able to expand its tourism industry significantly to the benefit of the whole nation (MAFF,2016).

There are three basic vision and ten reforms policy introduced as a major pillar of Japan's strategy to increase the economic growth through enhance tourism industry. These three basic vision of Japan's tourism pillar are as follows:

1. Maximizing the attractiveness of tourism resources in order to make tourism the base of regional revitalization
2. Foster innovation in the tourism industry to boost its international competitiveness and develop it into a core industry
3. Ensure all visitors may enjoy a satisfying, comfortable and stress-free sightseeing experience

While ten reform policies introduces towards making Japan a world class tourist destination are as follows:

1. Allow domestic and international visitors entry to 'publicly owned heritage sites'
2. Shift the balance of heritage policy from 'an over-emphasis on preservation only 'to allow a greater understanding of the sites by tourists'
3. Turn the current 'national parks' into world-class 'national parks'
4. Create 'landscaping plans' for major tourism areas to improve townscapes
5. Review regulations and restrictions in order to make the tourism industry more productive
6. Develop new longer-stay markets
7. Renew and revitalize hot spring resorts and local towns through better management.
8. Greatly improve hard and soft infrastructure so that visitors can enjoy the most pleasant accommodation environment in the world
9. Complete 'regional revitalization corridors' to allow comfortable travel to every corner of Japan
10. Reforming the system of 'work days' and 'days off' towards realizing a more vibrant society.

## 2. Lesson learned from Minami-Uonuoma City, Niigata

Minami-Uonuoma is located in the central-northern part of Honshu island in Niigata Prefecture, Japan. With total area is 584.55 square kilometers, Minami uonoma is surrounded by paddy field, many hot springs and Echigo-Sanzan mountains in the north as well as Yuzawa, a popular ski resort town, in the south. Therefore, Agricultural and tourism industry has the biggest contribution to the local economic growth.

To promote and brand Minami-Uonuoma agricultural product, some strategy has been conducted in the last years. First, establishing Japan Agricultural Cooperative that supply members with input for production, undertake packaging as well as marketing and branding of agricultural product. Some benefits could be received by local farmers because of the establishing of this agency. First, there is a guarantee that all agricultural product can be sold with the fixed price (the selling price is determined among farmers and JAC each year). Second, there is insurance for local farmers from disaster risks, therefore they feel secured to produce the agricultural product each year. Third, JAC also undertakes promotion and branding to the local product, so that this city to be famous both domestically and internationally and it is impact to the the tourism industry.

The other collaboration has been conducted by local government, private sector and local farmers to promote and boost local economic is by establishing Michi No Eki along the national highways. The local government provides the infrastructure of Michi No Eki such as store, restaurant and public facilities building. In the other hand, the management of Michi No Eki is undertaken by the private sector. While the local farmers has the role to be the supplier of the product that will be sold in this Michi No Eki. This collaboration among three stakeholders has brought some benefits such as creating new various jobs, boosting local economic and promote the local product to the tourists that can affect in the increasing the number of tourits to the city.

Agri Park is one of the cornerstones of rural economic transformation conducted by Minami-Uonuoma city that was designed as one-stop shops for agriculture production support, processing, logistic, marketing and training within district municipalities. This facility is established to provide the local farmers with meaningful ownership and control in the value chain as well as create some various jobs for the local community (Crosby et.al, 2017).

### 3. Lesson learned from Obuse Town, Nagano

Obuse is the smallest town and located in the northern part of Nagano Prefecture, and is a flat rural area with a total area of 19.07 sq. Km surrounded by three rivers. A small town where most villages enter the circle with a radius of 2 km, centered on the town hall, with a population of about 11,064 people. This town has relied its economy on the agricultural and tourism sectors due to this area fully surrounded with a beautiful natural and heritage environment as well as a farm villages where apple, grape, chestnuts and cherry to be the main agricultural product.

To promote tourism industry, some strategies are undertaken both by the local government and local community. First, local government provide facilities such as building to be used (Hokusai House) as well as provide some easy access for tourists from outer region to come to this area. Second, local community conducts the annual event/festival to attract tourists (drawing festival in Hokusai House, spring and autumn festival). In addition, local government encourage public to develop this area and explore all local potential by themselves. Moreover, the main principal of tourism development in Obuse Town is by creating and developing the local potential with its originality.

Some strategies and policies are also developed to increase local economic growth from agricultural sectors. Despite the number of farmers and agricultural product tends to decline in the last years, agricultural sectors is still to be the main industry in this area. Attract people from outside Obuse Town to become farmers is one strategy to fulfill the need of farmers. Promoting the new brand of sour apple and cherry with tagline "Obuse Bramley Apple" and "Obuse Cherry Kiss" is also the other strategy conducted by local government. Some festivals and events to promote the local product and tourism as well are also undertaken such as the Obuse spring Events, Sennuju no sato festival, Fuji Apple Festival and other events.

The private sector who involve in the boost local economic and promote the local product, especially in agricultural industry, in this town is Shinsu Obuseya. Through this company, farmers can sell their agro-product fresh and directly with very competitive price. This company also process the selected fruits, such as apple, cherry, chestnut, to become various processed food with the higher added value.



#### 4. Agricultural and Tourism Industry in Grobogan Regency, Indonesia – In Comparasion with Cases in Japan (Minamiuonuma and Obuse Town)

- a. The limited intervention of government in agricultural and tourism sector. The role of government in Japan is limited only by issuing policy, providing some facilities and subsidies to private sector and local people. Public has their own will to create and develop product based on the local potential to take some profit. The presence of government only ensures that market runs on the right track and equitable of income and wealth among citizens occurred (Van der Walt,2015).

On the other hand, the intervention of local government in Indonesia to develop agricultural and tourism sectors is very dominant. The top down policy by conducting some program is undertaken by the local government itself, while private and local community's involmnet is very rare.

- b. The role of private sector to promote and brand local contents

In Japan, especially in the agricultural industry, private sector has the important role. JAC, Agri Park and Michi No Eki are the examples of the role private sector to support the local economic development. There are some important benefits can be obtained with the presence of these companies. First, there is a guarantee for local farmers that all agricultural product can be bought by the private sectors, such as JAC and Agri Park, so that they can produce as much as they can. This condition will give the significant impact to the increasing number of agricultural product. Second, due to the JAC also conducts some promotion and branding of local product, the local farmers also take the benefits for their production selling price increase. Third, with the presence of Michi No Eki along the highways is also expected to increase the number of tourists to this area because they also providing some information, brochures and leaflet about tourism destination.

While in Grobogan Regency, there are no significant role of the private sectors in agricultural and tourism development. There are many village private company (BUMDes) in the regency, however, these company has oriented on the profitability.

#### c. Public participation

Public has been encouraged to develop the local identity to enrich the sites. In Obuse Town, local community design and create the tourism destination such as Hokusai House by themselves. Public is being positioned as the main actor to develop the local potential, not only being positioned as a rubberstamp of the government policies/programs (Arnstein, 1969). In agricultural sector, local farmers also can determine the selling price of the product in local companies such as agri park youri and Michi No Eki. Therefore, public has the important role in the decision making process.

In this aspect, local administration in Grobogan regency has larger control than the public participation to decide what should do to develop agricultural and tourism industry.

#### d. Creativity and Innovation

To add value of agricultural product, some efforts have been undertaken both by local farmers and private sectors. First, promoting the abundant and untasteful agri-product to be new branding of the product. Second, processing the undurable fruit and other agri-product to be diverse processed food. Third, conducting events and festivals to promote prominent agri-product and tourism destination as well.

Grobogan regency has same efforts to develop agricultural and tourism industry. However, most initiatives come from the local government. Top down policy is still undertaken, in term of promoting the local product or conducting some events or festival, there is a lack of public and private sector involvement.

#### e. Protection to local farmers

The effort of Japanese government to protect local farmers is the obvious difference between Japan and Indonesia system. In Japan, there is a guarantee to buy all the agri-product so that farmers only focus on the productivity. second, there are policies to avoid the falling of agricultural product selling price. Lastly, some program are try to attract the younger farmer in term to create the sustainability of agricultural industry.

## **E. Conclusion, Recommendation, and Action Plan**

### **1. Conclusion**

This paper starts from the fact that Grobogan Regency with abundant local potential have not maximized all its resources to improve its citizen's quality of life. Many programs undertaken by local government do not affect in the competitiveness of this region. Comparing with other region in Central Java province, Grobogan's economic growth is considered below than the others. The shifting paradigm, especially to develop agricultural and tourism industry, from top-down policy into more collaborative management is needed to explore all local resources.

Learn from Minami-uonuoma city and Obuse Town, it can be concluded some experiences that can be adapted in developing agricultural and tourism industry for Grobogan regency. First, the ability of local government to encourage private sector and local community to create and develop all local resources to increase the social welfare. Local government has the role as the facilitator and policy maker in the development, while private sector and local people has the bigger opportunity to explore local potential and develop the local content (agri-product and tourism destination) based on the uniqueness and originality of the region. Second, there are policies issued by government to protect local farmers from uncertain market condition. It can be seen that there is a guarantee to buy all the agri-product so that farmers only focus on the productivity and avoid the falling of agricultural product selling price in the market. Third, beside has the role as the buyers to agricultural crops, the private sector also conducts some promotion and branding of local product so that the product can compete in the global market. Lastly, public also has the opportunity to create and develop its resources based on the local wisdom both in agricultural and tourism industry.

### **2. Recommendation**

Based on one-month training program conducted by Bappenas-IUJ, some recommendation can be suggested in term of agricultural and tourism development in Grobogan Regency as follows:

1. Identify and explore local contents that can be developed to increase region competitiveness both in agricultural and tourism industry.
2. Broaden the role of private sector and public to participate in the local development.
3. Conduct a massive promotion, events and festival to introduce the local content to the global market.
4. Provide some incentives to whom actively support the agricultural and tourism development in Grobogan regency.
5. Participate in the national and international exhibition to introduce local content and increase the awareness of people and investor from other region/countries.

### 3. Actions Plan

**Tabel 1.**  
**Action Plan**

Objectives	Activity	Period of Implementation
To report knowledge and skills obtained during the course	Writing reports to the chief of the Economic Department of Grobogan Regency	December 2018
To share knowledge and skills obtained during the course and action plan	Experience and action plan sharing session of the obtained knowledge and skills with the colleagues, staf and chief of the Economic Department of Grobogan Regency	January 2018
To apply obtained knowledge and skills on the identification of	Identifying all the local economic resources in Grobogan Regency that can be	February- March 2018
development problems to determine strategic issues and priorities of LERD	developed to increase local economic growth as well as to improve the local welfare.	
To implement the knowledge of LERD in the policy making process	<ol style="list-style-type: none"> <li>1 Analyzing and mapping all potential resources that can be promoted to the policy makers to be the top of priority to be developed.</li> <li>2. Coordinating with the related stakeholders / institution to formulate the strategies and policies to encourage the policy makers to make regulation that supporting local economic resources development.</li> </ol>	April – September 2018



# 3

## A New Strategy towards Region Branding in Temanggung Regency, Indonesia: Challenges and Future Directions

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### A. Introduction

Temanggung, one of regencies in Central Java Province, Indonesia, has developed its own region branding, "Amazing of Central Java", since years ago. The aim to build the Temanggung branding is to develop local economy by attracting tourists and investment, also increasing exports. Tobacco and coffee

are primarily products produced in Temanggung. The regency also offers natural attractions, such as mountains, as well as cultural attractions, for instance, temples and culinary.

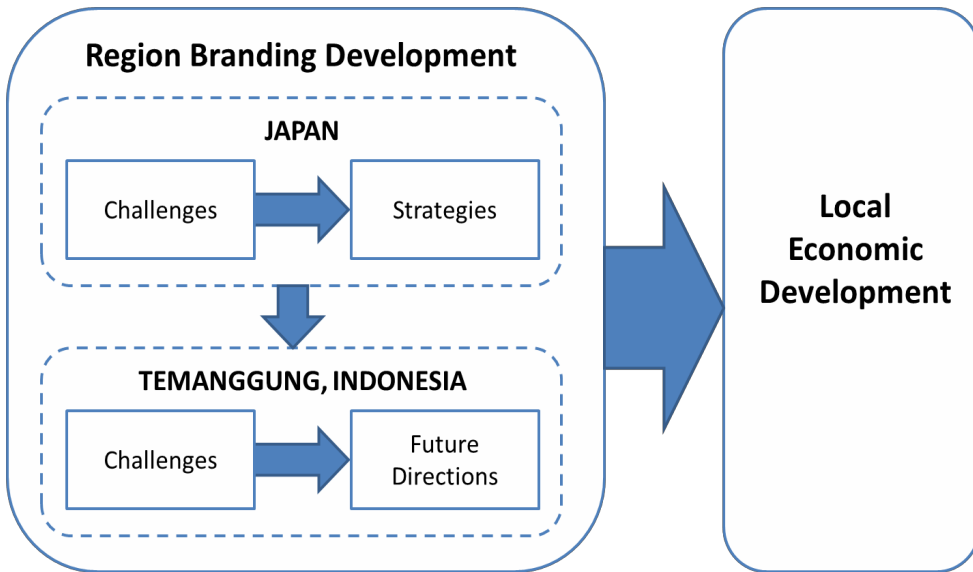
Nonetheless, there are many obstacles for developing region branding in Temanggung. Consequently, the region branding development has not given more impacts to the number of tourists, the number of foreign direct investment and domestic investment as well as the value of exports in Temanggung yet. According to BAPPEDA Temanggung (2014) and Statistics of Temanggung Regency (2018a), although the number of tourists visiting Temanggung increased 61.7 percent from 2013 to 2017 and the number of foreign direct investment in Temanggung went up significantly from around US\$ 444.444 (2011) to US\$ 6.406.800 (2016), the number of domestic investment decreased 39,20 percent from 2013 to 2016 and the value of exports from Temanggung went down 26,6 percent from 2013 to 2017. Gross Regional Domestic Product (GRDP) growth rate in Temanggung also declined from 5.20 percent in 2013 to 4.68 percent in 2017 (Statistics of Temanggung Regency, 2018b).

One of the best examples of place branding development is Japan. People's perception about Japan has become synonymous with high quality products, advanced technology, competitive pricing, and updated style (Anholt, 2003). The awareness to develop branding in various regions in Japan has also increased supported by the Japanese government, the Japan Chamber of Commerce and Industry, and the National Federation of Traders and Producer Organisations (Ikuta et al., 2007). The region branding movement in Japan is getting bigger in order to survive competition between regions.

## **B. Conceptual Framework**

According to the literature review, it can be illustrated a conceptual framework in order to analyse challenges and strategies with region branding in Japan as an input for developing region branding in Temanggung Regency, Indonesia leading to local economic development. The conceptual framework can be seen in Figure 4 below.

Figure 4.  
A Conceptual Framework



## C. Challenges with Region Branding in Japan

As can be seen in lesson learned from Japanese experiences, there were many challenges with region branding in Japan. The challenges were divided into internal and external challenges. The internal challenges consisted of administrative, infrastructure, and partnership aspects. In addition, the research found that a sustainability aspect that influenced all of the challenges was also one of the internal challenges with region branding in Japan.

Visions were occurred as administrative challenges with region branding in Japan. When a region did not have clear visions, it was difficult to the region to be developed since visions gave directions to implement region branding development through some innovative ideas. The contributing in region branding development were important to be upgraded, including skills of farmers to produce quality products, skills of employees to operate high technology machine, skills of entrepreneurs to produce and promote innovative products, skills of local government leaders to formulate innovative policies, and skills of local government staffs to implement innovative policies.



Another internal challenge with region branding was infrastructure challenges. Hardware and software were identified as challenges with region branding in Japan. The governments found that the difficulties to access products and tourist destinations as hardware challenges. These challenges can limit the product sales and the number of visitors. An out-dated technology to processing the products, called as a software challenge, also prevented the product development.

Partnership challenges were necessary to be identified. Lesson learned in developing region branding from Japanese experiences showed that limited communication and coordination among stakeholders made a fragmented region branding development. Each stakeholder developed his owned products not in the same directions to contribute in local economy.

A fragmented action led to limited ownership of stakeholders in region branding development. Meanwhile, the result of region branding development cannot be seen in a short- term. It needed a long-term development. As can be seen in the rebranding process of Obuse Town, region branding has been developed for almost ten years and has still needed more years to get the expecting results. Those challenges were identified as sustainability challenges.

In addition to internal challenges, there were some external challenges that were identified from lesson learned in region branding development from Japanese experiences. Market demand, economic condition, and natural disasters were some challenges that cannot be control by stakeholders in developing region branding. For example, declining international market demand of chestnut affects the chestnut production in Obuse Town leading to process rebranding from “a chestnut town” to be “a fruit town”. The depression of the Japanese economy has also seen as a reason of limited number of tourists visiting Yuzawa Town in recent years.

All of internal and external challenges are illustrated in Figure 5. Although the challenges were divided into internal and external challenges and consisted of some aspects, each of the challenges influences each other. For instance, the stakeholder engagement can be initially developed because to overcome changes of the market demand. This phenomenon was illustrated as blue arrows in the picture below.

Figure 5.  
Challenges with Region Branding in Japan



## D. Strategies to Overcome Challenges with Region Branding in Japan

In order to overcome the challenges with region branding in Japan, some strategies have been developed by stakeholders. Since the stakeholders cannot control the external challenges, the strategies only focused on to overcome the internal challenges that can be also used to limit the impacts of the external challenges (Figure 6). In addition, the strategies to overcome sustainability aspects are embedded in the strategies to overcome challenges in other aspects.

According to the results of lesson learned from Japanese experiences, developing policies that supported region branding in long-term development, such as long-term visions and long-term planning were necessary. Some training were also conducted to improve stakeholders' skills, for instance, training to balance fertilizer use for farmers in Minami-uo-uma City and Obuse Town as well as training to operate machine for employees in JA Cooperative. In order to create innovations, research and development were also important to be developed, such as research on creating innovative processing products from Bramley apples and sour cherry in Obuse Town.

In addition, the governments found that increasing accessibility of the places was an essential factor to encourage people to visit and distribute more products. In particular, the development of a Joetsu Shinkansen line and a highway stimulated more people to visit Yuzawa town as well as the development of street surrounding 'House of Hokusai' encouraged tourist to come to Obuse Town. Software development was also important to increase productivities. As can be seen in Minami-uonuma City, all of operational machines in JA are computerized making easily to control machine capacities and product qualities.

In order to overcome communication and coordination as partnership challenges, the governments arranged regular meetings to communicate to all stakeholders in developing region branding. For instance, communication between JA and local farmers in Minami-uonuma city about market demand trends encouraged farmers to create quality products. For increasing the ownership of the region branding program, the local governments coordinated and engaged all stakeholders. In particular, the Obuse governments conducted coordination meeting with farmers and shops to increase the stakeholders' awareness of region branding leading to their ownership of the program.

Figure 6.  
Strategies to Overcome Challenges with Region Branding in Japan



## **E. Possible Future Directions with Region Branding in Temanggung Regency, Indonesia**

Lesson learned in region branding development from Japanese experiences inspired the government of Temanggung Regency, Indonesia to rebrand its region. The rebrand process started by identifying challenges with region branding in Temanggung, followed by some possible future directions that can be develop to overcome challenges.

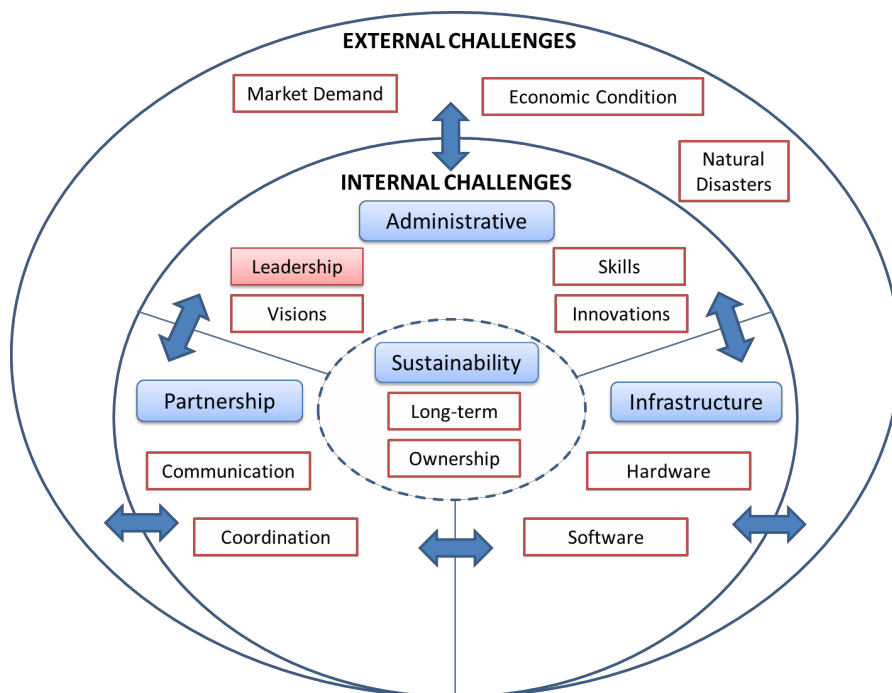
## **F. Challenges with Region Branding in Temanggung Regency, Indonesia**

According to BAPPEDA Temanggung Regency (2014), there were some challenges that occurred in developing their local economy. Limited transportation accessibility to sell products and visit tourist destinations as well as limited information technology use in productions were identified as infrastructure challenges, while limited communication and coordination among stakeholders were described as partnership challenges with region branding in Temanggung. There were also some administrative challenges, which were limited skills of farmers to develop quality products as well as limited product and promotion innovations. Leadership was identified as one of the administrative challenges in Temanggung. Since the leaders in Indonesia are chosen by an election schemes every five years, visions of the elected leaders have only been considered short and medium-term development that can be led to unclear visions. Lack of long-term development planning challenged the regions in developing their branding. Lack of stakeholders' ownership about a region branding program also prevented the development of local economy in Temanggung. In addition, market demand, economic condition, and disasters were identified as external challenges that cannot be control by stakeholders for developing region branding in Temanggung. These challenges were illustrated in Figure 7.

As can be seen in the picture, the challenges with region branding between Japan and Temanggung, Indonesia were almost similar since they had similar potential products, which were agriculture and tourism. However, leadership was seen as a challenge with region branding in Temanggung since the region elected its leader every five years. This challenge led to

others challenges, such as lack of long-term development and limited coordination among stakeholders as well as limited the stakeholders' ownership of the region branding program. Relation among the challenges was illustrated in blue arrows.

Figure 7.  
Challenges with Region Branding in Temanggung Regency, Indonesia



## G. Possible Future Directions with Region Branding in Temanggung Regency, Indonesia

Regarding these identified challenges, there were possible future directions for developing region branding in Temanggung Regency, Indonesia. The directions are divided into three aspects, which were administrative development, infrastructure development, and partnership development. For administrative development, the directions are (a) to develop long-term region branding development planning, (b) to formulate regulations that support region branding development, such as a regulation about traditional culture and heritage preservation, (c) to create some events in order to promote region branding, and (d) to create innovative research and development relating region branding. The directions for infrastructure development are (a) to increase accessibility

by providing accessible transportation in order to distribute local products and to attract visitors, as well as (b) to extent internet coverage in the whole Temanggung areas. In addition, strengthening coordination among region branding stakeholders, which are national, provincial, and local government, as well as private sectors, universities, local communities, and others, by conducting regular meetings, is necessary as the direction of partnership development.

## H. Conclusion

This section describes conclusion, recommendations, and action plans in order to uncover a new strategy towards region branding in Temanggung Regency, Indonesia.

### 1. Conclusion

This paper has given insight into region branding development in Japan that can be inputs for region branding development in Temanggung Regency, Indonesia. The analysis showed that the challenges with region branding between Japan and Temanggung, Indonesia were almost similar since they had similar potential products, which were agriculture and tourism. However, leadership was seen as a challenge with region branding in Temanggung since the region elected its leader every five years. The research also found that each challenge influenced and was influenced each other, even in the different aspects. In particular, weak leadership led to unclear visions, lack of long-term development and limited coordination among stakeholders. In addition, the strategies developing by stakeholders to overcome the challenges with region branding in Japan can be adapted as possible future directions with region branding in Temanggung Regency, Indonesia. The possible future directions with region branding are expected to enhance local economy in Temanggung Regency, Indonesia.

### 2. Recommendations

The investigation of region branding development in Japan led to some recommendations for developing region branding in Temanggung Regency, Indonesia, which were:

1. The local government should focus on developing region branding in Temanggung Regency, Indonesia supporting with a long-term region branding development planning.
2. Innovations in producing, processing, and promoting local products should be continuously created.
3. Coordination among region branding stakeholders should be strengthened in order to increase the awareness and ownership of the stakeholders in region branding development.

**a. Action Plans**

Regarding the results of this paper, action plans for developing region branding in Temanggung Regency, Indonesia are developed.

**Table 1.**  
**Action Plans for Developing Region Branding in Temanggung Regency, Indonesia**

No.	Activities	Time	Actors	Budget Sources
<b>A. Developing a region branding plan</b>				
1	Collecting data to identify current challenges	January-June 2019	BAPPEDA Temanggung Regency	Regional Budget
2	Analysing data	July-September 2019	BAPPEDA Temanggung Regency	Regional Budget







# 4

## **Pelatihan Pengembangan SDM ASN Kawasan Timur Indonesia (KTI)**

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Instansi : Badan Pengembangan Sumber Daya Manusia  
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### **A. Latar Belakang**

Perencanaan yang berkualitas dibangun oleh oleh Aparatur Sipil Negara (ASN) yang kompeten di bidangnya, baik di pemerintah pusat maupun daerah. Pusat Pembinaan, Pendidikan, dan Pelatihan Perencana (Pusbindiklatren) senantiasa melakukan upaya untuk meningkatkan kompetensi para perencananya

yang salah satunya melalui program pendidikan dan pelatihan di bidang perencanaan pembangunan. Hingga saat ini program pendidikan dan pelatihan ini telah menghasilkan banyak lulusan perencana dari berbagai wilayah. Pusbindiklatren tentunya menaruh harapan yang sangat besar dengan banyaknya lulusan yang telah mengikuti kegiatan program peningkatan kompetensi dapat menghasilkan para perencana dengan kompetensi yang semakin andal.

Namun, salah satu isu dalam penyelenggaraan program pendidikan dan pelatihan (diklat) Pusbindiklatren adalah masih rendahnya tingkat partisipasi ASN di kawasan wilayah timur atau disebut Kawasan Timur Indonesia (KTI), terutama di Provinsi Papua, Papua Barat, Maluku, Maluku Utara, Nusa Tenggara Timur, dan Kalimantan Utara. Sementara itu, seperti telah diketahui bersama bahwa salah satu masalah pembangunan adalah masih terdapatnya ketimpangan pembangunan antara wilayah Indonesia bagian barat dan bagian timur. Oleh karena itu, diperlukan adanya keberpihakan (afirmatif) kebijakan terhadap pembangunan di KTI, termasuk di antaranya adalah kebijakan pengembangan sumber daya manusia (SDM) untuk mengurangi ketimpangan dalam pembangunan tersebut.

Sebagai wujud implementasi afirmatif untuk pembangunan KTI, Pusbindiklatren telah menandatangani naskah kerja sama dengan pemerintah Provinsi Papua, Papua Barat, Maluku, Maluku Utara, Nusa Tenggara Timur, dan Kalimantan Utara serta Universitas Cendrawasih dan Universitas Papua dalam rangka peningkatan SDM ASN perencana di provinsi tersebut baik melalui pendidikan gelar maupun pelatihan nongelar. Adapun program pendidikan dan pelatihan khusus KTI yang dilaksanakan tahun ini adalah pendidikan gelar S2 dalam negeri, pelatihan nongelar substantif sesuai dengan kebutuhan masing-masing provinsi, dan pelatihan pengembangan SDM khusus ASN KTI di Jepang.

Untuk menjamin program peningkatan SDM ASN di kawasan KTI, khususnya pada program afirmasi tersebut dapat berjalan efektif maka diperlukan adanya koordinasi dan rumusan strategi, desain, mekanisme, dan rencana kerja yang terperinci mengenai SDM yang diperlukan sesuai dengan kebutuhan instansi. Oleh karena itu, Pusbindiklatren memandang perlu untuk melaksanakan pelatihan pengembangan SDM ASN KTI dengan menggandeng instansi yang peduli dalam pengembangan SDM ASN secara nasional.

## B. Tujuan Kegiatan dan Target Keluaran

### 1. Tujuan Kegiatan

Tujuan pelatihan pengembangan SDM untuk ASN di lingkungan provinsi kawasan KTI, adalah sebagai berikut:

1. Meningkatkan kompetensi ASN di lingkungan pemerintah provinsi kawasan KTI dalam rangka mendukung tersusunnya rancangan perencanaan pengembangan SDM, yaitu dokumen *Human Capital Development Plan* (HCDP) di provinsi kawasan KTI;
2. Meningkatkan wawasan terkait pengembangan sumber daya manusia melalui pembelajaran teori dan praktik pengembangan sumber daya manusia di Jepang; dan
3. Membangun pemahaman yang sama antarinstansi yang terlibat dalam pengembangan sumber daya manusia.

### 2. Target Keluaran (Output)

Pelatihan pengembangan SDM untuk ASN di lingkungan provinsi kawasan KTI ini memiliki target keluaran, antara lain:

1. Meningkatnya kompetensi ASN di lingkungan pemerintah provinsi kawasan KTI untuk mendukung tersusunnya rancangan perencanaan pengembangan SDM (HCDP);
2. Meningkatnya wawasan terkait pengembangan sumber daya manusia melalui pembelajaran teori dan praktek pengembangan sumber daya manusia di Jepang; dan
3. Terbentuknya pemahaman yang sama antarinstansi yang terlibat dalam pengembangan sumber daya manusia.

## C. Pelaksanaan Kegiatan

Peserta yang mengikuti kegiatan pelatihan pengembangan SDM ini berjumlah 25 orang yang berasal dari berbagai instansi, antara lain:

1. Pemerintah Provinsi kawasan KTI diwakili 3 orang yang, terdiri dari unsur BKD, BPSOM, dan Bappeda, atau BPSOM, Bappeda, Biro Organisasi (apabila BKO dan BPSOM digabung) dan masing-masing unsur diwakili oleh 1 orang;

2. Instansi yang membidangi pengembangan SDM ASN, antara lain KemenPAN-RB, Kemendagri dan LAN, masing-masing diwakili oleh satu orang; dan
3. Pusbindiklatren sebagai PIU PHROP IV.

Ruang lingkup pelatihan pengembangan sumber daya manusia untuk Aparatur Sipil Negara Kawasan Timur Indonesia (KTI), meliputi persiapan pelatihan (workshop), pelatihan di kelas, kunjungan lapangan, dan kegiatan lainnya sesuai dengan kebutuhan.

Kegiatan dimulai dengan memberikan arahan sebelum keberangkatan yang dilaksanakan di Jakarta pada tanggal 23 Agustus 2019. Selanjutnya rombongan bertolak menuju Tokyo, Jepang guna mengikuti pelatihan selama 2 (dua) minggu, mulai 25 Agustus 2019 sampai dengan 8 September 2019.

Selama kegiatan pelatihan para peserta memperoleh materi, antara lain:

1. Pengenalan sistem atau kebijakan pengembangan SDM yang diberikan pada aparat pemerintah di Jepang.
2. Pengantar pengembangan SDM dan pelatihan untuk aparat termasuk pemanfaatan teknologi untuk mengefektifkan kinerja.
3. Monitoring dan evaluasi pengembangan SDM dan pelatihan bagi aparat pemerintah.
4. Sistem evaluasi terhadap kinerja aparat pemerintah.
5. Strategi merancang program penguatan kapasitas pemerintah (pemerintah daerah pada khususnya).
6. Pengantar tentang konsep pelatihan dan pengembangan sumber daya manusia.
7. Komunikasi yang efektif dalam pengembangan SDM pemerintah.

## **D. Analisis Pelaksanaan Kegiatan**

Program pelatihan pengembangan sumber daya manusia untuk Aparatur Sipil Negara Kawasan Timur Indonesia dapat dikatakan sukses. Keluaran yang diharapkan dapat terwujud melalui kegiatan ini. Berikut capaian keluaran yang dihasilkan sesuai dengan tujuan diselenggarakan kegiatan tersebut.

1. **Keluaran 1:** Meningkatnya kompetensi ASN di lingkungan pemerintah provinsi kawasan KTI untuk mendukung tersusunnya rancangan perencanaan pengembangan SDM *Human Capital Development Plan* (HCDP).

Pada tahap ini keberhasilan peserta diukur dari berhasilnya menyusun rancangan awal dokumen *Human Capital Development Plan* (HCDP) yang merupakan hasil pelatihan selama dua minggu di Tokyo, Jepang. Rancangan ini nantinya akan dibawa dan dipresentasikan dihadapan instansi-instansi terkait dalam rangka pengembangan peningkatan kompetensi ASN di Kawasan Timur Indonesia.



Gambar 1.

Peserta menunjukkan rancangan awal dokumen Human Capital Development Plan (HCDP) yang berhasil disusun.



(a)



(b)



(c)

Gambar 2.

Para peserta mempresentasikan rancangan dokumen Human Capital Development Plan (HCDP) hasil kerja kelompok selama masa pelatihan.

2. **Keluaran 2:** Meningkatnya wawasan terkait pengembangan sumber daya manusia melalui pembelajaran teori dan praktik pengembangan sumber daya manusia di Jepang.

Setelah mengikuti serangkaian teori dan praktik pengembangan sumber daya manusia di Jepang, para peserta memperoleh banyak informasi terkait perkembangan isu-isu strategis serta *best practices* di bidang pengembangan sumber daya manusia.

Salah satunya adalah *benchmark* ke Pusat Pelatihan Pemerintah Kota Sendai yang mengungkapkan kesuksesan kolaborasi antara pemerintah pusat dan pemerintah kota di Jepang dalam mengatasi puing-puing bencana yang selama ini menjadi masalah di Jepang. Dalam *sharing knowledge* tersebut juga menekankan pentingnya kolaborasi dan sinergitas antara pemerintah pusat dan pemerintah kota dalam implementasi kebijakan dan berinovasi dalam pengembangan SDM di Kota Sendai. Hal yang juga diungkapkan dalam kunjungan tersebut adalah ukuran struktur pemerintahan akan sangat memengaruhi kualitas pelayanan publik di sebuah negara serta pola pengembangan kompetensi secara manajerial dan teknis.





Gambar 3.

Kunjungan peserta pelatihan ke Pusat Pelatihan Pemerintah Kota Sendai

**3. Keluaran 3:** Terbentuknya pemahaman yang sama antarinstitusi yang terlibat dalam pengembangan sumber daya manusia.

*Lesson learned* yang dapat diambil dari pelatihan ini salah satunya adalah menekankan pentingnya mengidentifikasi pendekatan dan fokus baru dalam melihat implementasi *The Sustainable Development Goals* (SDGs) ke dalam penyusunan rancangan awal HCDP dan strategi meningkatkan kompetensi ASN baik di pemerintah pusat maupun daerah, seperti yang telah dilakukan di Jepang.



Gambar 4.

Para peserta diharapkan dapat mengaplikasikan hasil pelatihannya selama di Jepang dengan menghasilkan dokumen HCDP untuk meningkatkan kompetensi ASN baik di pemerintah pusat maupun daerah, terutama di kawasan KTI.

## E. Kesimpulan dan Saran

Kegiatan pelatihan pengembangan sumber daya manusia untuk Aparatur Sipil Negara Kawasan Timur Indonesia (KTI) ini sangat bermanfaat dalam rangka mendukung tersusunnya rancangan Perencanaan Pengembangan SDM *Human Capital Development Plan* (HCDP) di provinsi Kawasan KTI, terutama di Provinsi Papua, Papua Barat, Kalimantan Utara, Maluku, Maluku Utara, dan NTT.

Pelatihan ini merupakan salah satu bentuk respons Pusbindiklatren Bappenas terhadap keinginan presiden dalam rangka mengembangkan sumber daya manusia sekaligus melaksanakan tugas Pusbindiklatren Bappenas untuk meningkatkan kapasitas ASN Perencana baik di pusat maupun di daerah, khususnya KTI. Melalui pelatihan di Jepang ini, peserta diharapkan dapat menyusun dokumen HCDP (*Human Capital Development Plan*) yang sesuai dengan karakteristik dan kebutuhan di masing-masing provinsi.

Melalui kegiatan ini juga, peserta dapat memperoleh pembelajaran yang sangat berharga dari berbagai *best practices* dan *lesson learned* pengembangan kompetensi dan SDM yang dilakukan oleh pemerintah Jepang. Diharapkan peserta dapat mereplikasinya sesuai dengan konteks Indonesia. Selain itu, aktualisasi dan *networking* pada level nasional dan internasional khususnya pemerintah Jepang juga dapat tercipta dengan mengikuti kegiatan tersebut.

Tidak ada program yang sepenuhnya berjalan lancar. Salah satu kendala yang dialami peserta selama proses pelatihan adalah pemahaman bahasa. Meskipun telah disediakan penerjemah, namun kecepatan memahami materi menjadi sedikit lambat. Berdasarkan kendala tersebut, peserta menyarankan agar pemateri dan penerjemah menggunakan Bahasa Inggris agar dapat lebih efisien dalam penyampaian materinya. Dukungan peserta juga sudah mencukupi, karena peserta yang mengikuti pelatihan dipersyaratkan telah lulus TOEFL untuk dapat mengikuti program ini. Sehingga alangkah baiknya materi ini disampaikan dalam Bahasa Inggris sehingga efisien dan efektif. Kemudian pemateri bersedia memberikan waktu yang cukup bagi para peserta untuk bertanya mengenai materi yang telah disampaikan agar pemahaman peserta mengenai materi menjadi sempurna.



# 5

## An Alternative to Finance The Development of Bandar Kayangan Port

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Instansi : Dinas Perhubungan, Pemerintah Kabupaten NTB

### **A. Background**

Indonesia is the largest archipelagic state. Indonesia's sea lane have a long been used as a key naval vessel sailing between the Pacific Ocean and the Indian Ocean. As an archipelagic state, Indonesia has designated sea lane for passage of foreign shipping trough its water. Archipelago Sea Lane (ASL) has made Indonesia become hub between 2 big oceans. The passage is

from north to south divides Indonesian sea into 3 parts which well known as ASL I, ASL 2 and ASL 3.

Lombok Island is located in south gate ASL II. The lane in Lombok strait is deeper and wider compare with Malacca and *Sunda* strait. Nowadays, the technologically advantages have made the vessel bigger than vessel decade ago. The bigger vessel size could reduce the shipping cost but it would need deep sea. Malacca Strait as the world's main shipping route is getting narrow and busy. The strait is also getting shallower and it could increase the risk of collision and accident. Those conditions in Malacca strait could increase the potency Lombok strait in ASL II could become the main route.

NTB Province Government sees the future growth of shipping activities in ASL II. In order to accommodate the growth, Provincial government have a plan to build adequate facilities port. A new port would be needed rather than expansion of existing port because the port will be integrated with industrial area. The Provincial Government has already prepared the land for the development of port "Bandar Kayangan" with 6000 ha in the north part of Lombok Island. The port is expected to become transshipment port not only for international vessel but also for domestic vessel. The provincial government proposes to offer the project using Public Private Partnership (PPP) financing model. However, the concept of PPP offered by province government is not really clear so we need to find out suitable PPP model. The model should be able to attract investment but the scheme should be able to minimize a risk.

## **B. Overview**

Infrastructure becomes a priority for every government across the world. Infrastructure is a trigger for development of economic and it will also increase the living standard of society. However, Infrastructure needs abundant of money and government could not afford to finance the demand for investment in social and economic infrastructure. Providing public services are mandatory for public sector meanwhile private sectors need profit for services that they do. The government should find the way to attract investment from private sector. Public Private Partnership (PPP) could become a way of government to fill the gap between government and private sector to fund infrastructure project. Implementing PPP could

bridge the need of government to provide good quality of infrastructure and the need of private sector to gain a profit. PPP model is expected to encourage private sector to involve in public services project.

The need to increase the proportion and quality of public services are stressed by society because public services for example transportation, potable water, sewage system, telecommunication, etc are the basic human needs. All governments around the world face challenges to meet these demands. Fiscal gap is also growing wider to fulfill the need to build infrastructure development and the availability of funding from tax system. In order to build infrastructure, the development should be deliver in efficient and effective manner. Efficiency should become a priority because it could reduce the cost. However, effective development means that the project could maintain quality of the project in higher standard.

PPP is a concept to make private sector could involve to provide public services. In conventional way, governments are using revenue from public (tax). The government states the planning and provision of project and they will offer the construction of project to private sector. After the completion of the project, the government will operate and maintain the project. It means that government is fully financing all steps of the project. In the conventional way, government is responsible to all risk of the project. On the other hand, PPP offers cooperation and partnership between government and private sector to provide infrastructure for public services. PPP is an option between conventional procurement and privatisation of infrastructure because in the end of contract the project would be owned by government. PPP model is a system to make private sector to finance and operate the project. Private sector is commonly belief offering better services compared with government so society could use the facilities with high quality standard. There are 2 ways to financing the project. First is the private sector would have payment from public sector or user of facilities based on service levels provided. Secondly, government will pay private sectors based on service availability or known as availability payment. Another characteristic of PPP is the ability to transfer risks the development public services from government to private sector.

## 1. Access of PPP program

International best practice has highlighted a number of prerequisites to a successful PPP program. The keys include:

### 1. Political commitment

Private sectors may be reluctant to develop the necessary resources that are required to bid for contracts so the political commitment and political will to apply PPP scheme are needed to convince private sector.

### 2. Legislation/Law

The host country should support the PPP by law and the law should contain certain things:

- a. The law can be readily applied to PPP
- b. The removal barriers such as tax system that could undermine the PPP scheme.

### 3. Expertise

Public and private sectors must have experience human resources to deal with the PPP process. The PPP process is not only about formal agreement but also will need the ability to negotiate in every aspects of contract. Building human capacity in both sectors could help to complete the PPP project.

### 4. Project prioritisation

The government needs to identify those sectors and projects that should take priority in the PPP process. Review of the commercial deliverability of the scheme, prior to the commencement of the procurement can be satisfied of the private sector. It helps to reduce the incidence of unsuccessful procurements and avoid the associated bidding costs.

## 2. Value for Money PPP

The key drivers for Value for Money (VfM) of PPP project are:

1. Risk transfer: The transfer to the private sector of those risks that it is better able to manage, which includes most risks associated with the design, construction, operation, technological change and finance
2. Output-based contract: The requirement that services are specified in terms of payment for a specified output, on which performance can be measured, has been linked to quality and timing of delivery. This is different compared with the conventional approach to public procurement that is based on funding of inputs.

3. Long term of contracts: The time profile of PPP projects provides scope to recover costs of the initial investment, develop alternative approaches to service delivery and focus on costing over the whole life of the project
4. Competition: VfM is easier to demonstrate where there has been effective price- led competition

## C. Japan's PPP/PFI

Private Finance Initiatives provided under the Act on Promotion of Private Finance Initiatives (the PFI Law) are promoted by the PFI Promotion Office within the Cabinet Office of Japan. The PFI Law was enacted in Japan in July 1999 and is modelled on the PFI system in the UK. The PFI Promotion Office has since issued a policy outline and four guidelines regarding various aspects of the PFI system in Japan.

Japan's PFI Law was complemented with some additional guidelines and there was also a revision for PFI law issued in 2001. Japan's PFI market has seen growth following these steps taken to promote PFI. There has been significant PFI activity in Japan across a number of sectors, including government accommodation buildings, education, health and recreational facilities. The projects are primarily across the social infrastructure sector (e.g. government buildings, schools and hospitals).

### 1. Policies and Procedures

Private sector involvement may be procured under the legislative framework in Japan on a National, Prefectural and Local Municipality level and/or by government related organisations. The basic policies for PFI/PPP in Japan are

- Act on Promotion of Private Finance Initiatives (the PFI Law) (1999)
- Basic Policy frame work (2000)
- Guideline by cabinet office
  1. Guideline for Process (2001)
  2. Guideline for VFM (Value for Money) (2001)
  3. Guideline for risk sharing (2001)
  4. Guideline for PFI contract (2003)



In recent development for PFI/PPP, The council for PFI in cabinet office in 2013 launched action plan for reform of PFI/PPP. The goal of this reform is promoting PFI/PPP projects so the projects could become more effective and efficient, reduce the financial burden for government budget and increase level of service. In 2014, the council also announced its policy to accelerate the implementation PFI act concession by adopting:

1. Implementing an intensive enhancement period between April 2014 and March 2017.
2. Prioritizing sector in which PFI act concessions are intensively promoted such as: airports, sewage facilities, water facilities and toll road.

Central government of Japan under revitalization strategy in 2015 urges local government to encourage private sector to operate public facilities. Private sectors are encouraged to participate in public services not only to create new business opportunity but also to renew Japan infrastructure. Although population of Japan tends to decrease, the infrastructures should be renewed so the facilities would become suitable with the need of Japan people. The involvement of private sector could also release stress on government's fiscal burdens.

## 2. PFI/PPP in Japan

There are some institutions are dedicated promoting PFI/PPP in Japan. They are including Public Sector, Private sectors/Non Profit Organizations and universities

- PFI Promotion Committee, Cabinet Office of the Japanese Government
- Japan's Universities
- Japan PFI-PPP Association

Japan PFI/PPP association is a non-profit organization. Japan PFI Association establish at September 1999, There are 1,046 Organizations until September 2017 including Local Governments (Municipal and Prefecture) and private sectors across Japan recorded as member of PFI association.

The activities of PFI association are:

1. Enlightenment of PFI/PPP Methodology
2. Creating and disseminating Model Project based on PFI/PPP Methodology
3. Information Center for PFI/PPP Project

The major players are

1. Public sector (government) has rule :
  - Determine the specification and a quality of public services
  - Determine whether the project is qualified to implementing PFI/PPP method
  - Select operator by tender
  - Monitors execution of the project
2. Special Purpose Company (SPC)
  - Consortium company to participate in tender process
  - Contract with public sector if it selected as the winner bidder for PFI project
  - SPC may make individually contract with other companies for design, construction, operating and maintenance the project
3. Financial institution
  - Finance the SPC
  - Financial institutions could make direct agreement with public sector in order to assert that the project is important for government.

The other players are:

1. Insurance Company
  - Cover of the risks of the project
2. Advisor
  - Gives financial, legal and technical advice for public sector There are some examples the application of PFI Finance scheme in Japan.

The PFI project in Japan did not rely on service charge revenue only. The public sector could also subsidy the project because the responsibility to build infrastructure goes to public sector. However, the limited public sector's budget to build infrastructure is not barrier because PFI scheme provides long term financial format in order to accomplish the project.

In Japan, the implementing of PFI/PPP follows 5 Principles and 3 doctrines. The principles are:

1. Shall be of a public nature
2. Shall utilize private operator resources
3. Shall implement the project efficiently and effectively
4. Shall be equal in order to select private operator
5. Shall use transparency principle since beginning until the end of contract.

And the doctrines are:

1. Every steps of project should be assessed by objectivism
2. The agreement shall be based contract which is transparent for public sector and PFI operator
3. The PFI operator shall be independent

### **3. PFI Benefits**

#### **1. Single contract**

PPP/PFI in University of Tsukuba combines different aspects of the development such as design, construction, operating and maintenance into single contract. The SPC creates different contracts with other companies.

#### **2. Effective public resources management**

PPP/PFI project would ensure higher quality because the provision payment based in the availability of services therefore private sector would maintain high standard services. Miyazaki Art center holds exhibition of works by well-known artists through the year to attract visitor.

#### **3. Certainty of investment**

The project do not impose unforeseen public sectors extra expenditures as far as the project is proceeded with conditions stipulated in a contract. The Miyazaki city and Tsukuba university pays fix amount of money. Tsukuba university hospital pays 6000 million yen every year to SPC. The Miyazaki city pays 697 million yen and 1200 million yen over period of contract.

#### 4. New facilities provided efficiently and effectively

Private sector will not receive any payment until the facility is available for use. This condition would push private sector to do its work in efficient and effective way.

#### 5. Innovation and creating best practice

Private sector will use its experience that will create innovation and new approach to do business.

#### 6. Standards maintained

The public sector client will only pay in full for the service when it is delivered to the required standard. The Tsukuba university and Miyazaki city set certain standard for services so the SPC could get full payment. If the SPC fails to achieve standard requirement, the payment will be deductive.

#### 7. Flexibility

The PPP scheme allows negotiation to achieve its goal. The SPC and public sector want the project success. Negotiation is always become first option to solve the problem.

#### 8. Life Cycle Cost

Conventional	PPP/PFI
<ul style="list-style-type: none"><li>• Government pays for input so it pays bulk of money in beginning of project</li><li>• Separate contract Between D/C/O/M</li><li>• Risks borne by public sector/government</li><li>• Fluctuation in government expenditure</li></ul>	<ul style="list-style-type: none"><li>• Public sector/government pays based on service provision stated in contract</li><li>• Private sector provides services over project life</li><li>• Risk borne by private sector</li><li>• Predictable government expenditure</li></ul>

## D. PPP in Indonesia

Indonesia has limited a state budget financing infrastructure development. The infrastructure developments are needed to trigger its economic. There is a gap between resources availability and the infrastructure projection to increase competitiveness index of Indonesia compared with other nations across the globe. The higher competitive index means Indonesia could attract foreign investment. The main problem that influence the easy doing business in Indonesia is a lack of basic infrastructure such as ports, airports, roads, electricity, water facilities etc. In order overcome funding gap, the Government would need several funding alternatives; one of

the alternatives is using cooperation scheme by involving private sectors or known as Public Private Partnership (PPP). PPP does not have official definition. However, PPP could mean as form of agreement or cooperation between the public sector (Government) and the private sector to provide public service facilities which is bound by agreement or contract.

## 1. Policies and Procedures

In Indonesia, PPP is known as the Cooperation of Government with Business Entity (KPBU), KPBU is defined as cooperation between Government and private sector to provide infrastructure for public services and the specification of facility previously determined by Minister / Head of Institution / Head of Region / BUMN / BUMD. The facility partly or entirely utilizes the resources of the private sector concerning the sharing of risks among the parties. Government cooperation with the private sector has been known since the New Order era around 1980 such as toll roads and electricity. However, the development of PPP began in 1998 after the monetary crisis. After being preceded by several regulations such as presidential regulation no 67/2005 which is the first regulation for PPP in Indonesia. In recent development about PPP, The Government of Indonesia issued several regulations:

1. The Presidential Regulation No. 38 of 2015 concerning Cooperation Between Government and Business Entities in Procurement of Infrastructure;
2. The Ministry of National Development Planning / National Development Planning Agency (BAPPENAS) Regulation No. 4 of 2015 concerning Procedure for Cooperation between Government and Business Entities in Procurement of Infrastructure;
3. The Government Goods and Services Procurement Policy (LKPP) Regulation No. 19 of 2015 concerning Procurement Procedure for Partnership between Government and Business Entities for Procurement of Infrastructure.

In addition, there are two types model KPBU/PPP. The first one is solicited which is PPP model for government initiative and the second is unsolicited or private sector initiative.

The main roles are:

1. GCA/PJPK is a responsible person to the project. The GCA is Ministry / Head of Institution / head of Region /National Government owned company (BUMN) /Local Government owned Company (BUMD).
2. *PT. Penjaminan Infrastruktur Indonesia (PT.PII)* is a responsible institution to give financial guarantee for infrastructure development.
3. Special Purpose Company (SPC) is consortium of company created to manage the project.
4. Financier/Bank is an institution to give financial fund for SPC (special purpose company).

During process implementation of PPP/KPBU project, Ministry of PPN / BAPPENAS acts as a coordinator while the Ministry of Finance become an advisor and the ministry would accompany side by side the GCA/PJPK to give an advice about the project or a tender process. The ministry of finance could also appoint PT.SMI to fund partly construction cost of the project. In addition, government will also give some facilities to make project more prospective so private sector could be attracted to participate in PPP/KBPU project. The facilities are:

1. Project Development Facility (PDF): The facility given by ministry of finance in order to prepare the project including giving advice during tender process. The facility given base on the ministry of finance regulation no 265/2015.
2. Viability Gap Fund (VGF): Subsidies given by government to private entities for construction cost. VGF given based on ministry of finance regulation no 223/2012
3. Infrastructure Guarantee: PT.PII appointed by government to give guarantee payment for the project. This based on ministry of finance regulation no 78/201 and regulation no 260/2010.
4. Availability Payment (AP) scheme: Government Contract Agency would pay the special purpose company based on the availability of service. AP method to pay service is based on ministry of finance regulation no 190/2015 and regulation no 260/2016.

## E. Port Development in Japan

The most crucial aspects of infrastructure in order to support the development of the industrial zones were ports development. Ports were center for bulk distribution of goods internationally and domestically. There are wide range of types and scales of the industry to be developed in the port area as well as highway and road networks, railroads, water supplies and other port facilities. The public sector and private sector provided investment capital for the industrial zones. Basic infrastructure for port facilities, such as highways, roads and water supplies were provided by government. The role of government in port infrastructure is not merely in land side. The government also gave support for sea side infrastructure, such as the construction of breakwaters and public wharves; and the dredging of navigation channels and anchorage when industries required extra water depth in order to use the facilities. Local government could also sell the land in port area to the private sectors. The private sectors had responsibility for the construction of port facilities attached to the land and intended for their exclusive use. The effect of this policy is the total investment by the public sector for a new industrial area was much smaller compared to the amount spent by the private sector.

## F. Project Proposal Overview

The development of *Bandar Kayangan* has been accommodated in the latest National Spatial Planning number 13 of 2017 stating that *Bandar Kayangan* which is located in North Lombok regency to become strategic area. The area will dedicate for marine fisheries, tourism, industry, trade, services and geothermal. Nowadays, Provincial government in order to follow up the revision of national spatial planning will revise province regional spatial planning. *Bandar Kayangan* will be stated as International Main Harbor. There are several changes will propose in provincial and regency spatial planning in accordance with the functions of *Bandar Kayangan*. The plan would accommodate the development of oil refinery because the project is designated for petroleum and gas industrial area to support east Indonesia.

The area surrounding *Bandar Kayangan* is designated as industry area. As consequences the area declared as strategic are in national spatial planning, The government will support the development of *Bandar Kayangan*. The

supports are including planning for widening of the road around area, planning to develop electrical power plant 900 MW and the government also has planned to built facility for clean water infrastructure. In order to realize of the project international harbor, the provincial government is in progress to draft a Master Plan for the project.

## G. The Opportunities

The main advantage of *Bandar Kayangan* is geographical location. The proposed project is located in the center of world trade route. Lombok strait is designated by national government to become international trade route to cross Indonesian sea. The route is known as Archipelago Sea Lane (ASL) II. Designated sea lines are important for international and regional trade. Malacca Strait based on the number of vessel is a dominant compared with the other straits such as *Sunda* strait and *Lombok* strait. There are a significant number international maritime traffic crosses this area. However, most of vessel using Malacca Strait to destinations in East Asian countries like Japan, Hong Kong, Taiwan, and China, meanwhile Australian vessel trade uses the Lombok Straits to the East Asian Countries. The group of straits is strategic because they form the crossroads in maritime trade between west and east especially for oil production and consumption.

Lombok strait has an advantage compared with Malacca strait and Sunda strait. The Lombok strait has wider and deeper sea so the Lombok strait could be used by big and large vessels. However, Lombok does not have a port to compete with Singapore which is the best to handling cargo and tanker ships. In addition, there are 60 vessels crossed Lombok strait in a month. It means Lombok should build port and other facilities so the vessels could become potential customer in the future.

## H. Project proposal

Provincial government would face difficulties to finance the port development therefore involvement of private sector is very important. PPP model could attract private sector to involve in this project because PPP model could guarantee that private sector does not have risk for return of investment because the investment will be covered by government.



Before Provincial government decides to build of the port, the government shall conduct market assessment. Market assessment is an evaluation in detail the potential user of a new port. This step is a crucial because it will become the basis for design, construction and operation of a port. If the government fails to conduct this assessment, the government could waste the resources (money, time, etc)

The market assessment should be considers certain things for example:

1. The competitors (international and domestic), are they success and why?
2. The leader of port operation, why the ports are success?
3. Define potential market clearly.
4. Number of potential market.
5. The communication methods to reach the market.
6. Factors , why consumer would use the port?
7. What makes our port different with others

The next step after conduct market assessment the provincial government should conduct other identifications. The identifications shall consider:

1. PPP's prioritization consistent with public investment prioritization
2. Economic analysis assessment
3. Fiscal affordability assessment
4. Risk identification
5. Financial viability assessment
6. PPP vs. Public Procurement comparative assessment

The proposal submitted to Bappenas and Bappenas will asses and evaluate the proposal by making outline business case whether the proposal meet the criteria for PPP model or other schemes. During preparation step, Ministry of Finance could offer Project Development Facility (PDF) to assist PJK/GCA. The offered assistance is including preparation making final business case and preparation for tender document. This facility could help PJK/GCA to make feasibility study in professional ways to attract private sector to involve in the project. In addition, in order to make project more interesting, Ministry of finance could offer another incentive such as Viability Gap Fund (VGF). This Facility is contributing of government to partly financing the construction cost. The VGF is given because the project is economical feasible but lack of financial support.

The next step is transaction or tendering process. The tendering process is conducted by procurement authority. The steps are:

1. Public procurement notice of the PPP issued by procuring authority
2. Tender documents detail the stages of the procurement process
3. Clarification questions for procurement notice and/or the request for proposals
4. Financial model submitted with proposal
5. Proposals strictly and solely evaluated in accordance with published evaluation criteria
6. Publication of award notice Notification of the result of the PPP procurement process
7. Regulation of negotiations with the selected bidder before contract signing.

The last steps are PPP Contract and the contract shall consider:

1. System to manage the implementation of the PPP contract
2. Monitoring and evaluation system Regulation of a change in the structure (i.e. stakeholder composition) of the private partner
3. Regulation of modification/renegotiation of the PPP contract (once the contract is signed).
4. Regulation of circumstances that may occur during the life of the PPP contract
5. Dispute resolution mechanisms
6. Lenders step-in right
7. Grounds for termination of a PPP contract

## **I. Conclusion**

The development of public infrastructure is mandatory of government. However, government has limited resources to fund the development. The government could make collaboration with private sector because some infrastructure projects have a good prospective for investment. Public private partnership is cooperation scheme between government and private sector which successfully practiced in many countries across the globe. There are some lessons learned from those successfully practices:

1. Market assessment could identify potential customers. If assessment fail. It will cause waste of resources (money, time, etc).
2. Good Planning of project. It means the government shall arrange and prepare the project in professional manner. The plan should draw up the feasibility of the project. Planning stage is very important because it will picture the business model of the project. Best quality plan will outline all aspects of the project from preconstruction to operational of the project.
3. The successful of PPPs project depends on the commitment of all stakeholders who involve in the project. All stakeholders should support the project since the preparation step until the end of contract because the PPP contract is mostly in long period.
4. PPP shall have an effective management. It means that Government which is responsible to the successful of project should have strong and clear regulations. The government shall also have clear framework and standard when they decided to use PPP scheme. In addition, the government should increase capacity building of human resources of government employee in order to run PPP scheme. If those steps are applied by government, private sector would participate in tender process because the project will have business certainty.
5. Execution of the project. Due to execution of the project, some importance aspects should be considered:
  - a. Solid business planning and clear risk allocation between public sector and private sector.
  - b. Tender process should be transparent.
  - c. Clear monitoring system and negotiation is allowed to make successfully project.
6. PFI/PPP project does not mean the government financing the project using service charging only. Providing public infrastructures are obligation of government so the government could subsidy the project.
7. PFI encourage efficiency of management and service improvement in Miyazaki art centre. The center could attract people to visit the site because the management provide many attractive exhibitions.

8. The efficient public parking space in Miyazaki increases the revenue of government for example the Miyazaki city receives 15 million yen per year from public parking space.
9. The Yokohama city still owned the Yokohama port but private sector becomes the operator of the port. The experiences and know-how of private sector make the Yokohama become one of largest ports in Japan .



# 6

## **The Prospect of Utilizing PPP-PFI in Public Provision Case Study: Final Waste Disposal Site of Banjarbakula Region**

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### **A. Background**

In 2016, the global economic was slower than initially expected. It was estimated by the World Bank that the economic of the world fallen to 2.3 percent in 2016, where the condition is similar like the global crisis. However these problems do not affect the Indonesian economic downturn. In 2015, Indonesia economy was ranked 16th in the world. Entering 2016 Indonesia economic performances rise up with increasing GDP of 4,79 % in

2015 to 5,02% in the end of 2016. From the beginning of 2016 to the end of the year, Jakarta Composite index even increased 15,32 % to 5,296.711 point, where it is the highest in history across the world.

Information above gives information that Indonesia's infrastructure development is still relatively low. Its infrastructure quality score stands at 4.2, still below the average of the ASEAN countries (4.4), nevertheless infrastructure development has a large multiplier effect on the economy. The resulting impact of infrastructure investment on the economy is greater than the value of the investment. This lack of infrastructure investment creates bottlenecks and high costs of transportation and logistics, which at the end of the day reduce the sustainable growth rate. To date, the total expenditure for infrastructure in the state budget amounted to 2.3% of GDP, well below the average of developing countries (5.5%). Inadequate infrastructure services mean lower quality of life. Hence, infrastructure investment is necessary to sustain growth and improve competitiveness. Infrastructure development is essential to improve Indonesia export performance, support economic growth, and reduce the poverty. In addition, the United Nations reported that infrastructure investment is urgently required in Indonesia mainly because of the rapid urbanization. Agglomeration economies offer the opportunity to boost productivity growth.

Unfortunately, Planning and Development Agency Board was estimated in 2015 that the government of Indonesia is only able to fulfill merely 30% of budget needed to develop infrastructure during 2015-2019 (medium planning term). Therefore, the central and local government have to develop alternative source of fund to build infrastructure. One the financial scheme that can be used is Public Private Partnership (PPP) scheme, as alternative funding scheme for infrastructure development.

The Indonesia Government intends to make PPP scheme as an approach in sector and cross- sector infrastructure development. The government set several main targets related in improving effectiveness and efficiency in the financing of infrastructure, namely (i) PPP implementation as infrastructure development approach; (ii) the availability of financial support in fulfilling infrastructure targets through the provision of alternative infrastructure financing well beyond government funding through the PPP scheme and

other creative financing; (iii) infrastructure management efficiency and improved quality of infrastructure services provided by the government or by enterprises; (iv) the acceleration of decision-making process and human resources capacity building.

PPPs are generally defined as long-term contracts between the state and the private sector for the purpose of providing public infrastructure. The Organization for economic Co-operation and development (OECD for instance, define a PPP as: "an agreement between the government and one or more private partners (which may include the operators and the financiers) according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners".

Under the PPPs model, the public sector only specifies the required service from the assets and leaves the private sector partners to design, build and operate the asset in accordance with the assigned specifications. The private sector operates the assets for certain period of time sufficient to recapture its outlay and profit and assumes certain risks for the design and during construction and operation of the facility.

However, there are several issues that should be considered. First, most of PPP projects in Indonesia are economic infrastructure, such as toll road and power plant. Second, social infrastructure project is not profitable as economic infrastructure project from the point of view of private sector. The next issue is that social infrastructure project will rely mostly on subsidy, while there are limitations of government financial budget. The last point is related to the use fee taken from the people who are not all of them affordable to pay the fees.

In accordance to those issues, the main aim following this training program is to obtain comprehensive knowledge and information about the development of public private partnership scheme. It is expected that the participant obtain comprehensive information about the implementation of PPP scheme in order to financing the infrastructure projects.



## B. Overview of Indonesia's PPP and Japan PFI

### 1. PPP Scheme in Indonesia

Recently Gol enacted the presidential regulation (Perpres) number 38/2015 about Government and enterprise partnership in Infrastructure provision as the revision of Presidential regulation No. 113/2010. There are at least two principal changes in this regulation related to PPP policy in Indonesia: (1) the scope of PPP Infrastructure not only economic infrastructure sector but also encompass social infrastructure, and (2) The introduction of availability payment (AP) scheme to ensure the availability and quality of infrastructure services. Moreover, there are several more detail regulation related to PPP scheme in Indonesia, for example Ministry of national development planning regulation No.42/2015 and Head Of Procurement government office no.19/2015.

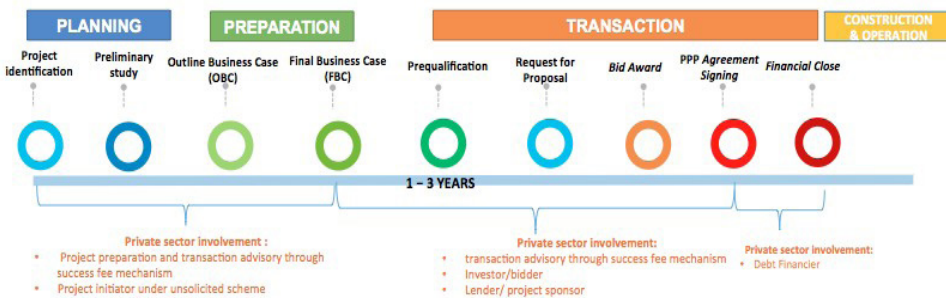
According to presidential regulation no.38/2015, the definition of Government – enterprise partnership is “ Partnership between government and enterprise in infrastructure provision for public services in accordance with particular specification set by the Ministry/Head of Bodies/Local Government leader/Stated owned Enterprise/Regional owned enterprise, that partially or fully utilize the enterprise resources, with arrangement of risk sharing among parties”. There are two categories of infrastructure that can be cooperated with the private sector, which are economic infrastructure, and social infrastructure. The type of economic and social infrastructure are transportation, road, water resources and irrigation, clean water, black water treatment, waste treatment, communication and information, electricity, oil, gas and renewable energy, city facility, educational facility, sport center and art, tourism, health, correctional place, and housing. Using that definition, there are at least three important points that should be highlighted: (1) the main purposes is public infrastructure provision; (2) that the state owned enterprise and regional owned enterprise are also have authority as the contracting agencies beside the central government and local government and (3) Considering the risk sharing among all stakeholders.

## 2. Types of Indonesia PPP-Project (Based on the initiator)

The president regulation no. 38/2015 is mentioned that the type of Indonesia PPP project can be classified into two types based on the initiator which are solicited and unsolicited projects. The solicited project is defined as the project initiated by the public sectors (government). On the other hand, the unsolicited project is defined as the project initiated by the private sectors.

### a. Solicited Project

For solicited proposal, the PPP project process consists of three phases, namely planning, project preparation and transaction. The interaction between the three phases of the PPP projects proses is described as figure below.



There are two alternatives of private sector appointment by contracting agency, particularly: (1) Bidding mechanism; (2) Direct assignment and both of these method required prequalification process. The direct assignment method can be implemented under specific condition such as: (1) the project is to rebuild/reconstruct infrastructure, that is previously built by the same enterprise; (2) the completion of the project required adoption of new technology, which is only provided by the assigned enterprise; (3) the enterprise owns most or all of the land that is used for the project.

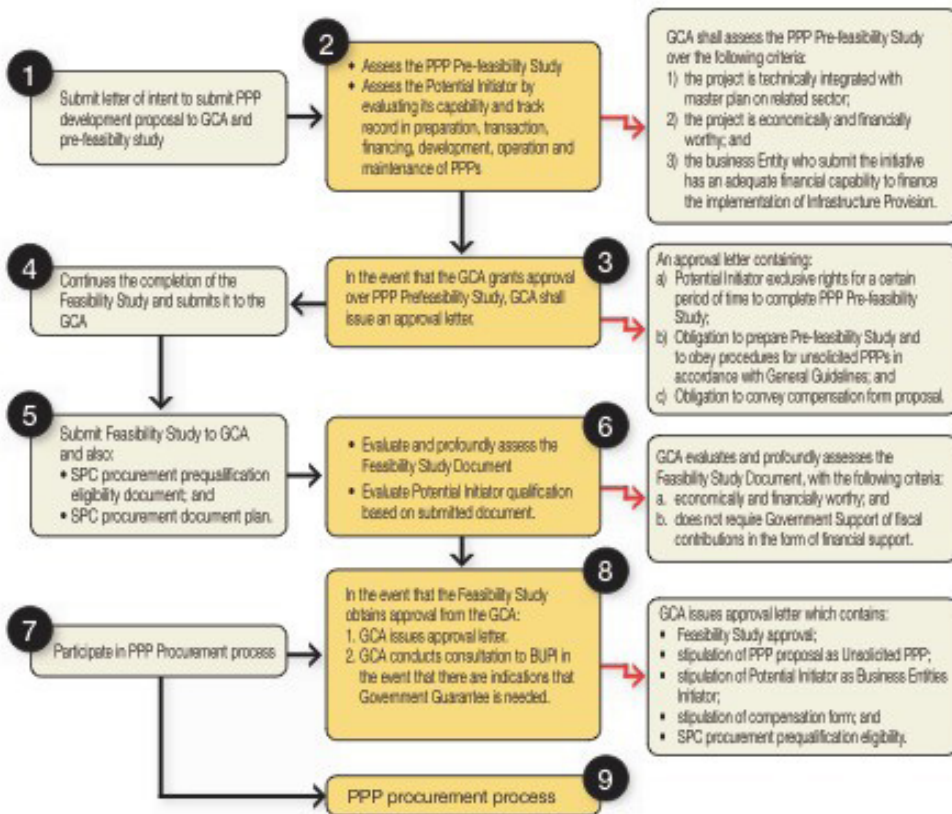
### b. Unsolicited Project

The process for dealing with unsolicited proposals involves two stages, namely:

1. The time the proponent presents the project to the government until all internal assessments and approvals are finished and the project is ready to be publicly tendered

2. A competitive tender process; approaches tend to differ in incentives or benefits to the original proponent of the project.

The principle in designing the procedure for unsolicited proposals is that the proponents should know precisely where and to whom to submit their proposals, what information is required and the steps and time frame for decisions to be made. The detail steps for each stage of the management process for private business entity initiating an unsolicited infrastructure proposal is given below.



The ability of private to take initiative to provide public infrastructures could be considered as incentives mechanism to increase the private involvement in development of PPP Project. Gol as a regulator not only provide compensation for the private but also granted guarantee as regulated in the law.

Government contracting agency (GCA), the institution, which is responsible to the PPP Project, makes specific amount of payment periodically where this information will be written in the contract as the provision of services

provided. The availability payment method is similar with the service purchased type in Japan PFI and this method offer quality assurance for the service provided by the private sectors.

Gol in 2017 has successfully implemented 6 schemes of PPP projects as benchmarks for future development, such as PPP projects based on structure development and PPP project based on project preparation.

### **3. Types of Government Support for Indonesia PPP Project**

To promote the PPP methods in Indonesia, The Government provides certain facilities and established PPP units within ministries (Ministri of Finance and National Planning Development Agency). Moreover, the law also obliged the government's supports in term of land acquisition and project permit or licensing.

In the preparation stage, PT SMI helps structuring the proposal of the project by offering the project development facility to increase project bankability. The bidding phase, MOF could grant the viability Gap Fund or other incentives in order to increase the financial feasibility of the project.

Regarding risk management, there is Indonesia infrastructure Guarantee fund (IIGF) that is able to issues the guarantee scheme for infrastructure risks. Moreover, infrastructure fund (PT. Sarana Multi Infrastruktur (SMI)) has the authority to offer long term financing for infrastructure projects during the construction phase. In the last stage, there is availability payment method (AP), which ensure the continuity of service provision and managing the demand risk.

## **C. Understanding Japan-PFI**

### **1. Overview of Japan PFI**

The development of Japan PFI began in 1999, when the government conducted the PFI Act, namely the act regarding to Promote Provision of Public Facilities and Other Related Services by Use of Private Capital and Other resources on 24th September 1999. The Introduction of this concept in Japan has 2 main purposes: 1). To reduce public expenditure but still

maintain the provision of qualified public services by enhancing cost effectiveness and to expand the business scope of private sector. Meanwhile in UU, the initiation of PFI since 1992 was aiming for administrative reform and privatizes certain public services that are favorable for taxpayers. Afterward, the basic policy framework (in March 2000) was enacted and Government also issued some guidelines.

There are at least 5 main benefits of PFI implementation to the existing system in Japan, which are:

1. Enhance transparency through the bidding process.
2. Promote life cycle cost management. The benefits is by reducing the cost of public service provision, and increasing the cost effectiveness. For example, using the service purchased type of cost recovery (paid by tax), the public sector is able to pay considered of PFI services as a whole in a unified way. It is because of the difference between cost structures, where cost structure of PFI method enables to sustain the quality of service with payment of fixed interest rates in the long-term contract. On the other hand, the cost structure of conventional method causes the fluctuation of services quality during the entire project period.
3. Value for money (VFM). The utilization of PFI scheme can increase the value of money spending for the project. Maximizing the value of money can be seen by the good quality of the infrastructure.
4. Project given by the private company when they build the infrastructure.
5. Risk sharing. Because the nature of the project is long-term project bonded by a detail contract, so some of the risk can be transferred to the private company.
6. Project finance (feasibility in public works, risk analysis and allocation, and present value (Ueda, 2107).

Nevertheless, there are at least five main effects of PFI implementation in Japan: (1) to enhance the provision of inexpensive and high-quality public services; (2) to encourage the administrative reform in the involvement of public services provision; (3) to stimulate the economy condition by creating business opportunities for the private sectors; (4) time reducing for construction of facilities; and (5) Smoothing of local government financial requirements (Ueda, 2017).

## 2. Description of Japan – PFI

Japan PFI in general has significant differences with Indonesia PPP. Even with UK PFI methods that are the root of the method come. The differences happen because Japan PFI has been modified by considering local system (such as bureaucratic system and business system), current condition and existing policy, and even the local wisdom. For instance, trust among related stakeholders is one of the key factors that play important factor in the PFI projects. In consequence with that, the risk sharing part is not describes very detail in the contract and relatively fluid or negotiable. Moreover, intense communication between the public sector and private sector is highly imperative, especially to discuss problems that is occurred during projects and maintaining the quality of services. The other things is split of companies based on the tasks in the project life (consist of design company, construction company, operation company and maintenance company) under the supervision of special purposes company (SPC) on behalf of company consortium.

There are plenty of stakeholders involved in a project. The stakeholders consist not only from legal-based institution, but also from certain committees such as the screening committee and the PFI committee. Every stakeholders hold important roles within the project in order to keep the project implemented according standard mentioned in the contract. For instance, the screening committee plays the role as first layer of quality assurance of the project since they have to ensure the transparency during the bidding process and select the best bidder.

## 3. Provision of Final Waste Disposal Site Using PFI Method

Since the 1990a, some developed countries have promoted infrastructure development by PPP/PFI as an innovative and flexible option for reconstruction of the national economy, increase in efficiency of the public sector and quality improvement of public services. Meanwhile, in developing countries, expectations of private sector funds have grown because of insufficiency of public funds for construction of environmental infrastructures, requiring rapid development. This urged many countries to adopt an environmental policy based on the polluter pays principles and establish surcharge and user charge systems, allowing participation

of the private sector. Additionally, technical innovation in environmental infrastructure and effort toward an resource recycling society made such activities as waste to energy, use of recycled water, and waste recycling business fields profitable and this stimulated the private sector to enter into this area.

Now funding for environmental infrastructure is being supplied not only by the government but also by official development assistance (ODA), Foreign Direct Investment (FDI), and the domestic private sector. Among them, especially the role of the private sector has increasingly become important. Possible background are: (1) in some developing countries, necessity for private sector funding has emerged, because the government finances cannot cover rapidly increasing needs for enhancement of environmental measures and environmental infrastructure services due to growth of environmental consciousness, (2) private sector investment has been boosted by international system changes such as deregulation, privatization and globalization, and (3) multinational have begun to pay attention to the possibility of investment to concession contracts (including BOT projects) and joint venture business of their long term property and stability of public works.

The example of Final Waste Disposal Site, which is constructed using PFI scheme, is Eco Clean plaza in Miyazaki city, Japan. The site is located in Miyazaki-shi, Ooaza, in outskirts area of Miyazaki city. The Eco clean plaza Miyazaki is operating by the private company. The facility serves households and industries (factory, convenience stores, hotels, etc) waste discharged from ten municipalities. It routinely accepts about 160.000 tons of waste per year or approximately 500 tons per day.

#### **4. Current Final Waste Disposal Site Condition in Indonesia**

Based on the Indonesia Legislation No. 18/2008 and ministry of Public work regulation no. 21/PR/M/2006, it is regulated that the big cities have to operate final solid waste disposal sites with sanitary landfill method and for the medium and small cities have to operate solid waste disposal site with controlled landfill. Operation cost of waste disposal site for the two methods are very expensive and cities or regions have difficulties to finance the operation and maintenance cost of the site. The regional waste disposal

site is an alternative method to reduce the financial burden for cities and regions that want to build the waste disposal site because the operation and maintenance cost can be shared between the area. It also can help the big city to find the location to build the waste disposal site.

a. **Waste disposal site management in the study area**  
**Banjarmasin**

Waste management in Banjarmasin city manages by the sanitation and landscape agency Banjarmasin city formed based on regional regulation no. 15 2008 about organization of regional offices in Banjarmasin city. Based on city regulation of Banjarmasin mayor no. 36/2008 the primary tasks of sanitation and landscape agency are to manage the sanitation cleaning, waste transportation, waste processing and landscape management.

Waste disposal site of Banjarmasin city is located in Soebardjo B Street, south Banjarmasin. The site is approximately 10.35 km from the city center and 4.35 km from Banjarmasin port.

Banjarmasin city has 107 locations of temporary waste disposals that manage by the sanitation and landscape agency of Banjarmasin city. Most of the temporary waste disposal sites build using bricks. Banjarmasin city has high-density causing the volume of waste produced is also high. The temporary waste site cannot accommodate the waste produced by the resident, so it makes the site over capacity. The increasing of waste is also affected by lack of society awareness about the importance to put the waste into the trash bag.



Accessing point to the waste disposal site



waste management site office facility





**b. Waste disposal site management in the study area Banjarbaru**

Sanitation management in Banjarbaru city is done by the sanitation, landscape and spatial planning office of Banjarbaru city based on the region regulation no. 11/2008 dated 17 July 2008. Data from the sanitation office shows that there are 279 temporary waste disposal site in Banjarbaru. The sites are divided based on the type of material used to build, such as concrete 142 locations, woods 119 locations, and containers 18 locations which spread in every district in Banjarbaru city. However, this condition is not followed with the availability of the officers and transportation fleets to handle the waste. Today, there are 15 transportation fleets which consist of 11 units of dump truck and 4 arm roll tract. The office also has 10 unit three motorcycles to pick and transport waste to the waste site and 1 unit waste shredder tract.

Transportation fleets manage by the sanitation office of Banjarbaru city everyday at least can carry 30 tons of solid waste from hundreds of temporary disposal sites to deliver to the final Disposal site in Hutan Panjang, Cempka district in outskirts of Banjarbaru city. The site is located in southern part of Banjarbaru city and it is Approximately 10 km from the city center. The waste volume today is increasing

significantly compare to the previous years that the volume of waste were not more than 15 tons per day. Consequently, the waste disposal site area is gradually decreased. The waste disposal site has an area of 10 Ha operated and now the area is only 5 Ha that can be filled with waste.

### c. Waste disposal site management in the study area Banjar

Sanitation and landscape office of Banjar region is an institution which has authority and responsibility to provide service in cleanliness, landscaping and public street lighting especially for Martapura district and other districts in Banjar Region. Sanitation and landscape office is formed based on the regional regulation no. 9/2008 dated 9 June 2008.

Sanitation service system in Banjar region is prioritizing to areas that become source of waste like the city center, office area, business district, main road of the region, settlement areas, traditional markets, terminals, hospitals, park and sewage. The waste service system is done by providing the waste collector cart, containers including the street cleaners in the place that become source of waste.

The waste volume served by the sanitation and landscape office of Banjar region is 150 tons per day, which consist of:

- House hold waste : 104,1 m<sup>3</sup>/hari (69.40%)
- Trade and office area : 26,01 m<sup>3</sup>/hari (17.34%)
- Public facility area : 9,48 m<sup>3</sup>/hari (6.32%)
- Public road : 10,41 m<sup>3</sup>/hari (6.94 %)

## D. Proposed Mechanism of Final Waste Disposal Site Provision Using PPP in Indonesia

### 1. Types of Project: Joint Venture – Availability Payment Method

The PPP operator will recover the cost from combination of the service fee collected directly from the resident and national government. The budget from the government should be used in the design and construction phase,

whereas the user fee shall be used for the operation and maintenance phase. The government also has to pay the operation and maintenance cost partially, in case that the user fee cannot cover the operation and maintenance cost. Based on the existing regulation (presidential regulation no. 38/2015), this type of project can be classified as availability payment.

## **2. Project Method: BOT (Build Operate Transfer)**

The method that is suitable for this service is BOT (Build Operate Transfer) due to quality maintenance reason. In order to maintain the quality of service, it is recommended that the private sector also manages and operates the facility before transfer it to the public sector after the contract period ends.

## **3. Benefits and Barriers of Project Implementations**

### **a. Benefits**

#### **1. To implement the national policy**

According to the presidential regulation no. 38/2015, waste management process is categorized as social infrastructure with some other sectors. So, it is allowed to use PPP method in order to build the infrastructure.

#### **2. To accelerate the development by expansion of funding sources**

Waste treatment process is associated with low quality of service since there is no proper management control from public sector because the government only focus on the development of economic infrastructures. This situation is causing serious urban environmental problems. In developing countries, currently 80 % to 90 % of investment for infrastructure is funded y the government sector, but only very small funds are invested in environmental infrastructure. With limited government finance and shrinking of fund, PPP method is the best option to expand funding sources and good solution to bridge the gap between economic and social infrastructure development.

#### **3. To improve Value for Money and avoidance of government failure**

PPP brings private companies opportunities of innovation leading to design of efficient facilities taking into consideration the construction, operation, and maintenance cost. Maximization of efficiency and minimization of cost allow improvement of investing effects and provision of high-quality services.

4. To improve the environmental technology and promoting of environmental business

Application of PPP method provides domestic and foreign environment business with great business opportunities and contributing to growth of environmental industry. Especially, advance of foreign environmental companies will accelerate necessary technology transfer, and contribute to improvement of environmental technology.

5. To increase the welfare of society

The ultimate objective of the project is to provide the better service of waste treatment process, which is environmental friendly. The project is also can make city more sustainable and competitive. Introducing the new waste management process to the community can create sustainable community and in the end it can increase their quality of life.

**b. Threat**

1. Social infrastructure of PPP project

Up to this time, there is no best practice of project implementation using PPP scheme. Consequently, it will require a great effort to set up the system and make it works.

2. Challenge to attract the potential investor

Since social infrastructure project is less attractive compare to the economic infrastructure project, it will be difficult to ensure the potential investor in this project.

3. Land acquisition

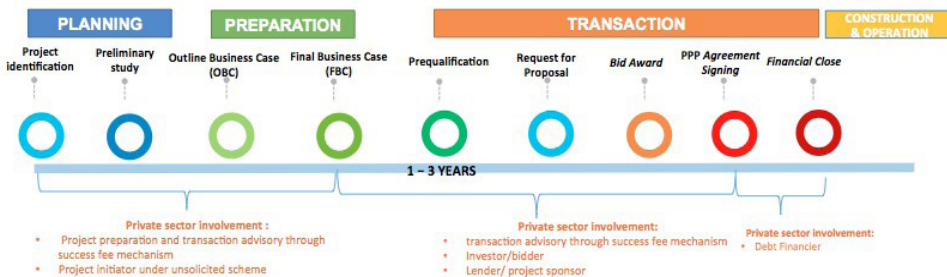
Land provision could be problematic and delay the implementation of the project.

#### 4. The provision of supporting facilities

It is necessary to provide supporting facilities such as road to the site, leachate processing unit, and other facilities such incinerator and power generator. Therefore, this project also required investment in those facilities in order to make it an effective policy.

## 4. Steps of Project Implementation

There are several stages that should be passed during the project implementation according to the president regulation No. 38/2015:



The planning phase consists of two main processes that have to be done. Firstly, it is project identification describing the design of PPP project, funding scheme, and offering the project of PPP. Secondly, it is preliminary study that portraying the need analysis, compliance criteria, value for money, potential revenue and financial scheme of the project. The preparation phase in the next stage is also having two main processes to be done which are creating outline business case (OBC) and Final Business case (FBC). The ministry of Finance in this stage can be asked for help creating the Business case documents. The third stage is transaction phase. In this stage the project is ready to offer and entering the tendering process. The steps that have to be followed in are prequalification process of the private that interest with the project offered, requested for proposal from private sector, deciding the winner of the bidding process, signing the PPP agreement, and financial close. After completing all the process, the project is ready to build and operate.

### a. Planning Stage

#### 1. Project Identification

- Design of PPP Project: Join Venture and Availability Payment
- Funding Scheme:

- National Government: subsidy in construction cost
  - South Kalimantan Provincial Government: providing Land for the site, Construction cost, operation and maintenance cost, monitoring and evaluation.
  - City and Regional Government (Local Government): construction cost, operation and maintenance cost
  - Private sector: operation and maintenance, and monitoring and evaluation
- Offering the Project of PPP: Putting the project into PPP's Book. So the project can be offered and promoted to the investors.
2. Preliminary study: portraying the need analysis, compliance criteria, value for money, and potential revenue.
- b. Preparation Stage:**
1. Outline business case: Asking assistance from national government to create the document (Bappenas and ministry of finance)
  2. Final Business case: Asking assistance from national government to create the document (Ministry of finance)
- c. Transaction stage:**
1. Tendering Process:
    - Prequalification of the private sectors that interest with the project
    - Requesting for proposal from the private sector
    - Selection process (procurement of good and service team from public sector)
    - Deciding the winner of the bidding process
    - Signing the PPP agreement (contract)
    - Design and construction of the infrastructure
    - End of the contract

## **E. Conclusions and Recommendation**

### **1. Conclusion**

In conclusion, it is imperative to encourage the implementation of PPP in Indonesia, especially for social infrastructure such as waste disposal site.

Nonetheless, effective implementation needs comprehensive policies and coordination between all stakeholders. Lesson learned from Japan best practice should be referred with modification of Indonesia condition, such as bureaucratic system and local wisdom.

## 2. Recommendation

1. Encourage local government of South Kalimantan province to apply the new financial scheme method to finance the infrastructure project, which is Public Private Partnership (PPP).
2. Following all the stages mentioned in the president regulation No. 38/2015. For example, creating a comprehensive feasibility study for the project, which is wanted to financing using PPP project. A comprehensive feasibility study means that the study not only discuss about the appropriateness of the project but also discuss about value for money of the project if it is offered for private sector and conducting cost benefit analysis.
3. Asking a central government (Bappenas and ministry of finance) to help preparing all the process of PPP phases from the planning, transaction until the bidding process.
4. Improving the knowledge of PPP method for the civil servants of south Kalimantan province government by providing the training program in PPP methods.







# 7

## **Lesson Learned From PFI Implementation in Japan in implementing PPP for Sport Center Development in Pati Regency Case Study: Hachioji City General Gymnasium Esforta Arena**

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### **A. Background**

As mandated in Law Number 3 of 2005 regarding National Sports Systems, central government and local governments are obliged to provide services and facilities and guarantee the implementation of sports activities for every citizen without discrimination. One form of service in providing easy access for

citizens to carry out sports activities is by providing sports facilities and infrastructures, which further stipulated in Pati Regency Government Regulation Number 2 of 2017 regarding Sport Management that Pati Regency Government have obligation to provide national standard sports facilities and infrastructures at least one sporting place for each sport that develops in the region, which is regulated systematically, periodically and continuously. Pati Regency Government has built GOR Pesantenan Pati sport center in 1986. The asset ownership statuses are the building belong to the Pati Regency Government while the land belong to the Local Village Government, with a revenue sharing agreement 60% for the Local Village Government and 40% for the Pati Regency Government while the maintenance and operational cost are burdened to Pati Regency Government.

The current condition of GOR Pesantenan Pati although it still usable, is requiring major repairs, and with insufficient facilities it can only accommodate limited number sports with limited capacity. Therefore it cannot adequately support current needs and standards for sports coaching development that has been growing progressively in regard of the number of sports. From total 33 sports in Pati Regency, 16 of which require sports center for training. There are also many single and multisport events or competitions ranging from local to national level that held every year that require sport center which have national standard. The lack of infrastructure facilities provided by the government, have forced the community to spend relatively high cost using the facilities provided by the private sector. Therefore it is required to fulfill government obligations in serving the needs of the community, so that there are sports facilities available for the community as well as training facilities for athletes that accessible, inexpensive and representative or according to standards, in order to spur and to improve performance.

To sum up, local government's budget limitation becomes major constraint factor in regional infrastructure development, more specifically in the nonbasic services sector. However local government has the obligation to provide services for the citizens regardless the sector, furthermore in the implementation of local autonomy, local government should be able to explore potential local resources in order to increase government's income to support regional development in which infrastructure development is required in the process. One of viable options to overcome such constraint

is by implementing the principle of collaborative governance, one of which is through Public Private Partnership (PPP) in which public sector and private sector work together to share knowledge and resources in public services delivery.

## **B. PFI in Japan Overview**

In Article 3 of the PFI Act states that “under the appropriate allocation of roles and responsibilities between the public and private sectors, the implementation of a project for the provision of Public Facilities shall, as is possible, be entrusted to a private operator if the project is suitable. There are 5 (five) principles and 3 (three) doctrines in doing PFI, as follows:

Five principles of PFI:

1. The project shall be of a public nature.
2. Shall utilize managerial resources of a private operator management ability and technical capability.
3. Shall implement the project efficiently and effectively with the independence and innovation of a private operator.
4. Shall be equality in the selection of a private operator for the project.
5. The project will be transparent throughout its implementation from its initiation to its termination

Three doctrines of PFI:

1. In the implementing the project, there shall be objectivity in the evaluations of each step, such as in the selection, implementation.
2. The agreement shall be transparent and incorporate items such as sharing responsibilities and risks between the Administrator of Public Facility and PFI operator.
3. The companies responsible for project shall be independent entities. The and operation shall also be independent.

Purposes of PFI:

1. Minimization of Life Cycle Cost
2. Utilization of Private Finance

## C. PFI Recovery Method of Project Cost

PFI operator return of investment methods throughout the life cycle of project, according to Kazuo Ueda (2019) generally can be classified in the three methods as follows:

### 1. Service-purchased type

This type's method is based on service availability payment in which a PFI operator recover cost from the service charges paid by the public sector over the life cycle of the project.

### 2. Self-supporting accounting type

This type's method is based on user fee charge in which a PFI operator recover cost directly from users a charge over a certain PFI operation period.

### 3. Joint-venture type / mix type

This type's method is based on the combination between service-purchased type and self-supporting accounting type in which PFI operator recovers costs from the charges collected directly from users, public subsidies, etc, over a certain PFI operation period

## D. PFI Project Method Classification

The majority of the PFI project in Japan is based on BTO Method in which the assets ownership is transferred to the public sector after the construction is finish, because based of Japan financial system, the requirements for the PFI project that utilize service availability payment in the project cost recovery method to be funded with national government subsidy is the assets should be owned by local government. This also means that the majority of PFI Project in Japan is based on service availability payment and joint venture.

## E. Effects of Introducing PFI

The implementation of PFI in Japan has brought impacts in public services provision by national government as well as local government. The uses of private sector resources PFI has successfully become alternative financial source for the government in developing infrastructures. According to Kazuo Ueda (2019) the effect of introducing PFI in Japan is as follows:

1. Provision of inexpensive and high-quality public services.
2. Reform of administrative involvement in the provision of public services.
3. Economic activation through creating a business opportunity for the private sector.
4. Time Reduction for facility construction.
5. Smoothing of local government financial requirements.

## **F. Success Implementation of PFI in Japan**

Even though PFI implementation in Japan is based on PFI that established by the British Government in 1992, comparing with its counterpart in United Kingdom, PFI in Japan has proven to be more successful. As of September 2019 there are 835 projects has been successfully carried out with PFI scheme in many fields.

## **G. Project Case: Hachioji City General Gymnasium Esforta Arena**

Since Japan has implemented PFI in 1999 there has been many successful project carried out with PFI methodology, as of September 2019 there are 835 projects encompassing economic and social infrastructures in various sectors. Among those, there are 14 successful project in sport facility infrastructure, one of which is General Gymnasium Esforta Arena in Hachioji City, in Tokyo Prefecture.

The current civic gymnasium (Hachioji City Gymnasium), and other existing sport facilities cannot be used at anytime because of lack the functions of “viewing” and showing, so that the number of sports events and the details of sports are restricted. Moreover the existing gymnasium was constructed in 1974, so it is required to receive large-scale repair and seismic strengthening. In light of these situations, the City has formulated basic policies and basic plan for construction of new gymnasium which based on the report of Hachioji Sports Promotion Council that consists of invited citizens and representatives of concerned organizations. However directly construct this facility if difficult due to financial stringency. Under these difficult financial situations, it is impossible for the city to conduct both construction of a new gymnasium and large scale repair of the current gymnasium. For this reason, it is difficult to provide required public

services by only traditional project method. There for in order to reduce the city's financial burdens by efficient implementation of services and provide high-quality public services that satisfy civic needs with the active use of private finance, management abilities and technical capabilities, the project shall be implemented as PFI project.

The project shall be carried out under the PFI Act. After designing and constructing the facilities, the selected business operator shall deliver them to the city. The relevant project shall be conducted in a BTO (Build-Transfer-Operate) method in which the maintenance and operation of the facilities are done during a project period. After the opening and the operation of the facilities have started, Esforta Arena in Hachioji City has showing good results in the number of user.

## **H. Lesson Learned From PFI Implementation in Japan in implementing PPP for Sport Center Infrastructure Provision in Pati Regency Case Study: Hachioji City General Gymnasium Esforta Arena**

Pati Regency share similar problem with Hachioji City, Pati regency existing sport center is not adequate to support current sport development in Pati Regency due to limited facilities and the condition of the existing sport center itself which requires major repairs. So that it is imperative for Pati Regency Local Government to have a new Sport Center that also serves as multi purposes building.

Hachioji city has successfully overcome the problem by implementing PFI in the development of new gymnasium "Esforta Arena", even though the project is still ongoing in the operation and maintenance phase, however the implementation of the PFI itself has been proven to be more beneficial. Such scheme also can be implemented in Indonesia as the Indonesia central government has been encouraging the implementation of Public and Private Partnership (PPP) in the acceleration of public infrastructures provision. Public and Private Partnership in Indonesia is regulated by President of Republic Indonesia Regulation number 38/ 2015 regarding Public and Private Partnership in Infrastructure Provision. PPP in Indonesia and PFI in Japan have the same notion hence the technical differences.

Therefore Japan implementation of PFI can be used as a role model, and the factors that determine the success of PFI implementation can also be adopted in regard with regulations in Indonesia.

According to President of Republic Indonesia Regulation number 38/2015, infrastructures that can be provisioned encompasses economy infrastructure and social infrastructures, one type of social infrastructure is sport infrastructure. However since there are no experience or best practices in social infrastructure project using PPP scheme in Indonesia, so that it requires effort to be implemented, moreover in the Local Government in which fiscal constraint become major issue, implementation of PPP become more challenging, especially in non basic services sectors. That is why PFI implementation in Japan in social infrastructure especially in sport infrastructure can be considered as an example or a role model.

Several measures should be taken by the Pati Regency local government before the implementation of PPP, careful planning is very important for the success of the project. According to Ministry of National Development Planning Regulation Number 4/2015 regarding General Guidelines, PPP preparation consists of activities: a) preparation of the Feasibility Study including the study of investment returns of the Implementing Business Entity; b) submission of Government Support and / or Government Guarantee; and c) submission of PPP location determination. Preliminary study of the project becomes one decisive factor to determine the feasibility of the project. Preliminary study has the functions to review the best financing scheme for the project (PPP or conventional) and the basic framework for making the next document. In the implementation of PPP in Indonesia preliminary studies can be made by consultants who are employed by public sector, or by the PPP Team from the public sector itself.

In Hachioji city case this methodology is the ideal method in the implementation of PFI in the provision of Sport Facility because not only sport facility has public service value but also it has economic value as well. The market demand from the public for new gymnasium with better facilities is high so that market risk regarding demand is low, therefore economic/ business value of the project is high which then attract private sector to propose and bid the project. There were four private sector consortiums that proposed the project in the bidding process.



In Pati Regency this methodology can be adopted as well, however in Pati Regency case where market demand as well as government fiscal capability, comparing with Hachioji city is much lower, therefore implementation of project scale should be lower, and with potential higher market risk there is possibilities that the project is less attractive to the private sector. Therefore if there is only little number of Private Sectors interesting in the project or in the worst case no private sector is interesting, the alternative is to use Service Availability Payment method, in which a PFI operator recovers cost from the service charges paid by the public sector over the life cycle of the project.

PFI operator will collect user fee on behalf of the public sector and will become government income, so that if the facilities usage is high the income will be high as well. The project will potentially be more attractive to the private sector because they don't bear market risk, so that the bidding process will be more competitive and increase the value for money.

It is important to conduct economic and commercial analysis in the preliminary studies to give an comprehensive understanding regarding the project in the business point of view. The project methodology then can be adjusted to the market sounding result and can be determined which one is more beneficial.

To reduce financial burden, regardless the project return of investment methodology, income from user fee is the key factor. Income is generated from user's fee charge for facility usage in the form of tariff. First, it is important to determine the appropriate tariff charge, because if the tariff is too high it will discourage users from using facility, in the other hand if the tariff too low then the income will be low as well, therefore it should be important to use optimum tariff fee. Secondly in order to increase income from the sport facilities, in addition of main gymnasium facility, it also should have supported by additional facilities. Additional facilities such as parking lot, restaurant, shop, library, gym with the right tariff scheme could also provide additional income.

## **I. Conclusions and Suggestions**

### **1. Conclusions**

PFI implementation in Japan has successfully become alternative financial source from private financing for local government in the provision

of public services. PFI offers a number of benefits, including being a mechanism for financing infrastructure development despite government fiscal constraints. PFI can help achieve value for money by appropriately transferring risks and costs to the private sector. PFI Implementation in Japan generally and specifically Hachioji City General Gymnasium Esforta Arena project can be adopted for Implementing PPP in Sport Infrastructure development in Pati Regency, and adapted with law and regulation regarding PPP in Indonesia because in general PFI in Japan and PPP in Indonesia despite several technical differences, it share the same principles. The project methodology, especially the potentially more beneficial the joint venture style shall be implemented in regard with market assessment in Pati Regency. The project scale that should be implemented in Pati Regency should also be adapted with Pati Regency Local Government's fiscal capability while all local regulations and local document should be complied. Furthermore, central government support scheme in financial as well as infrastructure guarantee in PPP project should become advantage point in the implementation.

Indeed the process will face major challenges, not only because lack of best practice in PPP implementation in social infrastructure especially in sport infrastructure in Indonesia but also in term of understanding the PPP concept of long term value for money benefit, requires to reform public sector's general mindset of short and medium term benefit in decision making process, especially in Indonesia political system, where Head of local government term of service is only 5 years, and can only be reelected once. Head of local government only have medium term vision to be attainable in his/her term of service, for which in the implementation of PPP requires extensive, systematic and consecutive process.

## 2. Suggestions

Therefor several suggestions for Pati Regency Local Government in implementing PPP are:

1. Because of the nature of PPP project is long term contract based on reliance of both parties, in the implementation Pati Regency local government should have strong commitment toward the project from both executive administration and legislative starting form planning

process until contract termination in which in the process should be transparent, accountable and free of any political interests.

2. PPP implementation in the acquisition of public services is based on long term Value for Money benefit, so that short term benefit should have not been expected, therefore the general mindset of increasing short term local government income should be changed. Short term benefit should not be outweighing long term benefit.
3. To ensure successful implementation of PPP in Pati Regency preliminary planning and market sounding should be conducted carefully, in order to identify market demand, local government fiscal capability, and methodology to be implemented in the PFI Project.
4. PPP committee should be established which consist of related sector in the local government as well as related stakeholders such as (sport department, planning department, financial department, regional sport committee, sport organizations, etc) to conduct preliminary study and all preparation in the implementation of PPP.
5. Pati Regency local government should have consult and coordinate with central government and for assistance and support in the implementation of PPP, throughout the process.





# 8

## Public Open Space Improvement of Soppeng Regency: Lesson Learnt from Kyoto City, Japan

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Instansi : -

### **A. Background**

Public Open Space improvement has become a significant issue in Urban and Regional Planning task since people know numerous benefits of this space to the community. Open space has been associated with social interaction space, children's playground, healthy life with green space and place which can reduce both stress level and depression. However, there are several problems in establishment processes such as fulfillment

of the quality, quantity, accessibility, and safety of the space. Soppeng is one of the regencies in South Sulawesi Province, Indonesia, which also face this problem issue.

“Better public service” is one of the goals of Regional Medium-Term Development Plan of Soppeng Regency (RPJMD) 2016-2021 and provision of public open spaces is a part of government actions to reach the goal. According to Spatial Details Plan of Watansoppeng, the capital city of Soppeng Regency, there are several variables which concern to the quality, quantity, accessibility, and safety of the open space. For instance, every 2,500 people population, the government should provide at least 1,250 m<sup>2</sup> for Park. It means the government should provide at least 125,551 m<sup>2</sup> parks which spread in the population area (housing area) in Soppeng Regency. However, this situation has become a concern since, in fact, the government of Soppeng Regency is still processing to get that quantity in several places while others need more improvement in quality, accessibility, and safety.

In detail, there are six significant problems regarding Public Open Space in Soppeng Regency, which are:

1. Public open spaces do not meet requirements of quantity and quality standard. Parks are limited, malfunction, fewer amenities and infrastructure.
2. Public Open Space data is limited.
3. Institution problems.

The absence of proper laws and regulations creates the enforcement of public open space management rules is not yet optimal and unclear institutional form of Public Open Space managers.

1. Stakeholders’ awareness regarding Public open space is less.
2. Land/area for public open space is limited.
3. Existing Public open space is not yet used in optimally.

In general term, Public open space definition in Indonesia and Japan is quite similar although some of term in neighborhood type is quite different.

## **B. Benefits of Public Open Space**

It can be clearly seen that public open spaces have a lot of benefits and those advantages can be divided into several points such as Healthy live and Place Identity point of view. According to Healthy Park Healthy People Central, open space has amount number of benefits in a different level. In basic Level, public open space has been associated with healthy living and reduce both stress level and depression. The study explains that people who have access to open space are three times active rather than people who have not.

Another level, urban park as public open space can contribute to a good environment which creates natural lands and trees. Another benefit of Public open space is creating Place Identity. Lynch (1982) states five elements of city image and one of the elements is a node. Public open space can create a node that people can recognize it as Image. It is supported by Chen and Jim (2008) who explains that public open space not only creates identity and image but also provide the quality of urban life. Furthermore, Urban Planning of Kyoto city (2013) makes a summary of those advantages in four points, which are improving the urban environment, to providing health activities and recreation, increasing the safety of the city and making a beautiful urban landscape. Thus, public urban space is important to urban living conditions and individual well-being.

## **C. Lesson Learnt from Kyoto City, Japan**

Kyoto is a historical city in Japan, which is located in the middle of Japan. The eastern side of Kyoto is the mountainous region called Tamba highland and the Northern half of Kyoto is Kyoto basin. The Kyoto Basin is surrounded on three sides by mountains known as Higashiyama, Kitayama and Nishiyama, all less than 1000m above sea level. The ground is highest in the north-east, with the level decreasing towards the south-west. To the east of the basin flows the Kamogawa River, to the west, the Katsuragawa, and to the south, the Ujigawa River (Kyoto City Website, 2017).

There are 276 parks in Kyoto which spread in eleven of wards with 554.12 Ha under Green Policy Promotion office, Construction Bureau. Those Parks include in 917 parks under Southern and Northern Midori office maintenance. However, several famous large parks in heritage buildings



such as in Kinkakuji, Ginkakuji, Arashiyama, and Kiyomizudera are excluding. According to Kyoto city Website, there are Five Comprehensive Parks with 109 ha, Two Sports Parks with 36.5 ha, two wide parks with 236.2 ha, three special Park with ha, nine district park with 47.7 ha, 26 Neighboring parks with 46.9 ha and 229 block park with 65.42 ha.

The long history of open space in Japan has significant point as a background when Japan created Park development policy in 1956 (Kato, 2008). The policy is called Urban Park Act which regulates to all processes in providing park. Those processes are including planning, developing, and maintaining.

Another regulation which has interrelatedness to park is Kyoto City Landscape Policy. This policy is created in 2007 to protect the beautiful landscape in Kyoto. It is not only for tangible materials that we can see and touch but also intangible such as sensations of wind, sound, a smell which harmonized with each other since olden days. Both tangible and intangible is perceived together by history and sensitivity of people who live in Kyoto.

According to Kyoto City Landscape Policy, Landscape Act is considered to five basic policies, namely: *landscaping that naturally conforms to scenery in the basin, landscaping that coordinates harmony between succession of traditional culture and creating of new, landscaping comprised of multitudinous space that bespeak the features of Kyoto, Landscaping that generates the city pulse, and landscaping through partnership among the government residents and enterprises.*

## 1. Park Planning Process

Park planning processes in Kyoto city cannot be separated in other factors and Plan Processes. Miyako plan as the master plan for Kyoto city shows that there are many stages of the plan in Kyoto city as the basic processes of park planning.

Flying to the future! Miyako plan 2011-2020 is the basis for the last stage of the plan. There are two parts in this last stage which are Execution plan and plan according to each field. The execution plan is a plan to promote the outline of the priority strategies and administration management while plan according to each field is a plan to promote the approach for

each policy field including Greenery Plan (park plan) and Housing Master Plan.

Another plan regarding park in Kyoto city is City Planning of the City of Kyoto. This Master Plan describes the long-term future image of Kyoto and how the policies to reach the image. It contains several issues such as use zone, high control district, city facilities, land readjustment project, and others.

As a city facility, the urban park is planned by City Planning Department. According to Hujii (2017), City planning has a responsibility to Park plan. This is including the decision to increase more the number of park and purchasing land for the park also. In planning processes in Kyoto city, there is also citizen suggestion regarding the plan. According to Naoko Kagechi (2017) from Green Policy Promotion office, there is a public hearing for large parks in Kyoto and workshop in small parks. Moreover, Landscape policy shows guidelines how to making a suggestion to the decision of landscape planning for instance.

## 2. Park Development

There are 276 places with 554.12 Ha area in Kyoto City and 257 of them are already developed under Green policy promotion office, Construction Bureau of Kyoto city (Hujii, 2017). In the development process, public hearing in large parks is an important tool to evaluate and to construct park development. In this hearing process, the government can receive many inputs such as the type of park they want and until the type of trees, in development process government can give support to community development activities.

Regarding development of Neighborhood Park, Government ensures the safety of the park accessibility of old citizen and disabled people by giving requirement in park development. For instance in Haba Ishi Shimizu Park development, Government gave some features to this 2.001 m<sup>2</sup> area, such as:

1. Secure space for children of a wide range of age
2. Parks that contribute to walking and health promotion.
3. Requirements regarding planting seasonal trees.
4. Contributing to disaster prevention space.

In Kyoto, there is also an interesting process that government can use to arrange function the land which called "Land Readjustment". Urban land readjustment project is an effective way to create housing space and urban facilities.

### 3. Park Maintenance and Management

Hokobu Midory Management office and Nambu Midori Management Office conduct operations such as maintenance and repair of parks. It is also including permission to occupy parks and maintenance of urban park ledgers.

In the park Kyoto City management, there are also volunteer organizations formed by the citizen who lives in neighborhood park area. These volunteer organizations are maintaining and developing park beautification activities.

Park in Kyoto has clear regulation to support activities related to planning, development, and maintaining. Kyoto city also has good organizations to support the quality and quantity of their park. There are 276 Parks in Kyoto with 554.12 Ha area are planned in greenery zone by City planning and 257 of them are already developed under Green policy promotion office, Construction Bureau of Kyoto city. And those parks are maintained by two Midori office North and South Office. To support planning, developing and maintaining processes, there is also the participation of the community such as public hearing, workshop, and maintenance management process.

## D. Appropriate Model for Soppeng Regency

Soppeng Regency is 1.500 km<sup>2</sup> with 8 sub-districts, namely: Marioriwawo, Lalabata, Liliriaja, Ganra, Lilirilau, Donri-donri, Marioriawa, dan Citta. The households and population are spread out in sub-district and most of them live in capital city of Soppeng regency, sub-districts and along main roads.

From those households, population and housing distribution, according to Statistic board of Soppeng Regency, in 2016, there are only 20 parks with several types which 14 of them are located in Watansoppeng.

Furthermore, the quality of 14 parks of Watansoppeng also needs improvement regarding a variety of activity in Park, safety, and their

accessibility. In Soppeng Regency, only one of Parks in has playground activity area for children while others are green spaces only without other amenities such as sports equipment.

Those problems are created from other problems that government face in Soppeng Regency, which are:

1. Public open spaces data problem

There are unclear data regarding parkland in Soppeng Regency. For instance, there are many open spaces in kelurahan (wards) and villages but there is unclear information about the open space management and ownership.

2. Institution problems

The management and maintenance of park in Soppeng Regency are undertaken by environmental services office but there is no clear division or sub-division which concern to this responsibility. Planning and development division also need more clearly regarding task responsibility of division or office.

3. Stakeholders' awareness

Park improvement and development issue are unknown well in several citizens in Soppeng Regency since less knowledge and information about the benefits of park and they focus on to other infrastructures such as road, water, and sanitation.

To address the problems park regulation, Minister of Public Works Regulation No. 05/PRT/M/2008 regarding Guidelines for the Provision and Utilization of Green Open Space in Urban Areas and Permendagri No. 1/2007 regarding Spatial Setting of Green Open Area are created as regulation. However, those regulation are not effective as implementation regulation in Regency. Thus, Park regulation is needed to address all the problems and that regulation is being a part of other regulation and spatial planning in Soppeng Regency. Kyoto city shows the effectiveness of Park Act in implementation processes including the effectiveness of planning, developing and maintaining process and also departments have clear task responsibility in their implementation process.

## 1. Appropriate model for Park Planning Process

Soppeng regency also needs to create park plan document as tool in the implementation of improvement of Park in Soppeng Regency. The plan is tools to reach the number park need and distribution for instance and the plan also is guidelines in detail how to create Park which considers to safety and accessibility of older people and disabled people.

Public participation is necessary for the planning process to hear their need of the park in the future. Public participation can be created as public hearing and workshop as Green Policy Promotion office method in Kyoto.

To address the limitation of government land for the park, Funakoyama Park is a good example when the government borrows the land from the shrine. There is vast land that government can use and borrow especially in village area which has cultural heritage significance.

## 2. Appropriate model for Park development Process

The gap number of existing park and park need is very large, thus Soppeng Regency needs a strategy to address this issue. A pilot project in one ward (kelurahan) is one of the ways to start facing the problems as propose in this essay in the implementation plan. The development process in Soppeng Regency also can use landscape and community development chart to sub-district which has high motivation residents' community develop their park. In this process, Government only needs to support the community through Promotion and incentive or subsidies. This method is part of public participation which is needed in the development process.

Development process by Green policy promotion office, Construction Bureau of Kyoto city is also important as a good example that how government creates a method to participate citizen in their development activity. In large park design and development processes, this office received some inputs from the public hearing and citizen association regarding development processes and their imagination about the parks in the future while in the small park this office creates a workshop to the community for enhancing their knowledge in the development process.

### 3. Appropriate model for Park Maintenance Process

Maintenance process is an important step to make sure the sustainability of the facilities. In Soppeng regency, there is government agency to make sure the cleanliness the parks. This Environmental agency also makes inspection and repair park facilities. This process, however, will be improved if there is citizen participation. Environmental agency of Soppeng regency can involve volunteer activities in citizen association.

Another supporting of the government of Soppeng regency is workshop activity. This activity can improve the knowledge and understanding of citizen regarding the benefits and improvement need of parks in Soppeng Regency. This is also the way to optimally the use of Public open space and creates place attachment to a citizen who lives around the park.

### 4. Model Implementation Plan.

In order to apply comprehensive implementation process for improving Public open space in Soppeng region, the action plan should be composed in some stages. The first stage is the preparation phase. This process will start with recompilation data including data of the existing regulation regarding Public Open Space, institutions related to Public open space, stakeholders, and a number of existing parks which are not only maintained environmental services office but also other institutions. This proses will continue with communicating the program idea to head of Regional Development Planning board to get some inputs to collaborate with other programs in Regional Development Planning Board of Soppeng regency. The next process is socialization to institution and stakeholders the importance of public open space and reasons why Soppeng regency should address this issues. This process is also to explain about Public open space lesson learned not only benefits explaining but also getting problems and input from institution and stakeholders. The last proses in the first stage is regulation preparation.

The second stage of Public open spaces implementation plan is Implementation. This process has six steps with a focus on citizen participation. Firstly, Stakeholders coordination is needed to declare commitment between government organization and citizen association. This is a step for preparation implementation program. Secondly,

workshops for citizen association for basic knowledge implementation. In Kyoto, this is the way of the government to engage citizen with their park. It will be followed by program compilation before government and stakeholders create a pilot project and launch the program. The last step for this stage is assisting program to still focus on their goal.

The last stage of this implementation plan is evaluating while creating an opportunity for expanding the project.

This implementation plan is created from lesson learned activity especially for citizen participation in all process of development. There are two basics for this action plan, namely regulation empowering process and citizen participation. Those basic will be developed based on local condition.

## **E. Conclusion**

Japan has long history related Open Spaces especially gardens. Some experts say that it has started in the Heian period while others say in Emperor Keiko and Kenzo. In 1956, Japan created Urban Park Act as regulation regarding Park in Japan. 61 years later in 2007, Kyoto Landscape policy was established to regulate landscape of Kyoto city. Those regulations support Flying to the future! Miyako plan as the Master Plan of Kyoto City 2011-2020 to reach the goals of the doctrine "Declaration of Kyoto as a city open to the free exchange of the world culture.

In term of park distribution, City Planning provides a plan as a tool to set up parks in Kyoto and there are 276 parks with different type under this plan. City planning department has a responsibility to increase the number of parks and purchase the land if needed in Kyoto City.

In 2017, 257 of them are already developed by Green policy promotion office, Construction Bureau of Kyoto city (Hujii, 2017). In large park design and development processes, this office received some inputs from the public hearing and citizen association regarding development processes and their imagination about the parks in the future while in the small park this office creates workshop to the community for enhancing their knowledge.

Workshop method is also provided by Northern and Southern Midori office to manage and maintain all parks in Kyoto. Both offices give opportunities

for volunteer association to maintain the parks and in order to support this volunteer activity, North and South Midori office give incentive to them by their association.

Those all regulation, planning, developing and maintaining processes are encouraging as the lesson learned to Soppeng regency in order to improve their Public Open Space. Providing regulation that can be implemented in local people in Soppeng Regency is necessary to address public open space problems including type of parks, distribution of park, park design guidelines to fulfill safety and accessibility of older people and disable people. Park regulation also need to explain task responsibility of institutions, offices, or organizations in detail for clear understanding in implementation and minimize overlapping among institutions related Public Open Space.

Lastly, community participation is a significant factor in Kyoto city park development processes. Every stage of the process participates citizen as a user of facilities to create engagement to the park. This is supported by some research show that participation of community leads them to engage their park facilities. This evidence is a good model for park improvement implementation in Soppeng Regency.

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# 9

## **Kalbar Go Digital: Conceptualizing Smart Province in West Kalimantan – Lesson Learned from Japan**

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### **A. Background**

Today, the advanced technology has made life easier. From positive perspective, ICT is viewed as solution system. On the other hand, ICT can slowly change human's role in doing work according to skeptical point of view. Concept of Smart City is rising as a response to rapidly changing situation, for instance,

urbanization, high density, urban sprawl, pollution, traffic jam, etc. (Widyaningsih 2013). Simply, the basic idea is to put kind of technologies to tackle those problems, especially in dimensions such as smart economy, smart people, smart government, smart mobility, smart environment and smart living.

There are 26 theories about smart city definitions which can be found in the literatures (Albino, Berardi et al., n.d. ). In term of frameworks, one of them is technology framework. This type of smart city is relying on the use of digital technology that combines service oriented infrastructure, innovation services and communication infrastructure to create a connected community and innovative services. The scientist called it “digital city” (Yovanof and Hazapis 2009).

In Indonesia, smart city concept is now becoming trend. Cities and Provinces are in race of implementing the concept. To meet digital challenges at the age of information, they must have digital strategy instead (Ahmadi 2016). Surabaya is a pioneer in terms of Smart Government, Smart Living and Smart Environment (Widyaningsih 2013). On the other hand, Pontianak Smart City is using ICT to boost trading and service sector in the capital city of West Kalimantan (Ahmadi 2016). Then, Bandung Communicative City, their innovation is in use of social media for public information services (Sutriadi and Wulandari 2013) and leading in Command Center Project. From the city level, now it is turning into provincial level as smart province—the greater interconnected smart cities—to be smart nation.

According to practice, implementation of smart city itself is not clearly yet and not always consistent (Widyaningsih 2013, Albino, Berardi et al. n.d. ). In general, urban and regional development using smart city concept is starting from using ICT and advanced technology partially to handle priority problem. By the time, they are increasing their performance to widely apply in other sectors, which it makes impact on some improvements from previous ICT concept and later considering unpredictable aspects to integrate within the smart city concept (Widyaningsih 2013).

Furthermore, the current understanding of smart city concept is rising due to urban problems as mentioned above. However, the regional problems are different from urban problems, which are about regional disparity, rural area, etc. Towards the difference that is why concept of smart regency and smart province needs to develop independently, apart of smart city

concept. Of two concepts are not similar. Although the meeting point of two concepts is in the use of ICT, smart city concept tends to relate with urban management / planning. Otherwise, smart regency and smart province are related to regional development/planning, regional collaboration and integration. Or in other words, the concept for smart regency and smart province could be ICT-led Regional Development (Djunaedi 2017) .

Unfortunately, literature of smart regency and smart province is rarely at the moment. Therefore, this study focuses to conceptualize smart province in West Kalimantan Province as the study area. As we know, Japan is a high-tech country that implement ICT holistically from prefecture to local level. The main objective of this study is to investigate best practice and lesson learned of smart cities in Japan in terms of technology platform and collaboration.

## **B. Profile of the Study Area**

### **1. Geographic**

West Kalimantan is one of the biggest provinces in Indonesia. It has its size 1.13 times larger than Java Island within 4.78 millions of population (BPS 2017). It has size 146.807 km<sup>2</sup> including 14 regencies and cities (divided into 174 districts, 2076 sub-districts and villages) with boundaries as follows (BPS 2016):

1. West: Natuna Sea (South China Sea) and Karimata Strait
2. North: Sarawak (Eastern Malaysia)
3. South: Central Kalimantan Province and Java Sea
4. East: Central Kalimantan Province and East Kalimantan Province

Geographically, the province is located in equator line, which is exactly in Pontianak City. It makes West Kalimantan as one of tropical land with high temperature and high humidity (Bappeda 2016). According to regional topography, West Kalimantan consists of flat area (in coastal), hills and mountain; According to development concept, West Kalimantan is divided into four regional developments such as Central, Coastal, Between Provinces and Between Countries. "Central" area is focused on development of transportation network to open isolation in some rural areas and to support accessibility and logistic. "Coastal" area is focused

on development of port, fishery, tourism and small-island development. "Between Provinces" area is focused on development of mining, farm and plantation, and eco-tourism. "Between Countries" is focused on border Development center, farm and plantation, estate industry and eco-tourism (--- 2008).

## 2. Demographic

Based on data from Statistical Bureau of West Kalimantan Province there are only 815.219 residents live in urban areas (Pontianak and Singkawang City), and by the end of 2015 population has risen significantly into 4.789.574 residents in West Kalimantan Province. In area of 146.807 km<sup>2</sup>, the region has its density is 33 residents/km<sup>2</sup> (BPS 2016).

## 3. Digital Activities and Policy Response

Statistically, based on data from Indonesia Internet Service Provider Association about Penetration and Behavior of Internet Users in Indonesia (APJII 2016), in 2016 there are 132,7 millions of internet users of 256,2 millions of population in Indonesia. The biggest internet users is in Java Island with 65% (86.339.350 users) compared to Kalimantan Island as much as 5,8% or 7.685.992 users.

In regional level, from populations of 4,95 million people in West Kalimantan, internet penetration within the region is only 17,8% in Kalimantan Region, or the smallest based on statistics. The other Kalimantan Provinces has reached more than 23% of internet penetrations. West Kalimantan's statistics is also lower than overall Sulawesi Provinces.

Moreover, in terms of internet network facilities, all provinces in Kalimantan are dominated by the use of WiFi/WiMax for business sectors. Largest WiFi/WiMax access used by the business sector can be found in Central Kalimantan (66.67%) and West Kalimantan (62.50%).

Activities or needs related to enterprise's business those require internet network facilities could be various. In West Kalimantan, internet is mostly used for delivering/receiving e-mails (93,7%), followed by searching for goods services (75,0) and searching for news information (87,5%). However, searching for government agencies is only 62,5% in general higher than the use of internet for social media.

As the internet users are growing in West Kalimantan, so do the local startups in Pontianak, the capitol city of West Kalimantan. In terms of Digital Economy, the presence of local startups has increased significantly since internet price is getting cheaper, WiFi services are provided in public areas and coffee shops, and influenced by success story of startups in worldwide and big cities in Indonesia. There are *Travella*, *Ponjek*, *Imelta* and *Tripy* (transportation and travel service); *Bujang Kurir* (logistics and delivery); *Delifairy*, *Dpenyetz*, *Dikirim* (culinary); *Doka Loka* (health); *Enggang Kalbar* (information service); *Angkuts* (nonorganic waste management); and *Guru Kite* (education) as examples. Clearly, startup's ecosystem in West Kalimantan is growing, at the same time, facing domination of well-known startups to survive. With their potency and problem, their existence is useful for boosting local economic development and stimulating digital industry within the region.

In national scale, unfortunately, West Kalimantan Province had 15th place from 22 surveyed provinces, according to Ranging of e-Government Indonesia (PeGI) 2014 by Ministry of Communication and Informatics of Republic of Indonesia (Kominfo-RI). As a result of the national rankings, implementation of e-Government in West Kalimantan was still "dissatisfied" in dimensions of policy, organization, and infrastructure and planning. Otherwise, only dimension of applications was "good". In conclusion, the result indicates the importance of improvement for those dissatisfied dimensions (Kominfo-RI 2014).

Towards digital activities as mentioned above, West Kalimantan Province then takes policy response for the future plans by considering those factors in West Kalimantan as follows:

1. The local government is proposing "Data Based Policy" to meet critical data with problem solving namely "Kalbar Go Digital" that uses Smart Province as development concept. Fortunately, a new government body has just established in January 2017, which is Department of Communication and Informatics (Diskominfo) of West Kalimantan Province. The role of Diskominfo is to help manage resource capacity in communication and informatics sectors in order to support regional development. Their tasks and responsibilities include communication, informatics as well as technology policy and implementation of e-government / smart city principle in wide scale.

2. Internet penetration shall increase to improve greater connectivity and accessibility in West Kalimantan and to reduce digital/technological gap within Kalimantan Region as well as to support regional distribution.
3. The use of social media is very important to adapt with current internet user's behavior and to change traditional role of government website.
4. The local government shall increase quality of public services through internet platforms shifting conventional service to digital service.
5. Provision of free Wi-Fi in public areas and open space shall increase the use of internet widely.
6. The use of internet in business sector is the strength of West Kalimantan. So, this factor shall be consistently supported to sustain and to be well-developed through quality of ICT infrastructure.
7. In framework of Digital Economy, the local government shall give support to the local startups to boost local economic development, at the same time, to increase their competitiveness and to sustain for long term.
8. As recommended by Kominfo-RI, West Kalimantan shall focus on three aspects which are e-Government, e- Commerce and e-Learning as mentioned on Long-Term and Mid-Term Development Planning of West Kalimantan Province. Therefore, the three aspects shall be basic foundation of planning for Smart Province in the future.

#### 4. Problem Identifications

From early investigation in planning document and secondary data, the following problems could be identified as challenges and barriers of development process of Kalbar Go Digital as follows:

1. With the huge size, West Kalimantan is seriously facing geographical challenges that make impact on quality of public services. So, it is very important to connect local governments, public services and local people in West Kalimantan into an Integrated Smart Province. Therefore, increasing accessibility and connectivity through digital technology platform and telecommunication networks may be solutions for problem-solving and integration.
2. It is very challenging to change from sectoral approach to integrated approach. Historically, Diskominfo was a division that had limited

authorities in ICT Project. Until now, implementation of ICT projects within the region is still executed by each of departments in the local government (sectoral approach) unless Diskominfo can produce proper regulation or Smart Province Master plan. In that tradition, the division worked mostly in area of internet networks to cover some government institutions with LAN networks through Electronic Data Centre (PDE) as Data Center to deliver internet service and to maintain few servers. There were no fiber optic networks and free Wi-Fi for public using WAN networks. For some e-Government applications, there are some application that is still running such e- Budgeting, e-Planning, and e-Permission Approval for business and investment. However, most of government websites are out-of-date because of less interactive.

Since the establishment, Diskominfo will be responsible for all ICT projects, which has main focus on “system integration” at the top of priority. So far, some progress are successfully made. Diskominfo has launched Media Center (for Media Partners) and Command Center (a control room that has function to integrate all applications and servers—from all departments—in order to be easy for monitoring and maintaining). Strategic Partnership with third party has also made, for example, with U.S.A. Government through Green Prosperity Program, for implementation of Map Based Participatory Planning in forestry, farm and fishery sectors. In between departments, Diskominfo is working with Department of Industry and Trade to launch e-Marketplace to support Small Medium Enterprises—soon will be launched.

3. Adaptation to the age of information is not very sensitive and responsive to the latest technology. The local government does have an ICT Master plan but has never been revised to adapt with the use of social media, mobile application, Internet of things, Big Data, Civic Tech, Artificial Intelligent or other latest new technology. For solution, Ministry of Communication and Informatics of Republic of Indonesia suggested Diskominfo to make Smart Province policy through holistic approach in order to plan ICT sustainably in whole aspects, not only e-Government, but also e-Commerce and e-Learning (Kominfo-RI 2014). The policy of Smart Province is required to show the importance of ICT for regional development and to support technology platform, collaboration and integration of all resources.



4. The planning process is on-going. In details, it may say that Smart Province in West Kalimantan does not have any focus yet—does not know where to go and what to design (misguide).

## C. Smart Cities in Japan

History of smart city in Japan can be found through the government initiatives to reduce emission called “Eco- Model City” since 2008, by selecting six cities with various backgrounds in terms of population, geographic and industry. The new cities could be built close to industrial area such as Toyota City or around a large metropolitan city such as Yokohama (Agentschap n.d.). Furthermore, in 2010, the Ministry of Economy, Trade and Industry (METI) has launched smart city projects to increase number of smart cities in Japan. The four cities were selected such as Yokohama City, Keihanna City (Kyoto Prefecture’s Kansai Science Park), Toyota City and Kitakyushu City (Pham 2014, Agentschap n.d.). The projects take place in previously disused area of the selected city to boost local economic development (Pham 2014), in other words, it is clearly that smart city concept in Japan has been applied to redevelop and to revitalize existing city (Agentschap n.d.).

So why do Japanese cities move on to smart city? The answers are due to environmental and social issue as well as economic growth. Only in Japan, smart city is discussed by environmental issue and global warming impact as mentioned in Kyoto Protocol in order to reduce CO<sub>2</sub>. Japan needs to seek solution for reducing energy consumption as well as creating business opportunity at the same time. Socially, rapid aging society is the other problem for developing efficient social infrastructure in order to create city comfortably (--- 2012). As population in Japan tends to decrease, however, energy consumption is increasing because the use of technology in residential, commercial and transportation (Pham 2014). In terms of economic growth, business sector in Japan is viewed smart city practice on how technology usage can be efficient to develop human oriented infrastructure (--- 2012). If Japan can build smart city, it means they (Japanese industry) can sell their technology to neighboring countries as potential market that will increase economic competitiveness as the Chinese smart city is also growing fast (Pham 2014). The recognition of smart city project in Japan will drive economy within the country in terms of promotion of sustainable development (Woods 2017).

However, the Great East Japanese Earthquake in 2011 has shifted paradigm of smart city development in Japan (Iwasa 2012, Pham 2014, Woods 2017, Agentschap n.d.). It revealed that environmental problem could be threat for negative economic progress and remained that the fragile foundation of large power system such as nuclear power plant to society (Iwasa 2012). Before, many smart city projects in Japan are focused on renewing social infrastructures through ICT where smart grids are the priority (Agentschap n.d.). The development of smart city in Japan has been a showcase of technology, but now it is slowly changing to become tool for energy management in cities (Pham 2014).

As problem revealed when the Earthquake was attacking, clearly, Japan is not self-sufficient in terms of energy and unstable the energy supply. Their capability in producing power was only 11% of the domestic energy demand. The rest is, they have to import oil, LNG and coal from the Middle East, South East Asia and Australia. Later, it indicated that they are lack of safety in terms of risk prevention in the construction of nuclear power plant sites and radioactive threat, the sudden shortage of power and the inadequate electricity grid, lack of interconnection capacity that limits the supply response to shortages (Pham 2014).

After the Earthquake, reconstruction program is implemented in Tohoku Region and Fukushima City focusing on smart community projects, included the creation of sustainable and resilient communities. The initiatives include a new energy control to integrate with renewable energy, adoption of electric vehicle and provision of local renewable energy resources (Woods 2017). Also, the concept of smart city went through a paradigm shift. Due to the shortage of electricity which followed right after the Fukushima nuclear accident, smart city has become clear and present necessity to expand renewable energy resources. In the near future, 80% of households are expected to have smart meters (Pham 2014, Agentschap n.d.).

## 1. Typical of smart cities in Japan

In general, typical of smart cities in Japan can be described as follows:

### a. Technology

Japan is well-known of high quality technology, but high cost (--- 2012) in terms of production and selling. Moreover, the high technology is considerably as strength of Japanese smart city as blood pressure.

The common technologies to smart city in Japan are mostly found in Smart House projects which include Clean Energy Resources (Photovoltaic and Wind Power), Storage Batteries (Energy Storage System/ESS), Advanced Metering Structure (AMI, or Smart Meters), Energy Management System (EMS), Intelligent Transport System (ITS), Electronic Vehicle (EV) (Pham 2014), LED and also rooftop solar panels (Agentschap n.d.). Indeed, their concept is about to connect household appliances to ICT system via mobile phone. It is not to mention the other technologies such as information terminals (netbook, smartphone, automobile, sensor), wireless and wider network, as well as cloud computing (--- 2012). In addition, smart grid is introduced focusing on the power network (Pham 2014). In the era of data processing technologies, Big and Open Data is also used by Japanese Smart City to allow national land infrastructure and energy to be used more smartly (MLIT 2015). Those are the recent technology trends in Japan.

The government and the technological industry in Japan are pioneer in developing and integrating approach to energy and sustainability issues in smart city. Currently, smart city projects in Japan are mostly focusing on the integration of smart grid and smart energy innovation as lesson learned from the Fukushima Earthquake (Woods 2017). The element of disaster risk management is now part of the Japanese smart city technology. In addition to controlling electricity, smart city in Japan also need to monitor risks against disaster (Agentschap n.d.).

In terms of public services, Civic Technology (Civic-Tech) is presented as technology that improves government infrastructure by enabling public engagement and developing better ways for citizens to stay connected with their local government (Annai 2017). For examples of Civic-Tech are Digital City Kyoto and Kyoto Open Data, that will be explained later as part of best practice.

## **b. Collaboration**

In collaborative approach in developing smart city, the role of governments (both Central and Local) is very crucial. Many ministries are involved in the smart city policy. In the Central Government level,

policy of smart city project is responsibility of METI in terms of main power of decision and management. Many of smart city projects are supported by the METI's subsidy scheme. The Central Government also have program to support companies, organization and consortium to participate in smart city programs abroad that will lead for global expansion. Political decision-making in Japan is generally considered to be centralized as the State remains a key player in city planning, where the centralized system often translates into a model where local governments are executing bodies of the central policy (Agentschap n.d.).

Japan is taking seriously to build collaboration between government and other organizations to create world-leading industry-academia-government interaction stations where industry, academia and government people will interact for innovation and enhance human resources (MLIT 2015).

However, the future challenge would be collaboration in establishing an economic framework in which smart cities can be profitable, without needing additional subsidies from the Central Government. Otherwise, the private sector is the important key for funding resource in the future (--- 2012).

### c. **Global expansion**

Japan believes that a true smart city is one that is able to sustain ongoing growth so people can live in high quality environment and new lifestyle. Development of smart city projects within the country is growth-oriented for global expansion. The strength comes from the next generation of ICT in field of facilities management, mobility, healthcare, energy services, infrastructure, etc., to support growing wider region (Iwasa 2012).

According to National E-Government Policy, development sustainable system in advanced technology fields ia a must from Japanese perspective, in order to lead the world. The objective is very clear, to commercialize innovative strategy and to create inter-regional collaboration between stakeholders (MLIT 2015).

## D. Lesson Learned

From discussion as mentioned above, some aspects of smart city projects in Japan can be lesson learned in accordance with planning for smart province in Kalimantan Barat as follows:

1. Even in stage planning, public opinion is very important in Japanese planning system, whether the project is big or not, through series of public participation activities such as workshop, public discussion, public comment and public review for better decision making and policy. Sometimes, the process takes years before approving and executing. The role of local government as facilitator is to encourage any possible stakeholder (local people, business community, etc) and make sure that every stakeholder has equal benefit.
2. West Kalimantan could start developing Smart Province by preparing Research and Development (R&D) and Master plan and creating collaboration mechanism. Smart province project will be a large-scale projects. Based on Japanese experience, it is very necessarily to involve as many as possible private and academic sectors and local communities that will improve development plans.
3. The paradigm shift after Fukushima incident has showed us the importance of technology and collaboration for sustainability and resilient community, not only in Japan, but also in Indonesia, in order to increase community preparedness for natural or unpredictable disaster and to manage energy crisis. About planning for smart province in West Kalimantan, obviously, environmental and energy issues must take into consideration in development plan because, soon or later, it will affect the region without exception.
4. According to Yokohama's case, it seems that smart city project in large scale area cannot survive without the Central Government subsidy. It means that, if West Kalimantan expects to plan for smart province, creating strategic partnerships between the Central Government and Provincial Government, as well as business sector and local community is required and essential to secure development funding, to support creativity of project and to increase public participation at the same time
5. In case of Kashiwa-No-Ha as a role model for Kutai Kertanegara, it is possibly for smart city/smart province project in Indonesia could be developed by private sector, without any government funding. Project

in Kashiwa-No-Ha is type of redevelopment project, otherwise project in Kutai Kertanegara will be develop a new town in empty land. With wide geographical size, West Kalimantan has so many potency to develop new cities based on smart city principles or even smart community in small settlement area.

6. In case of Digital City Kyoto, making 2D map-based application (using GIS) in West Kalimantan is still applicable and affordable (in terms of budgeting) especially for tourism, fishery, farming and forestry (Agri-Tech). However, using interactive 3D application for public service is not familiar even by Indonesian. So, instead of using 3D but not very effective, it is better to maximize 2D map application for public service. Furthermore, all department must upload their data through the system, in turn, they also can access all data from the system through web or smartphone platform.
7. West Kalimantan can adopt concept of Kyoto Open Data for “Kalbar Open Data” by implementing same philosophy, mechanism and practice. Since integration of internet network, server, database and application has been determined as the top priority in West Kalimantan, so the need for public information openness is vital for transparency and accountability in framework of smart province.

## E. Conclusion

In conclusion, towards development of smart city, we believe that Japan and Indonesia are in different level in both technology and collaboration aspects. We realize that technological gap between two countries are too big. If smart city technology in Japan comes from resilient technology. ICT is viewed as “equipment” for urban development / public service facilities such as public transport (including e-parking system), smart house, Civic-Tech, Agri-Tech as well as Disaster Prevention and Mitigation (Early Warning System). However, smart city technology in Indonesia tends to come from e-Government as basic foundation. So, we think that it is very possible to start smart province by strengthening the role of e-government before supporting other sectors such as e-Commerce and e-Learning. In terms of collaboration, it is clear that collaborative approach in Japan showed a lesson learned of participatory planning but how to implement in Indonesia is very challenging by now. Therefore, collaboration between stakeholders in Indonesia, especially for West Kalimantan, shall increase from stage.



10

**Enhancing Green  
Coverage Ratio in  
Palabuhanratu City,  
Sukabumi Regency:  
Lesson Learnt from  
Japan**

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Instansi : Dinas Lingkungan Hidup, Pemerintah Kabupaten  
Sukabumi

**A. Background**

The most pressing issues of the 21<sup>st</sup> century are about the depletion of conventional energy resources, city overcrowding, increased chemical, physical and biological pollution, as well as global warming, with all their consequences on the quality of life. the most affected in this regard will be the



large settlements, characterized by high densities of population and constructions; consequently, the planners will have to rethink their structure and functions in order to meet the needs for a sustainable urban living. United Nations has conducted "Sustainable Development Goals (SDGs) as a guideline for every government in order to deal with both economic objectives and environmental sustainability. Sustainable Development Goal 11 aims to "make sustainable cities and communities". More specifically, the targets of SDG 11 focus on how to make cities and human settlements inclusive, safe, resilient and sustainable. To make cities sustainable for all, some of activities can be done by citizens are create good, affordable public housing, upgrade slum settlements, invest in public transport, create green spaces and get a broader range of people involved in urban planning decisions. That way, Citizens can keep the things they love about cities and change the things we don't (UN, 2017). According to key commitments in new urban agenda (UN, 2017) that at least there are two of eight commitments from world leaders related to the targets of SDG 11, namely: (1). improve connectivity and support innovative and green initiatives, and (2). Promote safe, accessible and green public spaces. Key commitment 1 includes establishing partnerships with businesses and civil society to find sustainable solutions to urban challenges, and while key commitment 2 focus on how to make human interaction should be facilitated by urban planning, which is why the Agenda calls for an increase in public spaces such as sidewalks, cycling lanes, gardens, squares and parks. Sustainable urban design plays a key role in ensuring the liveability and prosperity of a city.

Palabuhanratu City is an urban area located in Palabuhanratu Sub district, Sukabumi Regency, West Java, Indonesia. In 2015, the total population in Palabuhanratu Sub district is 104,231 people with an area of 82.60 km<sup>2</sup> and a population density of 1,262 people/km<sup>2</sup>.

## **B. Problem Identification**

Palabuhanratu is the capital of Sukabumi Regency. In the period of 2000-2015, the population of Palabuhanratu Sub district increased by 22,319 people with an average growth rate of 1.82% per year. This increase in population will have implications for increasing the space requirements for built-up land and other urban activities. This can be

evidenced by the increase of 356 hectares of built land during the period (Statistic Bureau of Sukabumi Regency, 2000 and 2016).

Base on Local Act of Sukabumi Regency No. 22 of 2012 regarding spatial Planning of Sukabumi Regency that green open spaces was set in Palabuhanratu City with the coverage ratio of 31% in 2032 or 2,217 Hectares. The green coverage ratio in 2012 was 17%, so it still needs a green coverage ratio of 14% to reach the target in 2032. Related to the above, it is necessary strategy to increase green coverage ratio in Palabuhanratu city. The development of public open space, which is a government task, is facing a difficult condition that comes from many factors such as funding and land procurement problems. The government's difficulties in increasing green space areas can be solved by open space development by community or private sector.

## **C. Lesso Leart from Kyoto City**

Kyoto city is one of the major metropolis in the kinki area and is comparable to Osaka City and Kobe City. It has been blessed with an abundance of natural beauty being surrounded on 3 sides with mountain and plentiful rivers and streams with its urban area spread throughout the basin-shaped region market by a characteristic network of roads resembling a checkerboard.

In 2013, the total population in Kyoto City is 1.47 million people with city area of 82,790 Ha. Land use ratio in relation to City area is agriculture by 3.4%, forestry by 74%, urban areas by 17%, and Others by 5, 6%. There are several major policies in Kyoto City namely: The Master Plan of Kyoto City (Master plan 2011-2020 and Master plan 2001-2010), Kyoto City Landscape Policy, Landscape of Kyoto, Plan for the Maintenance and Improvement of Historical Scenic Beauty of Kyoto and Declaration of Kyoto as a City Open to the Free Exchange of World Cultures.

### **1. Urban Planning Area in Kyoto City**

According to Booklet regarding City Planning of the City of Kyoto (2013) that the urban land use planning system is established to support efficient urban activities, achieve a pleasant urban environment, and create

townscapes with significant features. The system gives a set of rules concerning different types of land use, including residential, commercial, business and industrial use.

There are various different measures for City Planning, which are applied to each area by the local government depending on local circumstances under the City Planning Law. Land use system includes a wide range of measures on different dimensions, and the rules of land use are usually decided by a combination of individual measures (Fig 2)

Under the Area Division system, a City Planning Area is classified into *Urbanization Promotion Area* and *Urbanization Control Area* so that public investment for the development of such urban infrastructure as roads, parks and sewerage can be efficiently made to create a high quality urban area

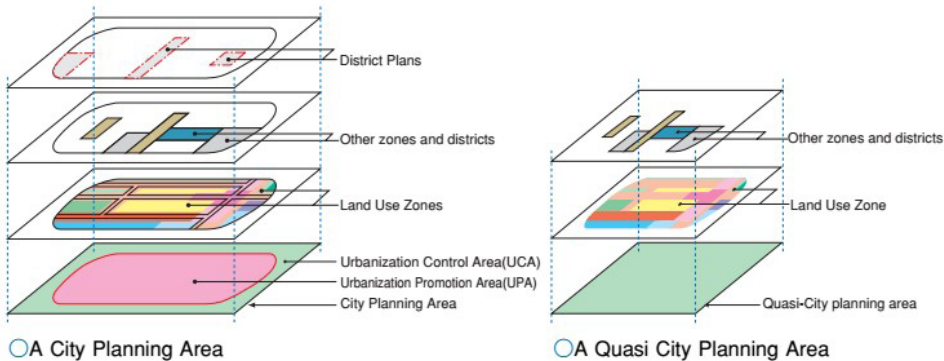


Fig 1.  
Concept of land use planning system

### a. Land Use Zone

Twelve categories of Land Use Zone provide a pattern for land-use zoning in each type of urban area. These can be generally categorized into residential, commercial and industrial uses (Fig. 5). Each Land Use Zone has specifications concerning the uses of buildings which can be constructed in the zone. As described in the City Planning map (see cover page), Land Use Zones are allocated according to a future vision of land-use pattern.

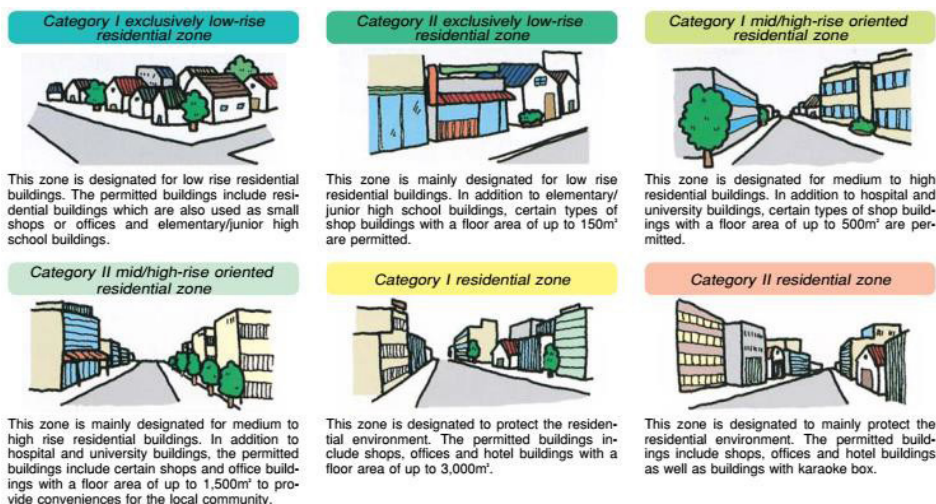


Fig 2.  
Categories of Land Use Zone in Japan

A Special Land Use District is designated as a supplement to the land-use regulations on the Land Use Zone. It is designated within a Land Use Zone aiming at specific purposes, such as achieving more effective land use or a more pleasant environment. Regulations under Land Use Zone are applied uniformly nationwide. However, in the Special Land Use District, Land Use Zone regulations can be modified by municipal bylaw. In correspondence with the local characteristics, each municipality can stipulate the strengthening or relaxation of Land Use Zone regulations.

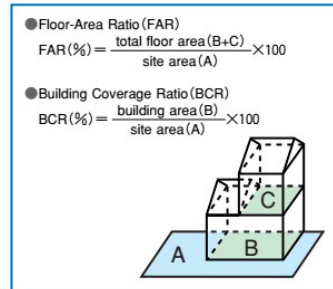
Land Use Zone is important to control green coverage ratio in Japan. According to (Sotoma, Miyazaki et al. 2003) that the results of study regarding Analysis of Land Use Zoning Regulations and Green Coverage Ratio in Sakai City, Osaka, Japan show that there are some tendencies of Estimated Green Coverage Ratio's change in each land use zones, and these tendencies can be defined by Building Coverage Ratio, Floor Area Ratio and land use zones. This means the possibility to take control of Green Coverage Ratio in urbanized city and give supports to the establishment of the green area-related laws by Land Use Zoning Regulations

## b. Land Use Zone and Building Regulation

Land Use Zone controls volume, height of buildings as well as use of them under provisions of the Building Standard Law. These regulations are designed to prevent a mixture of buildings used for different purposes in one area, and to ensure the suitable environment for the specified type of land use.

### Floor-area Ratio and Building Coverage Ratio Regulations in Land Use Zones

Category of Land Use Zone	Maximum floor-area ratios(%)										Maximum building coverage ratios(%)		
Category I exclusively low-rise residential zone	50	60	80	100	150	200	30	40	50	60			
Category II exclusively low-rise residential zone	50	60	80	100	150	200	30	40	50	60			
Category I midhigh-rise oriented residential zone	100	150	200	300	400	500	30	40	50	60			
Category II midhigh-rise oriented residential zone	100	150	200	300	400	500	30	40	50	60			
Category I residential zone	100	150	200	300	400	500	50	60	80				
Category II residential zone	100	150	200	300	400	500	50	60	80				
Quasi-residential zone	100	150	200	300	400	500	50	60	80				
Neighborhood commercial zone	100	150	200	300	400	500	60	80					
Commercial zone	200	300	400	500	600	700	800	900	1000	1100	1200	1300	80
Quasi-industrial zone	100	150	200	300	400	500	50	60	80				
Industrial zone	100	150	200	300	400	50	60						
Exclusively industrial zone	100	150	200	300	400	30	40	50	60				



### Restrictions on Building Shape in Land Use Zones

#### [Slant plane Restrictions]

The restrictions limit building heights in proportion to the distance from the other side of the boundaries of the roads they face, or from the adjacent site boundaries. It ensures adequate space for light and ventilation between buildings or on roads.

\* This Slant Plane Restrictions do not apply to buildings which can secure levels of lighting and ventilation equivalent to or higher than those under this restriction.

#### [Restriction on floor-area ratio according to the width of the adjoining road]

The maximum floor-area ratio of a building site which has a road in front less than 12m wide, shall not exceed the value obtained by multiplying the width of the road in meters by a certain ratio (for residential Land Use Zones, this ratio is 0.4\*, for other zones, it is 0.6\*).

\* A factor of 0.6 for residential Land Use Zones and 0.4 or 0.8 for other Land Use Zones can be adopted in those zones where such factors are designated by the local government building authority with the approval of the City Planning Council.

#### [Shadow Restrictions]

These limit the height of buildings so as to ensure sufficient sunlight in residential Land Use Zones, etc. The minimum number of hours per day that the shadows of building sites fall outside the area are specified by bylaws of the local governments according to the Building Standard Law.

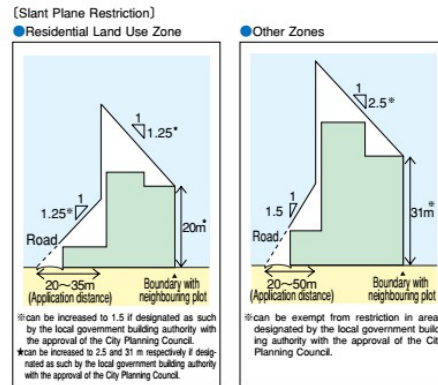


Fig 6.

Details of Land Use Zones Enacted by Building Standard Law

Land Use Zone and Building Regulation is important as basis to develop incentive mechanism for people who adhere it in Kyoto City, Japan.

## 2. Kyoto City Landscape Policy

According to Kyoto City Landscape Policy (2007) that there are 5 basic policies framed investigations into regulations and guidelines that suit the region's characteristics, including: (1). landscaping that naturally conforms to scenery in the basin; (2). landscaping that coordinated harmony between

succession of traditional culture and creation of new; (3) landscaping comprised of multitudinous spaces that bespeak the features of Kyoto; (4). landscaping that generates the city pulse; and (5). landscaping through partnerships among the government, residents and enterprises. Fine-grained policies suited to regional characteristics (Fig. 2). The landscape policy comprise 5 main elements and the support systems. To implement these measures in Kyoto City, a broad range of city planning and ordinances were changed in 2007. The 5 main elements and the support systems are below:

1. Building Height (Building Height Control Districts)
2. Building Design Regulations (Landscape District, Landscape Improvement Districts, Scenic Landscape Districts)
3. Conserving Vistaed Views and Borrowed Landscapes (City ordinances are established to preserve vistaed views)
4. Outdoor Advertisement Restrictions
5. Preserving and Improving Historical Townscapes

Based on the plan, the city has various systems for the protection, development and passing down the excellent landscape of Kyoto to the future generations. To be more specific, the city has designated areas where restrictions have been imposed including: (1). Building height controls, (2). Conservation of Natural and Historical Landscapes, (3). Conservation, revitalization and creation of urban landscape, (4). Conservation and revitalization of historical townscape, (5). Conservation and creation of perspective and borrowed landscapes, and (6). Development of urban landscape by regulations and guidance on outdoor advertisements. Those areas are shown in the following chart.

## 1. Conservation of Natural and Historical Landscapes

The natural environment of Kyoto is characterized by having mountains on three sides and rivers that run through the city. The basin landscape that our ancestors used to see has formed the foundation of Kyoto's present landscape. The mountain-ranges blended with important historical properties such as temples, shrines and historical sites which are mainly located on the foot of the mountains, add rich flavour to the historical landscape there. In order to preserve these excellent natural and historical

landscapes, Kyoto city designed a basic policy from four points of view: (1) preservation of historical climate, (2) maintenance of scenic landscapes, (3) conservation of natural landscape and (4) conservation of green zones. The city applied specific measures to enhance the policy.

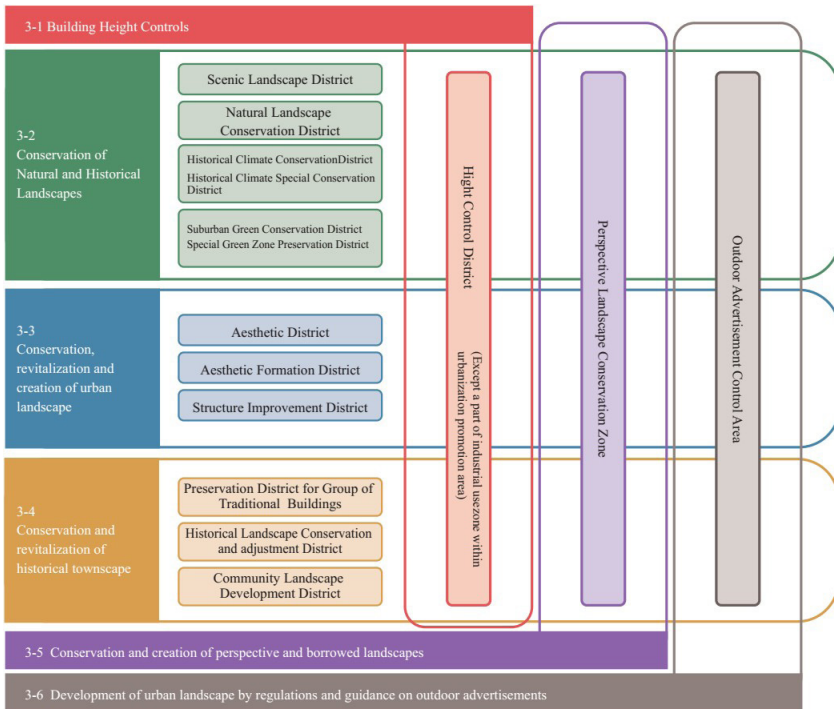


Fig 8.

Systematic chart for preservation, revitalization, creation of Kyoto's Landscape

## 2. Conservation of green zones

Refers to Chapter 3 in Landscape of Kyoto booklet that Kyoto City has established the "Suburban Greenery Conservation District" to conserve green space in suburban areas, and "Special Greenery Conservation District" to conserve green space in urban areas.

## 3. Restrictions in the Suburban Greenery Conservation Districts

Any change including construction of new buildings, development of housing complex and cutting trees must be reported to the mayor

in advance. To conserve favorable green space, the city provides appropriate advice and counseling.

#### **4. Restrictions in the Special Greenery Conservation District**

In order to conserve the excellent green spaces in the “Suburban Special Greenery Conservation Districts” as well as in “Special Greenery Conservation Districts”, every change except daily maintenance is strictly prohibited. Prior permission of the mayor is needed for any alteration. The landowners may request the city to purchase his/her land in case the strict regulations might considerably hinder the use of the particular land. As of fiscal year 2007, the city has purchased 2.4 hectares of land in the Special Greenery Conservation Districts. Combining 4.4 hectares of land owned by the city before designation, about 6.8 hectares of the land is well maintained and used as city parks for citizen. Thus, the city works hard for the conservation and utilization of the green spaces.

Kyoto is a historical city blessed with natural and historical properties including a large number of shrines, temples, historical sites and elegant streets blended with a rich natural environment such as the surrounding mountains on three sides and rivers running through the central area. Moreover, Kyoto is a major city with a population of approximately 1.47 million, where both traditional and cutting-edge industries have prospered. It is very important for Kyoto to improve its urban landscape in harmony with the natural and historical environment as well as to maintain its city functions. The city makes efforts to conserve, revitalize and create such an urban landscape that is suitable for each local characteristics. This is achieved by setting up the building design standards based on the Landscape Act and Kyoto City Ordinance on Development of Urban Landscape.

#### **5. Classification of urban landscape development**

In order to conserve, revitalize and create urban landscapes by making use of local characteristics, the city designated some areas as “Aesthetic District” and “Aesthetic Formation District” based on the “Landscape District System” as stipulated under the “Landscape Act”. A less strict



regulation called "Structure Improvement District" was also enacted which was based on the Landscape Plan. The system is classified into 12 types of districts and design standards suitable for the characteristic of each locality is set. The city is discussing the possibility of increasing the classification into 76 design standards.

3. Green Coverage Ratio in Kyoto City

In 2010, the green coverage ratio in Kyoto City was 35%, then in 2020 the target of green coverage ratio is 37%, that means there is an increase target of 2. Kyoto City has made a planning document in order to increase the green coverage ratio. According booklet of the 1st Kyoto Midori Promotion Plan that the plan has three major features. Among them, the greatest feature is that "green percentage" is adopted as the goal of the plan in order to raise the "green richness (satisfaction with the green)" that people feel.

#### 1) Goal on "green volume"

In addition to the "green coverage" and "park area percapita" adopted by many public entities, we introduced a new "green vision rate" that can be regarded as characteristic even across the country. The green vision rate is an index for measuring/evaluating the ratio of green in the visible range, such as grasses under the eaves, the flower under the street tree, etc. Grabbing the familiar green which is difficult to measure with the green coverage. Because it is possible, it will be a measure to raise people/satisfaction with green. The target on green amount (end of H27) following:

1. Green Coverage (urban area) 35% -> 36%
2. Park area per person 4.69 m<sup>2</sup>/person -> 5.35 m<sup>2</sup>/person
3. 13 measurement point with a green visibility of less than 10% -> aim for securing a green

## D. Visibility of 10% or More in The City

#### 2) Goal regarding "green quality"

In order to raise people's satisfaction with green, it is important not only to quantitatively expand green but also to improve qualitatively. Therefore, in this plan, Kyoto City set "action content" as a goal to improve green quality such as:

1. Conserving green (Kyoto-like green) characterizing Motoichi and nurturing people who will be responsible for next generation
2. Promotion of community development of flowers by cooperation of citizen, bussines operator, administrative, etc
3. Securing green continuity

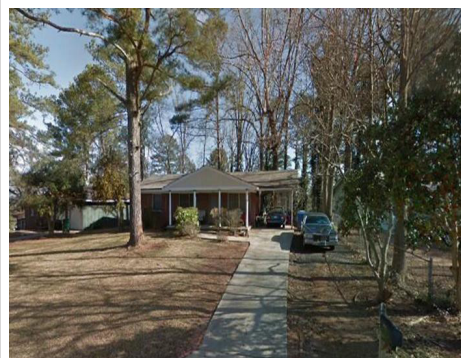
### 3) Projects to achieve targets

In order to achieve the goal, Kyoto City Government decided concrete 102 projects for all 52 measures set in the green basic plan, and decided to work with the entire agency.

Kyoto city government's strategy to increase the green coverage ratio is through the development of the park. Based on information from Kyoto City official Website that Kyoto City develop urban park with several types, including: trunk park, special park, large park, buffer ground, urban forest, square park, urban park, green road, and urban park related to the establishment of the country. According to Chapter 3 in Landscape of Kyoto booklet that the Act on the Arrangement of Conservation Districts in Kinki Area was promulgated in 1967 to conserve the green spaces. Later in 1973, the Act on Urban Green Space Conservation was established instead.



(a) Treasure Park



(b) Ohara Forest Park

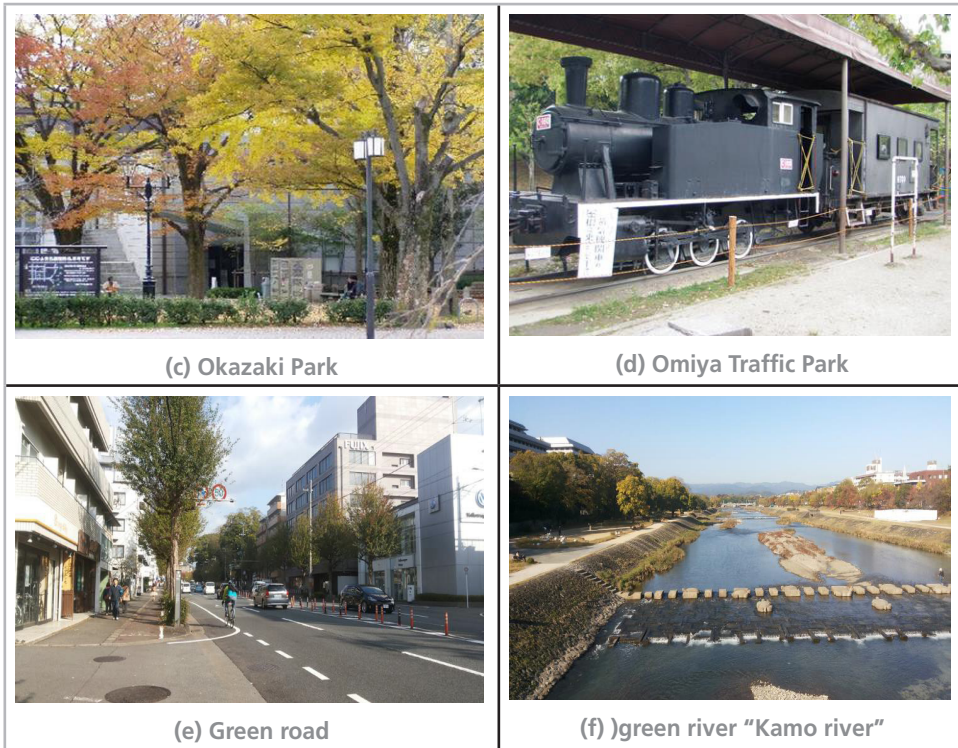


Fig. 11.  
Urban park types in Kyoto City

According to Urban Planning of Kyoto booklet, in 2013 Kyoto city has set 281 Location Park areas and 245 parks have developed completely.

## E. Appropriate Strategy for Palabuhanratu City

The area of Palabuhanratu City is 7,058 hectares, covering 4 villages namely Palabuhanratu, Citepus, Citarik and Jayanti. The total length of the road that surrounds and passes the area palabuhanratu is 290 km and the length of the coastline is 15 km. Base on Local Act of Sukabumi Regency No. 22 of 2012 regarding spatial Planning of Sukabumi Regency that green open spaces was set in

Palabuhanratu City with the coverage ratio of 31% in 2032 or 2,217 Hectares. The green coverage ratio in 2012 was 17%, so it still needs a green coverage ratio of 14% to reach the target in 2032. Related to the above, it is necessary strategy to increase green coverage ratio in Palabuhanratu city.

The forms of activities currently undertaken in order to increase green coverage in Palabuhanratu are the greening of the road side along the 10 km, the development of the city park area of 5 hectares, the development of the city forest area of 130 hectares, reforestation of the coastline along the 2 km and the greening of government offices.



Fig. 11.  
Greening Program in Palabuhanratu

Although some greening programs have been implemented but are still insufficient to reach the target. therefore, the sukabumi regency government must develop other strategies especially involving all parties to participate in order to increase the green coverage ratio in Palabuhanratu.

Referring to the lesson learn regarding green coverage ratio from Japan, several strategies can be developed to increase green coverage ratio in Palabuhanratu City through collaboration of all stakeholders between government, corporation and local businessses, and citizens and community groups, including:

## 1. Policies, regulations and planning

In general, the policy on green coverage ratio in Palabuhanratu city has been established as stated in Local Act of Sukabumi Regency No. 22 of 2012, but it has not been followed up with more specific regulations concerning the master plan which contains plans and programs to achieve the target. The master plan is formulated through a series of stages involving stakeholders. Thus the resulting masterplan is the agreement of all parties.

## 2. Implementation

1. Public land optimization currently available to increase green coverage ratio, such as: road side, river side, beach border, office / school, and the provision of land by the government to develop new park.
2. Maintenance of existing green open space
3. The formulation of the provision of private green space is expected to address the provision of green space issues, so as to increase the number of green space in the city of Palabuhanratu. There is an element of incentives in the technical provisions of the private green space, formulated to enhance the willingness of the community/private sector to provide green space in their own land.

## 3. Evaluation

Development of procedures for periodic monitoring and evaluation of green coverage ratio by utilizing technologies such as Geographic Information System (GIS)

## F. Conclusion

1. Kyoto City has established major policies concerning the green coverage ratio contained in the planning documents such as masterplan, landscape policy, landscape of Kyoto City and 1st Kyoto Midori Promotion Plan. In 2010, the green coverage ratio in Kyoto City was 35%, then in 2020 the target of green coverage ratio is 37%, that means there is an increase target of 2%. Kyoto city government's strategy to increase the green coverage ratio is through the development of the park with several

types, including: trunk park, special park, large park, buffer ground, urban forest, square park, urban park, green road, green river, and urban park related to the establishment of the country. The important thing is all the stages of the process in determining the policy and planning through the collaborative approach from all stakeholders, between government, corporation and local business, and citizens and community groups;

2. Appropriate strategy can be developed to increase green coverage ratio in Palabuhanratu City through collaboration of all stakeholders between government, corporation and local business, and citizens and community groups, including:
  - Facilitating the acceleration of specific regulations to increase the green coverage ratio which contains comprehensive plans and programs
  - Public land optimization currently available to increase green coverage ratio, such as: road side, river side, beach border, office / school, and the provision of land by the government to develop new park.
  - Maintenance of existing green open space
  - The formulation of the provision of a private green space with incentive elements in its technical provisions
  - Development of procedures for periodic monitoring and evaluation of green coverage ratio by utilizing technologies such as Geographic Information System (GIS)

## **G. Acknowledgements**

The author would like to thank Professor Hidehiko Kanegae, Dr. Mingji Cui and the entire staffs and researchers in Research Center of Disaster Management for Urban Cultural Heritage (R- DMUCH), Ritsumeikan University, Kyoto-Japan.



# 11

## Developing Strategic Plan Towards Better Integrated Solid Waste Management in Agglomeration of Yogyakarta

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### **A. Background**

Yogyakarta city rapidly agglomerate due to education and tourism activity. Population growth and socio-economic activities have a positive correlation towards the increase of quantity and variety of waste generated. As the population grows, and the socio-economic also expands, the waste volume generated by the Agglomeration of Yogyakarta urban area continues to increase significantly. Environmental Agency in the Waste



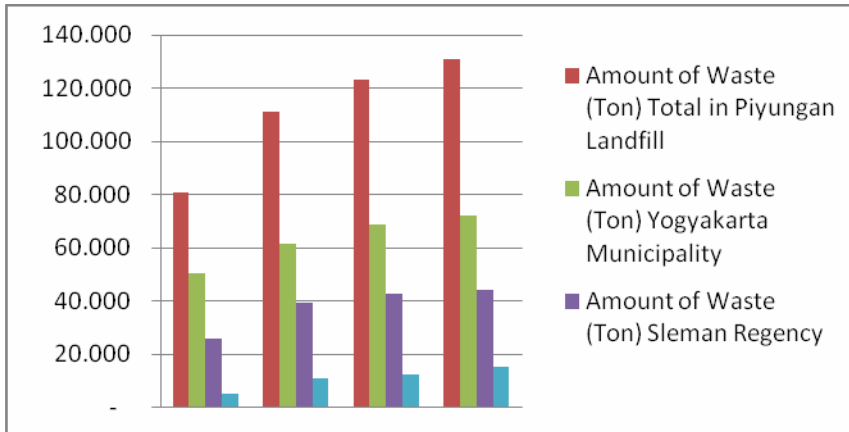
Statistics reported that the total of Indonesia's waste generation is 38,5 million tons per year, with the composition of 58% organic waste, 14% plastics, 9% paper and 19% other material waste. From these amount, about 14,1 million tons or about 36% of the total come from the big and metropolitan cities (Indonesian Environmental Agency, 2008).

As of the publication of Law No.18/2008 regarding waste management, the Indonesian government has changed the paradigm of urban waste management from a "end-of-pipe" to "reduction at the source". Despite efforts on waste reduction and waste treatment have been done by the government, landfill sites have been continuously receiving higher municipality solid waste. Piyungan landfill, which serves waste disposal of agglomeration of Yogyakarta also experienced the similar phenomena.

Daerah Istimewa Yogyakarta, which an area of 3,185.80 km<sup>2</sup>, is smallest province after DKI Jakarta Province, and consist of 4 regencies and 1 municipality (Statistic Bureau, 2018). Yogyakarta City has the smallest area, which is only 1.02 percent of total, meanwhile Gunungkidul Regency has the largest area (46.63 percent).

ased on the data from Statistics, Bureau (2019), population in Yogyakarta province is 3.842.932 persons of 2019. Sleman regency is an area with the largest population (31,74%), while the city of Yogyakarta an Kulon Progo Regency has the fewest number (11.23 % and 11,20 %). Piyungan landfill, which has an area of 12.5 ha, is the final waste disposal site for Sleman, Bantul, and Yogyakarta inhabitants, around 1.219.640 inhabitants in Sleman, 1.018.402 inhabitants in Bantul and 431.399 inhabitants in Yogyakarta City banyak.

Based on data from 2014-2017, the amount of waste disposed in Piyungan landfill has increased significantly each year. If this condition continues without any improvement, the technical life of Piyungan landfill is estimated to be ended in 2019 (Bappeda of Yogyakarta Province, 2018).



Source : Kartamantul Joint Secretariat, data processed  
Figure. Amount of Waste Disposed in Piyungan Landfill 2014-2017

Table 1.  
Underserved Coverage of Waste Service System of Yogyakarta Agglomeration Year 2018

No.	City Agglomeration	Waste Generation (ton/day)			Access Service (%)			
		Rural	City	Total	Unserved	3R	Transported to landfill	Total underserved
1	Bantul	315,87	242,17	558,03	68,85	6,60	24,55	31,15
2	Sleman	393,27	382,51	775,78	51,26	19,73	29,01	48,74
3	Yogyakarta	0,00	369,36	369,36	1,60	27,66	70,74	98,40
DIY		709,14	994,04	1.703,17	40,57	18,00	41,43	59,43

Source: Kartamantul Joint Secretariat, data processed

To face this problem, Daerah Istimewa Yogyakarta (DIY) Government forced to implement the 3R (Reduce, Reuse, Recycle) program efficiently in order to avoid illegal dumping and waste problem. DIY use community based approach to manage the waste problem but unfortunately, there are many constrains in the implementation, especially in social aspect. Population growth and socio-economic activities have a positive correlation towards the increase of quantity and variety of waste generated.

TPA Piyungan Landfill have over capacity to accommodate waste from Agglomeration of Yogyakarta. Solid waste sector is strongly underfunded (both investment and operational),

also considering high operating and maintenance costs. Local government allocations are very little (average of 0.5–2.6% from total Local Government Fund). There are no realistic mechanisms in place for cost recovery with remote relationship between cost levels and revenue recovery (tariffs and subsidies). Tariff system is complex and often split between collection and transport/disposal. Collection tariffs (usually collected by RT/RW) often cover costs, but tariffs for transport and final disposal do not come close (still covered by local government funds). The lack of investment in the sector (new dump truck investment, etc.) leads to severe inefficiencies and much higher operating cost.

Agglomeration of Yogyakarta waste management from sources to final disposal not yet successfully integrated, community not optimally reduce waste from the source, lack of law implementation on waste management such as burning waste, illegal dumping, low budgeting for waste management. The transfer of solid waste responsibilities to local government was not accompanied by a subsequent development of the necessary technical skills. Solid waste management system differs from other public services (e.g. water supply, wastewater treatment) in their high labor intensity & high operating & maintenance cost.

Currently, the central government through Ministry of Public Work, facilitates infrastructure construction and then transfer the asset to local governments who are not prepared to manage them properly, in terms of fund and operator capacity. It is estimated that 70% of all solid waste investments made through this method fail, with asset quickly deteriorating from misuse or inadequate operating & maintenance.

Through staff enhancement program, we observe Tokyo waste management by descriptive qualitative method to learn about waste management practice in Japan and how the government educates the society for public awareness. The result of this study can be used as a benchmark for waste management in Agglomeration of Yogyakarta along with addition in supporting infrastructure and also monitoring and evaluation process in waste management.

## **B. Result and Discussion**

### **1. Existing Waste Collection in Agglomeration of Yogyakarta**

Household collects their waste with plastic bag, waste baskets made of wicker, plastic or other materials. There is almost no separation process in this stage, most of household generally mix the garbage into a single container. Some households treat their waste individually by burning, burying, and discarding into water bodies. Collected waste in the household level is then dumped into containers which are located at the specified location, directly discarded to temporary waste collection site which in form of permanent infrastructure or container, or transported into waste transfer station. In the final collection stage, dump trucks/arm roll trucks transport it to the final waste disposal site (landfill). Household waste collection which conducted individually or communally transported by garbage collectors using garbage carts into waste storage facilities, while dump trucks and arm roll trucks are the main vehicle in the transportation process into landfill.

In general there are two types of temporary waste storage facilities in Yogyakarta:

#### **a. Integrated Waste Treatment Facilities (TPST)**

This facility equipped with 3R supporting infrastructure that allows most of the amount of waste to segregated then processed through mechanism of reuse, recycling, and final processing.

#### **b. Temporary Disposal/Storage Site (TPS)**

This facility is used to collect garbage while before being transported to landfill. The form of infrastructure can be a container, the transfer container, or a tub with brick construction with or without doors.

### **2. Existing Landfill Condition**

Piyungan Landfill, an area of 12.50 ha, is the final disposal site which serves the city of Yogyakarta, Sleman Regency and Bantul Regency. The landfill comprises of 2.5 hectares green barrier (green belt) as a zone green buffer and 10 ha for final processing. The area for final disposal consists of:

1. Compartment I (phase I) covering an area of 3 hectares.
2. Compartment II (phase II) covering an area of 3 ha, and
3. Compartment III (phase III) covering an area of 4 ha.

Capacity (service life) of the landfill prepared is up to 2.5 million m<sup>3</sup> - 3.0 million m<sup>3</sup> with total amount of waste dumped into the landfill in average of 350 tons per day. Despite currently implementation is open dumping method, it has planned to accommodate Sanitary Landfill method so the landfill has leachate piping and treatment ponds.

## **C. Action Plan Towards Sustainable Waste Management**

The existing composition of the waste is the initial key to develop strategy of maximizing the quantity of waste diverted from landfill. Strategy for the construction of waste collection and transportation infrastructure depend on the chosen policy for waste separation and storage. Through arrangement of policy and regulation, local government separates municipal waste which is started primarily from households. Finally, technical aspects of collection and transport system should ensure that waste has been separated from the source will not be mixed.

Since there is no official data on waste composition, result of researches have been used to construct waste separation. Based on its original nature, garbage in Indonesia is classified into three types, namely (Public Work Agency of Yogyakarta Special Region, 2018).

1. Organic Waste
2. Inorganic Waste
3. Hazardous and Toxic Waste

The classification is in line with the Government of Indonesia Law No. 18/2008 which prioritize the implementation of the Reduce, Reuse, and Recycle (3R) program. Organic waste can be processed to become compost, and non-organic waste will be sorted again into more detail for the benefit of reuse and recycle. It is advisable to disseminate information and educate community to sort out waste by long term period and continuously programs.

The government need to set up a mechanism of waste collection and transportation, including means of transporting waste that has been sorted out, even with litter bins should be planned in such a way that waste is sorted out are not mixed anymore. Waste collection mechanism can be improved based on land use pattern types as follows:

1. For dense and irregular settlement, each household have to bring their garbage into temporary waste storage infrastructure which upgraded by compartment for separated waste.
2. For regular residential areas, households dump their garbage to waste collection points which defined by local government and then transported to temporary waste storage infrastructure which upgraded by compartment for separated waste.
3. For houses located along the main streets and commercial places, garbage from the houses/commercial buildings is collected in containers then transported to the Intermediate Treatment Facilities or Final Disposal Site.

Considering variances of existing settlement pattern, routes of waste collection should be develop and not be fragmented or overlapping. Each route could be based on administrative boundaries or distance from nearest facility. The collection route should start as close to the buildings or households. Collection in main streets should not be carried out during rush hours. Based on existing conditions, there are two options to improve waste transportation system:

1. Equipping the existing transport vehicles (garbage carts, motor vehicles and transport trucks) with compartments and cover to ensure that separated waste would not mixed
2. Scheduling garbage collection according to the type of separation. Sufficiency of temporary waste storage infrastructure analyzed by comparing availability of those capacity with the estimation of total amount waste generated, which based on sub district level. The result shows that in general the existing facilities are capable to handle total garbage. Detail comparison in sub district level points out that lack of capacity occurred mostly in Bantul Regency.

Establishment of Intermediate Treatment Facilities (ITF), which the middle level of the solid waste hierarchy, is a major factor to handle the waste for recycling, as it decides the amount and volume of waste that has to be disposed of in landfill. Modern incineration and anaerobic fermentation have been proven as efficient facility to reduce the mass, volume, toxicity and biological reactivity of solid waste before the final disposal on landfill (Li, 2007). Both of them also make really good sense in generating energy in different forms. Despite effectiveness of these methods witnessed by both developed and developing countries, improvements need to be made to optimize the environmental, social and economic performance.

Two options recommended to establish ITF in agglomeration of Yogyakarta are either build new ITF or upgrade temporary waste storage facilities into ITF or build a modern incineration plant or an anaerobic fermentation plant. Existing ITF infrastructure in the agglomeration of Yogyakarta has reached capacity of 273 m<sup>3</sup> or 7.6% of the overall temporary disposal facilities. The capacities of each TPST are 7.5 m<sup>3</sup>, 12 m<sup>3</sup> and 22.5 m<sup>3</sup>. In order to realize first option, there should be 147 new TPST which the capacity of 22.5 m<sup>3</sup>. Two methods that suggested in second option perform effective way in the aim of reducing the waste volume and mass even though some negative impacts are congenital. Thus, optimizing the solid waste management efficiency and minimizing the negative impacts are depended on the choice of decision-maker, according to the local condition.

This research employs 10 major factors, as pointed out by Li (2007) as the basic framework for the decision-makers. These influencing factors cover most part of environmental, social and economic aspects. Based on the local condition, different priorities of factors can be adjusted by grading each factor. Strength and weakness analysis can then be conducted to provide initial overview for decision makers.

Table 5.  
Overview of Selected Methods

No	Factors	Incineration	Anaerobic Fermentation
1	Legislation	Not yet developed	Not yet developed
2	Geographic Location	Should be located on the rural area where the impact may be minimized, require large area	Could be located on rural or urban area, require small area

No	Factors	Incineration	Anaerobic Fermentation
3	Collection and Transportation	Suitable for regional facility which cities share one large treatment plant, each of them collects the waste with storage center first	Suitable for both city level management and regional sharing management
4	Capacity	Handle large amounts of waste; generally the capacity is ranging from 100 t/d to 1,000 t/d. Most efficient for capacity > 300t/d	Handle smaller amounts of waste, general number of capacity is 30-250 t/d. more popular in rural and suburban areas where there is a low amount of waste production, due to relatively long waste retention time (about 22 days)
5	Composition	Flexible and can be applied to treat solid waste with any composition. It is not necessary to pre-treat the original mixed waste from municipalities and industries.	The plant is fitting to easily-biodegradable organic material which contains kitchen waste, green waste, and so on. Pre- treatment is crucial.
6	Potential risk to Human health	Large emission	Low emission and impact
7	Potential risk to environment	CO2 emission	Methane leakage
8	Investment	High cost	Low cost
9	Revenue and recycle	300-600 kWh of electricity per ton	170-350 kWh of electricity per ton, biogas
10	Others impact	More direct impact to society	Less direct impacts to society

**Table 6.**  
**Strength and Weakness Analysis of Selected Methods**

	Incineration	Anaerobic Fermentation
<b>Strength</b>	<ul style="list-style-type: none"> <li>Waste composition: flexible to treat solid waste with any composition. Since organic and inorganic waste can be combusted together, separation process is not become prerequisite as well pre-treatment process.</li> <li>Revenue: burning 1 ton of solid waste can produce 300 to 600 kWh of electricity, which is double than anaerobic fermentation.</li> </ul>	<ul style="list-style-type: none"> <li>Location: requires relatively small area and give less direct impacts to society, therefore selecting the location of anaerobic fermentation plant is much more flexible.</li> <li>Potential risk to environment: there is no direct greenhouse gases emit from fermentation reactor</li> </ul>
<b>Weakness</b>	<ul style="list-style-type: none"> <li>Investment: high cost needed to establish the infrastructures</li> <li>Potential risk to environment: incinerate of 1 ton of waste in incinerators is associated with the production/release of about 0.7 to 1.2 tons of carbon dioxide</li> </ul>	<ul style="list-style-type: none"> <li>Investment: high cost needed to establish the infrastructures</li> <li>Waste composition: sensitive to toxic materials and inorganic fractions, therefore pre- treatment is so crucial</li> </ul>



Waste separation and establishment of ITF are not an instant process. Therefore strategy in landfill suggested as follows:

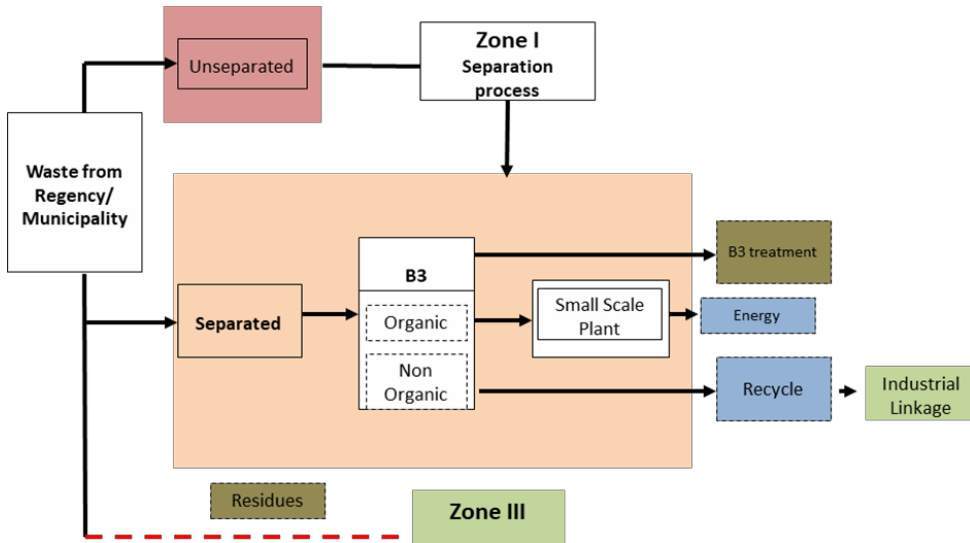


Figure 8.

Strategy of waste treatment and final disposal in Piyungan Landfill

## D. Conclusion/Recommendation

Based on the result and discussion on the differences and features between conceptual framework of waste management system and the existing condition in Agglomeration of Yogyakarta, some conclusions are drawn as follows:

1. Waste separation is the initial key to divert amount of waste from landfill. Based on the waste composition in Yogyakarta, waste separation from its source suggested into 3 types namely; organic waste, inorganic waste, hazardous and toxic waste.
2. An effective waste collection mechanism requires route/path of waste collection which based on settlement patterns.
3. Strategy for an improvement in terms of waste collection and transportation emphasizes to ensure that waste has been separated from the source will not be mixed through :
  - Equipping the existing transport vehicles (garbage carts, motor vehicles and transport trucks) with compartments and cover
  - Scheduling garbage collection according to the type of separation

4. Existing temporary waste storage facilities barely adequate to accommodate capacity of waste generation. Improving those facilities with compartment based on waste separation types is suggested.
5. Since in absence of Intermediate Treatment Facilities (ITF), developing those infrastructure is highly recommended either upgrade temporary waste storage facilities into Integrated Waste Treatment Facilities or build a modern incineration plant or an anaerobic fermentation plant.
6. Changes including waste separation, improvement on collection and transportation mechanism, and establishment ITF require gradual process, thus strategy of final disposal in Piyungan landfill is suggested into 3 scenarios build new ITF/upgrade temporary waste storage facilities into ITF; build a modern incineration plant; or build anaerobic fermentation plant.



12

## TOPIC: WASTE MANAGEMENT

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### **A. Background**

Kabupaten Barito Utara (North Barito District) is a district in Central Kalimantan Province - Indonesia with total area of 8,300 Km<sup>2</sup> and population of 127,479 people (BPS Kabupaten Barito Utara, 2016). The largest portion of population is concentrated in Muara Teweh which is the capital city of Barito Utara District.

Consists of 2 urban-villages which are Melayu and Lanjas, Muara Teweh is facing waste management problem. From total 68.4 ton daily municipal waste, 47.5% is household waste and 35% is from traditional market. Unfortunately daily municipal waste that is reused and recycled is only about 10%, while the biggest portion goes to landfill (North Barito Environment Agency, 2016).

With this condition, the remaining operational time of the landfill is 14 year. Therefore, North Barito District government willingly set a target to decrease daily municipal waste disposed to landfill by increasing amount of reused and recycled municipal waste 10-15% per year. Attending *Staff Enhancement Program to Japan* is a good opportunity to gain knowledge about waste management in Japan that could be useful to reach the target.

## **B. Municipal Waste Management in Japan**

1. It was not until 1963 that Japan has had a more established waste management. Previously municipal waste was dumped in the open unsanitary disposal sites even into rivers and ocean causing public health problems, such as plague of flies and mosquitoes and the spread of infectious diseases. Together with land shortage for landfill sites, those problems awakened Japan government and communities' awareness to develop waste management which organizes roles and responsibilities of national and local governments and consumers as well as establishment of waste management facilities, including incineration facilities.
2. Laws enacted on waste management in Japan e.g.:
  - Public Cleansing Act enacted 1954
  - Act on Emergency Measures concerning the Development of Living Environment Facilities enacted 1963
  - Waste Management Act first enacted in 1970 (revised 1976, 1991, 1997, 2000, 2003, 2006, 2010)
  - Basic Environment Act enacted 1993
  - Basic Act for establishing a sound material-cycle society enacted 2000.

3. In 2015 Japan managed to achieve direct landfill disposal rate 1.1% out of 43,980,000 tons total waste emission. It was mainly because Japan practices some intermediate treatments taking place in some facilities between the sources of waste and the final disposal site, namely incombustible waste processing center, large-sized waste pulverization processing facility and incineration plant, as explained bellows:

1) **Households:** According to the Waste Management Act enacted 1970, residents as generators of waste are responsible to carefully sort their waste before they discharge it. Sorting instructions are not homogenous across Japan but vary from city to city, but in general there are 4 (four) categories:

a. **Recyclables** are all items that are considered as recyclable resources that can be used as materials for other products. Plastic bottles, bottles, cans and used paper are wastes that are categorized as recyclables. These wastes will be transferred to recycling centers.

b. **Incombustible** wastes are wastes that cannot be burned, such as ceramic or metallic products. These wastes will be transferred to incombustible waste processing centers.

c. **Combustibles** wastes correspond to the wastes that are neither recyclables or incombustible wastes. Combustibles wastes mainly consist of food wastes and kitchen wastes. These wastes will be transferred to incineration plants.

d. **Large-sized** wastes are waste over 30 cm. For collection of this type of wastes citizens must call the municipality and must pay a fee collection. Afterward, large-sized wasted will be transferred to large-sized waste pulverization processing centers.

Each municipality determines different date and time for collecting different category of wastes. Therefore, residents have to put out their wastes from their houses to collection points on designated time and day according to the category of wastes. This collection system is to make sure that all sorted wastes will not get mixed again. Consequently the following processing cost would be efficient.

## **2) Recycling center**

Recyclables wastes coming to recycling centers will be sorted according to the materials. Sorting process usually is done by machines combining with manual work. Mainly, there are three groups of recyclable resources collected from this process, namely PET bottles (the caps and labels will be removed and collected separately), glass bottles (differentiated into transparent, brown and others), and cans (steel and aluminum cans will be collected separately). Afterward, each sorted recyclable resources are going to be compacted, well wrapped and delivered to private companies who want to buy.

Some recycling centers like ALFO in Tokyo and DISPO in Yokohama also process food wastes to be either animal feed or fertilizer or even further to generate electricity power from biogas resulted from the process.

## **3) Incombustible waste processing center**

First thing to do in this facility is incombustible waste is pulverized to reduce its volume. Afterward, valuable materials, such as ferrous metals and aluminum contained in incombustible waste are separated and collected. The remaining parts are transported to final disposal site.

## **4) Large-sized waste pulverization processing center**

Similar with incombustible waste processing center, in large-sized waste pulverization processing center large-sized waste is pulverized first. The valuable materials are separated and collected, and the residue is separated into combustible and incombustible ones. Residue that is combustible is transported to incineration plant, the rest (incombustible residue) is transported to final disposal site.

## **5) Incineration Plant**

Combustible wastes processed in incineration plant at the end become ashes. Some of the ashes will be transferred to private cement factories and ash-melting facilities, while the residue will be disposed in landfill.

## 6) Landfill (final disposal site)

Waste which has undergone intermediate processes is delivered into landfill points by container trucks or dump trucks. Landfill points are prepared separately for different types of waste, namely municipal solid waste, industrial waste and urban facility waste (hazardous waste is not accepted). The landfill points are leveled and compacted by rolling (bulldozers). When waste has reached a certain thickness (about 3 m) it is covered with a layer of soil (about 50 cm). Another layer of waste then is added to the soil which in turn is covered by more soil. This process is repeated continuously. This is called the sandwich method where waste and soil are filled and stacked alternately.

Landfills are constructed with a sturdy structure and equipped with leachate reservoir, waste water treatment plant and methane gas pipe lines for electricity power generation.

4. Japan is still facing landfill crisis due to the lack of land availability. For example, Tokyo Metropolitan Government has expanded its landfill in Tokyo Bay and the reclamation process is still going on. However the capacity of the landfill would last no longer than 50 years. Therefore Japan continuously develops a better technology and approaches in waste management, some are as follows:

- 1) Delivering environmental education to society, especially for elementary students to raise awareness and willingness to do waste reduction as well as waste sorting properly.
- 2) Applying Circular Economy approach and Extended Producer Responsibility (EPR).
- 3) Encouraging private waste processing industry to grow.
- 4) Developing urban mining to collect valuable metals e.g. iron, silver and gold from e-waste.
- 5) Supporting environmentally friendly initiatives such as, Eco-Town and Smart-Cities.



## C. Lessons learned from Staff Enhancement Program

From following the Staff Enhancement Program in Japan from 2 s / d 27 October 2017 there are some lessons learned that could be beneficial for a better municipal waste management implementation in Indonesia, especially in North Barito District as follows

1. Local governments need to integrate a recycling center as an intermediate processing facility into their urban waste management. Thus there is no more direct waste transport from collection points to final disposal sites (Landfills).
2. The recycling center should be utilized not only as a place to sort and collect valuable resources (e.g. PET bottles, glass bottles, cans and used paper) but also as a composting plant (changing organic waste into fertilizer). The residue resulted afterward will be transported to the landfill.
3. Local governments can choose either they want to build a new recycle center or utilize the existing Waste Banks owned by government or society/private.
4. Weight scaling is needed to do respectively at Recycling center/Waste Bank and landfill so that accurate data on waste volume and composition can be collected to evaluate reducing rate and recycling rate which are important for making a better municipal waste management in the future.
5. Waste sorting by residents is a key to the success of municipal waste management. Local governments need to make attractive and easily understood sorting instructions in the form of printed or digital posters to be distributed to every citizen.
6. The posters also contain the different waste collection days for each type of waste, e.g. Monday, Wednesday & Saturday for organic waste collection; Tuesday, Thursday & Sunday for recyclable waste; and Friday for other wastes (not including organic & recyclable). Separate waste collection for each type of waste is intended to prevent the waste that has been sorted by residents not get mixed again during transportation. Training for waste collection workers also needs to be done.
7. Environmental education, especially about the concept of 3Rs (reduce, reuse & recycle) needs to be done intensively and continuously,

especially for students, to increase awareness and involvement of all citizens in the municipal waste management. Some things that can be done among others are as follows:

- a. Use citizens meetings in urban villages and neighbourhood levels.
  - b. Conduct workshops on waste sorting at schools, especially elementary and junior high schools.
  - c. Organize study trips to waste management facilities such as waste banks/recycle centers and landfills for elementary and junior high school students.
  - d. Held a competition to design posters for sorting and waste collection schedules.
  - e. Promote 3R concept by organizing 3R Month as a periodic municipal event where citizens can get more familiar with 3R concept through various activities such as recycle plaza, workshop, seminar, art performances, etc.
8. It is also important to create a regional regulatory system (Regional Regulation, Regent Regulation, and Regent Decree) which becomes the legal basis binding all parties to implement environmentally-based municipal waste management and promote the 3R concept. Consideration should be given to regulations that can create a conducive climate for private sector involvement in municipal waste management.

## **D. Obstacle during Staff Enhancement Program**

There is no significant obstacle during the Staff Enhancement program, only a few language problems because not all speakers speak English fluently, but it can be handled well by the present of translators provided by Temple University Japan.

## Action Plan

No	Action Plan	Objectives	Time	Strategies
1.	Submit SE Waste Management Report.	<ul style="list-style-type: none"> <li>- To report to the Regent via Regional Secretary of North Barito District the result &amp; recommendations after attending SE program.</li> <li>- To obtain admission to conduct a coordination meeting</li> </ul>	1 <sup>st</sup> week of November	<ul style="list-style-type: none"> <li>- The report &amp; recommendations submitted first to Head of Environment Agency and forwarded to the Regional Secretary afterward.</li> </ul>
2.	Coordination meeting: <ul style="list-style-type: none"> <li>- Environment Agency</li> <li>- Public Works &amp; Housing Agency</li> <li>- Regional Development Planning Board</li> <li>- Law Department of North Barito District Gov.</li> <li>- Head of Teweh Tengah Sub District</li> <li>- Heads of 2 urban villages (Lanjas &amp; Melayu)</li> </ul>	<ul style="list-style-type: none"> <li>- To present the result &amp; recommendations.</li> <li>- To agree waste collection &amp; transportation schedule based on waste sorting</li> <li>- To agree to indicate a 3R pilot neighbourhood.</li> </ul>	2 <sup>nd</sup> week of December	<ul style="list-style-type: none"> <li>- Meeting coordinator: Environment Agency</li> <li>- All related stakeholders are invited by Regional Secretary of North Barito District.</li> <li>- Meeting is led by Regional Secretary of North Barito District.</li> </ul>
3.	Drafting & issuing Bupati Decree on designation of the 3R pilot neighbourhood	As a legal basis for the 3R pilot neighbourhood designation.	3 <sup>rd</sup> – 4 <sup>th</sup>	<ul style="list-style-type: none"> <li>- The decree will be drafted by Environment Agency coordinating with Law Department of North Barito District Gov.</li> <li>- The decree will cover waste sorting, collection &amp; transportation instructions.</li> <li>- After legally issued, the Decree will be distributed to all government agencies / offices &amp; the designated neighbourhood.</li> </ul>
4	Disseminating the Bupati Decree on designation of the 3R pilot neighbourhood to: <ul style="list-style-type: none"> <li>- Heads of 2 urban villages (Lanjas &amp; Melayu)</li> <li>- The Head of the designated neighbourhood.</li> <li>- Head of City cleaning section of Public works agency</li> <li>- Management of city waste Bank</li> <li>- Management of Landfill</li> <li>- All city janitors</li> </ul>	To make known the Decree widely so that it can be operational.	2 <sup>nd</sup> Week of January 2018	<ul style="list-style-type: none"> <li>- Environment Agency together with Public Works &amp; housing Agency conduct a meeting to disseminate the Decree.</li> <li>- In the meeting, how to sort, collect &amp; transport waste will be explained.</li> <li>- Waste flow: households – collection point – waste bank – Landfill</li> </ul>

No	Action Plan	Objectives	Time	Strategies
5	Potential risk to environment	To decrease daily municipal waste disposed to landfill	Methane leakage	Involving all actors according regulation determined by Bupati Decree.
6	Investment	To assess the effectiveness of the implemented municipal waste management.	Low cost	By regular meeting (at least every 3 months) involving Public Works & Housing Agency and Environment Agency.

## E. Impression and suggestion on Staff Enhancement Implementation

Staff Enhancement Program on Waste Management conducted at Temple University Japan was well prepared. The schedule was well-matched (balanced between classroom meetings, self study and site visits), the instructor could also act as a good mentor, as well as good learning facilities including a fully- furnished apartment which was not far away (+ 20' walking) from campus and equipped with internet.

For the next SE Waste Management program, institutions related to environmental education (schools and / or the education ministry) could be additional and beneficial subjects to visit.

## F. Conclusion

Staff Enhancement Program on Waste Management conducted by Pusbindiklatren Bappenas at Temple University Japan has been followed and run well.

# DIREKTORI ACTION PLAN

PROFESSIONAL  
HUMAN RESOURCE  
DEVELOPMENT  
IV

## STAFF ENHANCEMENT - AFIRMASI - MAGANG DALAM NEGERI

Bappenas sejalan dengan fungsinya sebagai instansi Pembina Jabatan Fungsional Perencana, setiap tahunnya memberi kesempatan kepada staf perencana yang bekerja di Unit Perencanaan di Kementerian/Lembaga (K/L), Bappeda atau nama lain, dan unit perencanaan di Dinas Teknis pada Pemerintah Provinsi/ Kabupaten/Kota untuk memperoleh Beasiswa Nongelar Pusbindiklatren, Bappenas. Program ini diselenggarakan sebagai upaya untuk memperluas wawasan dan pengetahuan para perencana yang akan berguna dalam pelaksanaan tugas sehari-harinya,

Program beasiswa nongelar ini berupa pelatihan serta magang, baik di dalam negeri maupun di luar negeri. Keluaran yang dihasilkan para ASN peserta program beasiswa ini adalah sebuah *action plan* yang disusun mulai dari perencanaan sampai pada implementasinya dengan berbasis SMART. Berbagai *action plan* yang dihasilkan tersebut tentu akan sangat bermanfaat sebagai khazanah pengetahuan dan informasi di bidang perencanaan pembangunan. Meringkas dan menerbitkannya dalam bentuk buku Direktori *Action Plan Staff Enhancement* merupakan upaya Pusbindiklatren Bappenas untuk menyebarkan hasil penelitian tersebut.

Kehadiran buku ini diharapkan dapat menjadi salah satu sumber informasi yang dapat berkontribusi positif terhadap peningkatan kompetensi sumber daya aparatur pemerintah bidang perencanaan pembangunan baik di pemerintah pusat maupun di pemerintah provinsi, kota, dan kabupaten.

Jilid Lengkap

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