

THE IMPLEMENTATION OF DRINKING WATER SUPPLY SYSTEM IN REGIONAL AUTONOMY ERA

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Abstract

The poverty indicator is not only a result of shortcomings in meeting minimum physical needs, but also because of low accessibility to infrastructure provision, including clean water or drinking water. Indonesia has a policy to meet the access of safe drinking water. The coverage of drinking water services in Indonesia is still low (less than 50%) and it requires the acceleration of Drinking Water Supply System (DWSS) development to achieve 100% of the target of National Medium Term Development Plan and the target of Sustainable Development Goals (SDGs) in 2019. Therefore, a specific study is needed to see the implementation of drinking water supply system (DWSS) in the era of regional autonomy in order to achieve 100% safe drinking water supply. The method of analysis used is descriptive method by exploring the existing condition in the provision of drinking water based on secondary data and by analyzing regulation in the implementation of water supply.

Key Words: Drinking Water, Implementation, Regional Autonomy;

INTRODUCTION

Drinking water is one of human basic needs which is necessary to improve the quality of human life and economic growth of a region. In accordance with the spirit of regional autonomy as stated in Republic of Indonesia Law No. 23/2014 on Regional Government and Law No. 7/2004 regarding water resources, which is then followed up by Government Regulation No. 16/2005 on Development of Drinking Water Supply System (DWSS) which affirms that the implementation of drinking water services is a duty and a responsibility of the Central Government and Local Government [1, 2, 3].

Many literatures stated that one indicator of the community welfare is accessibility to productive resources. Even poverty is defined from a variety of dimensions, it means that the population is said to be poor not only as a result of shortcomings in meeting their minimum physical needs, but also because of low accessibility to the provision of infrastructure, including clean water or drinking water.

Thus, the population is said to be poor not only as a result of insufficient shortcomings in meeting their minimum physical needs, but also because of low accessibility to drinking water supplies. Because of the importance of poverty reduction as development priority, Indonesia along with 190 other countries have agreed on 17 sustainable development agenda contained in Sustainable development Goals (SDGs) where the first agenda is end poverty in all its forms everywhere and the 6th agenda is to ensure the availability and management of water and sustainable sanitation for all people.

Indonesia has a policy to fulfill 100% of the access of safe drinking water in 2025. Unfortunately, in 2013, the coverage of drinking water services in Indonesia is still low around 67.7%, therefore it requires the acceleration of DWSS development to achieve the target of National Medium Term Development Plan and SDGs by 2019. It needs a specific review of the implementation of water supply provision in the era of regional autonomy in order to achieve 100% of safe drinking water supply by 2019 in order to formulate an accelerated achievement strategy as outlined in the SDGs agenda.

METHODS

Data

In this study, the author used secondary data, ie data collected by other institutions. Data requirements are obtained from Basic Health Research Book of 2013 published by Ministry of Health, Performance Book of Drinking Water Supply Institution Region I - IV issued by Ministry of Public Works Supporting Agency for Development of DWSS and Result of National Recap of June 13, 2014, from Directorate of Security Ministry of Public Works year 2014.

Method of Analysis

This study is descriptive research that aims to create a description of the existing conditions in achieving the coverage of drinking water services in the era of regional autonomy and the management implementation of

drinking water in Indonesia in the era of regional autonomy. Data analysis used in this research is average achievement of drinking water service among districts in Indonesia and condition of drinking water service in province in Indonesia. It also analyzes the implementation of DWSS in Indonesia in the era of regional autonomy. Presentations are in the form of bar charts, tables, and pie diagrams.

FINDING AND ARGUMENT

Community Accessibility to Drinking Water in Indonesia

The coverage of drinking water shows people's access to drinking water, usually measured by household scale. Domestic water needs include the main sources of water used for all household needs including drinking and cooking, the amount of water per person per day, the type of drinking water source, the distance and time taken to drinking water sources, the ease of obtaining drinking water, people used to take drinking water from its source, how to drink water in the household, the way of drinking water and access to drinking water. The classification of the amount of water used for household use per person per day refers to the public health risk criteria related to hygiene used by the World Health Organization (WHO). The amount of water usage per person per day is the amount of household water usage per day overnight divided by the number of household members. The amount of water use is grouped into several criteria:

1. Water use less than 5 liters / person / day, indicating no access
2. Water use between 5-19.9 liters / person / day, indicating less access
3. Water use between 20-49.9 liters / person / day, indicating basic access
4. Water use between 50-99.9 liters / person / day, indicating medium access
5. Water use greater than or equal to 100 liters / person / day, indicating optimal access.

To assess the access to drinking water sources, two criteria were used in this presentation: the criteria used by the government in the Millennium Development Goals (MDGs) 2010 report and the criteria used by the Joint Monitoring Program (JMP) WHO-UNICEF in 2004. Criteria for access to drinking water sources used by the MDGs is when the type of drinking water source is piping, pump wells, protected dug wells and protected springs with distance from pollution sources of more than 10 meters, and rainwater. While the criteria of access to drinking water used by JMP WHO-UNICEF 2004 is when household water usage is at least 20 liters per person per day, coming from improved water sources and drinking water sources within a radius of one kilometer from home. In both the MDGs and JMP WHO-UNICEF criteria, bottled water is not categorized as a protected drinking water source.

Based on MDGs criteria by 2013, 42.9% of Indonesians consume unprotected drinking water and only 49% or almost half of Indonesia's population consumption drinking water from protected sources. Based on access criteria to drinking water used by JMP WHO-UNICEF in 2004, as many as 49.6% of the Indonesian population have access to water, 28.3% are middle-access residents, and 5% are included in the criteria of less access and no access.

The proportion of households with access to drinking water sources based on the JMP WHO-UNICEF criteria in 2006, as many as 66.8% of households in Indonesia access drinking water sources with 'improved' criteria, those are households accessing drinking water originating from tap water, / pumps, protected dug wells, sheltered springs, rain water reservoirs, bottled water (ONLY IF water sources for other household needs are 'improved'). As many as 33.2% of households are accessing drinking water sources with unimproved criteria ie water sources derived from bottled water, refill water (DAM), retail tap water, unprotected dug wells, unprotected springs, and river / lake / irrigation.

The national drinking water coverage based on water source are 29.2% came from sheltered dug wells, 24.1% came from drill / pump wells, and 19.7% came from the Drinking Water Supply Institution , and the rest or 26.8% of households consume drinking water from rainwater storage, retail tap water, unprotected springs, river / lake / irrigation water, protected spring and unlogged well (RKD, 2013). Therefore, the development of national drinking water is absolutely necessary to get top priority in the development. High population growth must be balanced by the extent of coverage of national water services by both Drinking Water Supply Institution and non-Drinking Water Supply Institution.

National Water Coverage

Water required by the community is clean water that meets the health requirements, those are clear, colorless, tasteless and odorless water. The use of water that does not meet the health requirements will have consequences for those who consume. It will affect the health status of the community. Diseases can be caused by poor drinking water consumption. Therefore, there is a positive correlation between the quality of drinking water to the health status of the community. The water conservation program is therefore one of the priority programs on the Sustainable Development Goals (SDGs) agenda with a goal of halving the proportion of people without access to safe and sustainable drinking water and basic sanitation facilities in 2015.

Based on [4], good quality water criterias are not cloudy, colorless, tasteless, not foamy, and odorless. Average coverage of good quality drinking water in Indonesia is 94.1%, with classification 96% in the city and 92% in rural areas. At the national level, the use of good quality drinking water in Indonesia in 2013 was 94.1%. Some provinces with good quality drinking water consumption are higher than the national average, those provinces are Riau Islands, Bangka Belitung, Bali, DIY Yogyakarta, DKI Jakarta, East Java, Lampung, Riau, West Sulawesi, East Kalimantan, Central Java, North Sulawesi, Gorontalo, Jambi, West Sumatera and West Java. [4] good quality water criterias are not cloudy, colorless, tasteless, not foamy, and odorless. Average coverage of good quality drinking water in Indonesia is 94.1%, with classification 96% in the city and 92% in rural areas.

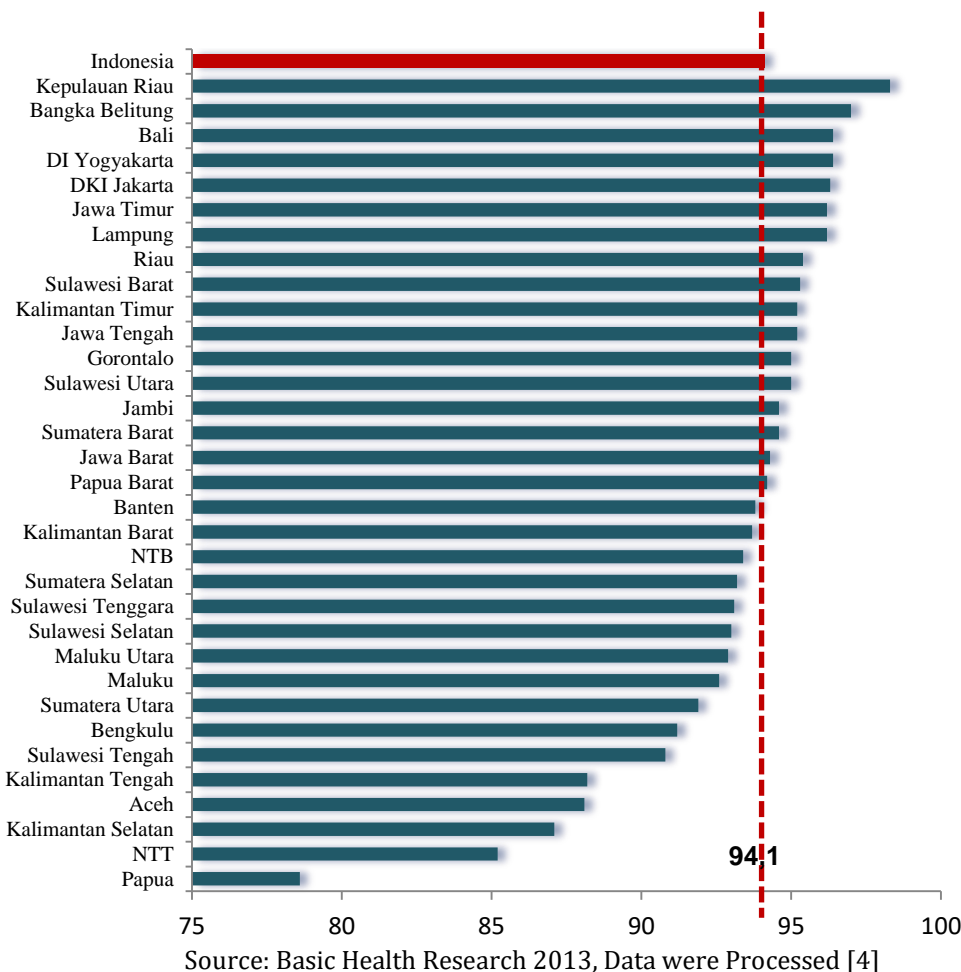


Figure 1. The Coverage of Accessibility of Good Quality Drinking Water in Indonesia Year 2013 (%)

Portrait of the Drinking Water Supply Institution (Local abbreviation: PDAM) In Indonesia

Indicators used in PDAM performance evaluation are the result of perfection in 2010 which was done by using Balance Score Card approach by measuring the health level of PDAM. Some indicators used to measure PDAM performance are financial, service, operational and human resources aspects of PDAM. Each aspect is broken down into several service indicators for the development of drinking water supply systems, and the results of the assessment are categorized into 3 (three) criteria, ie healthy PDAMs, less healthy PDAMs, and not healthy PDAMs.

In 2012, performance evaluation was conducted on 328 PDAMs throughout Indonesia, the results showed that the number of healthy PDAMs was 52.13% out of 328 PDAMs, while the percentage of PDAMs with less healthy performance was 30.79% and the PDAM with not healthy performance was 17,07%. In its development, the number of PDAM conducted by performance evaluation by Supporting Agency for DWSS for three years has decreased. As the number of PDAMs evaluated decreases, it will cause changes in the number and percentage of each criterion.

Within 3 (three) years, the number of healthy PDAMs showed a positive trend. Based on existing data, the number of healthy PDAMs in 2010 as many as 142 PDAMs, in 2011 increased to 144 PDAMs and in 2012 increased significantly by 171 PDAMs. In other words, in 2011 the percentage of healthy PDAM increased by 1.41% and in 2012 increased by 18.75%. In line with the increasing number of healthy PDAMs, it is expected that there will be

an increase in the quality and quantity of PDAM services to the community. The improvement of PDAM performance evaluation results for 2010, 2011 and 2012 can be seen in the following table:

Table 1. The Improvement of PDAM Performance in Indonesia Period 2010-2012

Performance	2010	Growth	2011	Growth	2012
Healthy	142	1,41	144	18,75	171
Less Healthy	129	(18,60)	105	5,71	111
Not Healthy	70	22,86	86	(34,88)	56
Jumlah	341		335		328

Source: Book of PDAM Performance Year 2012, Supporting Agency of DWSS

Clean water service is a very important component in public services. Water is a basic need that can not be separated from human life. The provision of clean water to the special attention of every country in the world is no exception in Indonesia. Population growth, development growth, and rising standards of living cause the increasing need for clean water. This makes the quality of service providers and managers of clean water is needed by the community.

Drinking Water Supply Institution (PDAM) shall carry out the main duty to manage and give service of clean water to improve the welfare of the community in accordance with the Law no. 23/2014, on Regional Government [1]. As one of the regional-owned enterprises, they should strive to be able supporting the realization of the mission and functions. Therefore, the management of drinking water system should be done properly and correctly and should meet technical and economic norms in accordance with predefined criteria standards. Based on average coverage of PDAM services in Indonesia in 2014, none reached 50%. Even the highest coverage of drinking water services by PDAM is 45.28% in Central Java Province, followed by PDAM Riau Islands Province of 40.88% while the lowest coverage of drinking water services by PDAM is Lampung Province which is only 3,44%.

Service Hours of Water Supply by PDAM

In accordance with the mandate of Government Regulation No. 16/2005 regarding the obligations of district/city governments in DWSS development, among others stated that the hours of drinking water services to the community reach 24 hours a day [3]. Based on the data of drinking water services obtained from the Directorate of Drinking Water of DG Cipta Karya the Ministry of Public Works, shows that the average hours of drinking water services by PDAM are less than 24 hours a day. Only the PDAM of DKI Jakarta Province provides 24 hours daily service. The province with the fewest hour of PDAM service is Riau Province with service only 9 hours per day.

Table 2. Service Hours of PDAM in Indonesia based on Province in 2014

No	Service hours of PDAM	Number of Province	Province
1	9	1	Riau
2	10	2	Sumatera Selatan , Papua Barat
3	11	3	Jambi, Lampung, Bangka Belitung
4	13	1	Kalimantan Tengah
5	15	4	Aceh, NTT, Kalimantan Timur Dan Sulawesi Tenggara
6	17	6	Sumatera Utara, Kalbar, Kalsel, Gorontalo, Sulbar dan Sumbar
7	18	2	Sulawesi Utara dan Papua
8	19	3	Kepulauan Riau, DIY dan Sulawesi Selatan
9	20	4	Sumatera Barat, Banten, Bengkulu dan NTB
10	21	2	Jawa Tengah dan Maluku Utara
11	22	2	Jawa Barat dan Sulawesi Tengah
12	23	1	Bali
13	24	1	DKI Jakarta

Source: Ditpam, 24th Februari 2014, processed

Government Authority in the Implementation of DWSS in the Era of Regional Autonomy

Policies Related to DWSS Development

The development of Drinking Water Supply System (DWSS) is an activity that aims to build, expand and/or improve the physical (technical) and non-physical (institutional, management, financial, community and law) systems in a unified whole to implement drinking water supply to the society towards better condition. In relation to the provision of drinking water, the law mandates that DWSS development is the task of government, both central and regional governments. Given the critical importance of drinking water supply to the entire community, various laws and regulations are issued for the implementation of DWSS development.

Authority and responsibility of DWSS Development is the responsibility of the the central and regional government to ensure the right of every person in getting drinking water for basic daily needs to meet a healthy,

clean, and productive life. The authority and responsibility of the government in the development of DWSS is set forth in the Government Regulation of the Republic of Indonesia No. 16/2005 on Development of Drinking Water Supply System article 38, 39 and article 40 [3], as follows:

Table 3. Authority and Responsibility of Government in DWSS Development According to Government Regulation No. 16/ 2005

<i>Central Government (Article 38)</i>	<i>Province Government (Article 39)</i>	<i>District/City Government (Article 40)</i>
<ul style="list-style-type: none"> a. establishing national policies and strategies; b. establishing norms, standards, guidelines and manuals; c. establishing SOEs operating DWSS; facilitating resolution of problems among provinces, which are specific, strategic, both national and international; d. providing technical assistance and conduct controls, as well as supervision of the organization; e. granting inter provincial licenses; f. determining raw water allocation for DWSS development needs in accordance with defined water use rights; and g. facilitating the fulfillment of raw water requirements for DWSS development needs in accordance with their respective authorities. 	<ul style="list-style-type: none"> a. arranging policies and development strategies in its territories based on national policies and strategies; b. facilitating DWSS development across districts/cities; c. establishing a provincial Regional Owned Enterprises as a provider of DWSS; d. solving problems between districts/cities; e. conduct monitoring and evaluation of the districts/cities; f. submitting reports on results of monitoring and evaluation of the implementation to the Government and Supporting Agency for DWSS Development; g. giving permission for cross-district/city administration; h. facilitating the fulfillment of raw water requirements for DWSS development needs in accordance with their respective authorities. 	<ul style="list-style-type: none"> a. arranging policies and strategies in their regions based on national policies and strategies and provincial policies and strategies; b. can form a Regional-Owned Enterprises to provide DWSS development; c. fulfilling the drinking water needs of the community in its territory in accordance with specified minimum service standards; d. fulfilling the needs of sanitation services to improve the health of the community in its territory in accordance with established minimum service standards; e. ensure the continuity of DWSS development in its territory; f. carrying out the procurement of construction services and / or the establishment of DWSS development in areas not yet reached by Regional-Owned Enterprises services; g. providing technical assistance to the subdistrict, village government, and community groups in the region regarding to the implementation of DWSS development; h. conduct monitoring and evaluation of the implementation of DWSS development in its territory; i. submitting reports on results of monitoring and evaluation of the implementation to the provincial government, central government and Supporting Agency of DWSS Development; j. supervising the implementation of DWSS development in its territory; k. provide permission to implement DWSS development in its territory; and l. facilitating the fulfillment of raw water requirements for DWSS development needs in accordance with their respective authorities.

The Mandates of Regulation on the Implementation of DWSS Development need to be Fulfilled by Region

Based on the regulations on the implementation of DWSS stipulated in Government Regulation No. 16/2005 and No. 38/2007 and other relevant regulations, it can be formulated that the authorities and responsibilities of regional governments in DWSS development are as follows [3, 4]:

Table 4. Authority and Responsibility of Local Government In DWSS Development According to Government Regulation No. 16/2005 and No. 38/2007

No	Authority and Responsibility of Provincial Government	Authority and Responsibility of District/City Government
1	Arranging Regional Strategic Policy of DWSS in Province (Government Regulation No. 16/2005 Article 24 paragraph 4-5)	Arranging Regional Strategic Policy of DWSS in District/City (Government Regulation No. 16/2005 Article 24 paragraph 4-5)
2	Arranging Regional Regulation about the Formation of Regional State Owned Enterprises for province (Government Regulation No. 16/2005 Article 39 paragraph b)	Arranging Regional Regulation about the Formation of Regional State Owned Enterprises for District/City (Government Regulation No. 16/2005 Article 40 paragraph b)
3	Arranging Guidelines for the DWSS Master Plan for Province (Government Regulation No. 16/2005 Article 26 paragraph 6)	Arranging Guidelines for the DWSS Master Plan for District/City (Government Regulation No. 16/2005 Article 26 paragraph 5)
4	-----	Preparing Feasibility Study of DWSS Development for District/City (Government Regulation No. 16/2005 Article 28 paragraph 2)
5	Establishing Technical Planning of DWSS Development for Province (Government Regulation No. 16/2005 Article 29 paragraph 3)	Establishing Technical Planning of DWSS Development for District/City (Government Regulation No. 16/2005 Article 29 paragraph 3)
6	Arranging regulations / legal products related to the action plan of application acceleration of Minimum Service Standards (MSS) for Province (Government Regulation No 38/2007 Sub Division of Drinking Water)	Arranging regulations / legal products related to the action plan of application acceleration of Minimum Service Standards (MSS) for District/City (Government Regulation No 38/2007 Sub Division of Drinking Water)

Source: Government Regulation No 16/ 2005 and No 38/ 2007 [3, 4]

Specifically, the authority, duties, and responsibilities of district / city governments in the implementation of DWSS development can be described as follows (Government Regulation No. 16/ 2005) [3]:

1. Implementing the development of DWSS and sanitation infrastructure in an integrated manner
2. Conducting lab tests on the quality of drinking water regularly
3. Preparing regulations on raw water
4. Conducting cooperation between regions in raw water business
5. Establishing regulations on water utilization permission
6. Arranging about final waste water treatment from raw water treatment process
7. Achieving continuity level of drinking water service 24 hours a day
8. Regulating about the obligation to measure meter accuracy periodically
9. Regulating about raw water protection
10. Establishing regulations on the prohibition of disposing wastewater directly without processing to raw water sources.
11. Setting up waste water disposal system in the form of human/stool manure processing unit using local system or centralized system
12. Developing guidelines on monitoring the quality and quantity of wastewater treatment results
13. Developing guidelines for wastewater treatment process
14. Implementing the current DWSS in an integrated manner with the disposal of waste water and waste management system
15. Providing technical assistance to subdistrict, village government, and community groups in the region in the implementation of DWSS development periodically
16. Monitoring evaluation and supervision on the implementation of SPAM development in its territory and submit reports on results of monitoring and evaluation of the implementation to the provincial government, the central government, and the DWSS Development Support Agency.
17. Providing opportunities for cooperatives, private sector, community to participate in the implementation of DWSS
18. Allocating each yearly budget for DWSS development
19. Obtaining other financing sources for DWSS development
20. Drawing up regulations on drinking water rates
21. Compiling regulations on wastewater retributions
22. Preparing guidelines and procedures for granting licenses and guidance for the implementation of DWSS for Cooperatives, Private and Community
23. Implementing development of State-Owned Enterprises (SOEs), cooperatives, private business entities, and community groups in implementing DWSS covering the provision of norms, standards, guidelines, manuals, guidance, supervision, consultation, education and training

24. Developing technical guidelines and procedures for the development of DWSS development
25. Implementing supervision on all stages of DWSS development

Conducting supervision of drinking water quality as well as supervision on pollution/disposal of waste/wastewater from DWSS development activity.

DWSS Implementation in the Era of Regional Autonomy

To reach the target of 100% safe drinking water by 2019, the region requires careful planning. Therefore, clear policies and strategies should be developed by all regions in developing DWSS. The planning documents to be developed in the DWSS development framework include the DWSS Master Plan which is arranged for a 20 year planning period. Most of districts/cities in Indonesia are in the process of preparing DWSS Master Plan. There are 106 districts/cities that have compiled DWSS Master Plan as shown in the following table:

Tabel 5. Districts/Cities That Has Arranged DWSS Master Plan in Indonesia

No	Province	Number of districts/cities	Not legalized yet	Already Legalized
1	Aceh	2	Middle Aceh, East Aceh	-----
2	North Sumatera	7	Toba Samosir, Tapanuli Tengah, Tanjung Balai City, Tebing Tinggi City, Deli Serdang, Middle Tapanuli, Toba Samosir	Padang Lawas Utara, Labuan Batu Utara
3	Riau	4	Kampar, Siak, Kab Rokan Hulu, Kota Pekanbaru	-----
4	Riau Island	1	Natuna	-----
5	West Sumatera	2	Pasaman Barat, Pesisir Selatan	-----
6	Jambi	5	Batang Hari District, Bungo, Merangin, Muaro Jambi,	Tanjung Jabung Timur.
7	Bengkulu	4	Kepahiang, South Bengkulu, Kaur	Rejang Lebong,
8	Bangka Belitung	4	West Bangka	-----
9	Lampung	8	West Lampung, South Lampung, Middle Lampung, East Lampung, Tanggamus, Tulang Bawang Barat, Tulang Bawang	Bandar Lampung City
10	Banten	3	Pandenglang, Lebak, Tangerang Selatan City	-----
11	West Jawa	6	Karawang City, Bandung, Sumedang, Bekasi City, Kota Bogor	Bandung City
12	Central Jawa	12	Jepara, Kendal, Purworejo, Wonosobo, Salatiga City, Surakarta City, Banjar Negara, Banyumas, Demak, Jepara, Kab Kendal, Rembang, Semarang City	Grobongan
13	DIY Yogyakarta	4	Gunung Kidul, Kulon Progo, Sleman, Bantul	-----
14	East Jawa	6	Banyuwangi, Blitar, Jombang, Ngawi, Probolinggo, Sampang, Madiun City	Malang City
15	Bali	8	Jembrana, Badung, Buleleng, Gianyar, Bangli	Tabanan, Karangasem
16	NTT	2	Belu and Kupang	-----
17	NTB	2	North Lombok, Middle Lombok	-----
18	East Kalimantan	1	Berau, Bontang	-----
19	Middle Kalimantan	5	Barito Timur, Kotawaringin Barat, Seruyan, Pulang Pisau, Palangka Raya	-----

No	Province	Number of districts/cities	Not legalized yet	Already Legalized
20	South Kalimantan	1	Hulu Sungai Utara	-----
21	South Sulawesi	3	East Luwu, Maros, Tana Toraja	-----
22	West Sulawesi	2	-----	Majene, Mamuju, Poliwali Mandar
23	Southeast Sulawesi	6	Kendari, Kolaka, South Konawe, North Konawe, Bombana, Wakatobi.	-----
24	Middle Sulawesi	5	Tojo Unauna, Parigi Mountong	-----
25	Gorontalo	1	Gorontalo	-----
26	North Sulawesi	1	Southeast Minahasa	-----
27	Maluku	1	Buru	-----
28	Papua	2	Papua, Nabire	-----
TOTAL		106	93	13

Source: Ditpam, Result of National Recapitulation per 13rd June 2014, processed

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the discussion in the previous chapters, it can be concluded that:

1. The authority and responsibility in DWSS development becomes the authorities and responsibilities of central, provincial, and district/city governments.
 - a. The authority and responsibility in DWSS development becomes the authority of Central Government when the location of activities, users, benefits are cross-provincial, when the use of resources shall be more efficient if carried out by the central government; and/or when it is strategic role for the national interest.
 - b. The authority and responsibility in SPAM development becomes the authority of the Provincial Government when the location of activities, users, benefits are cross-district and when the use of resources is more efficient if carried out by the provincial government
 - c. The authority and responsibility in SPAM development becomes the authority of the District/City Government when the location of activities, users, benefits are cross-district and hen the use of resources is more efficient if carried out by the district/city government.
2. Government Regulation No. 16/2005 concerning Development of Water Supply System (DWSS) mandates to regional matters as follows:
 - a. Develop Regional Policies and Strategies of Water Supply System.
 - b. Drafting the Master Plan for Water Supply System.
 - c. Preparing Local Regulations on the Establishment of Regional Owned Enterprises.
 - d. Preparing Feasibility Study of Development of Water Supply System.
 - e. Develop Technical Planning for Development of Drinking Water Supply System.

Recommendation

1. In general, the main problem occurred in district/city related to DWSS Development is raw water because the tendency is cross district/city. Therefore, facilitation from the Central Government and Provincial Government is needed to accelerate the settlement of inter-regional conflict related to raw water.
2. The need for continuous socialization of the laws that emphasize the role of the region in the development of DWSS periodically, either by the central government or the provincial government.
3. Mentoring model should be done to districts and cities related to the implementation of drinking water supply in the era of regional autonomy, especially in the application of government regulation no. 16 /2005 and no.38/2007 to districts / cities currently preparing DWSS Master Plan. It can be done by grouping based on the score achieved by each district / city.
4. One of the obstacles in the area is the weak coordination between Regional Device Work Unit. Therefore, it needs to obtain guidance to improve coordination among Regional Device Work Unit.

REFERENCE

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