A TRANSITION OF THE DRINKING WATER PROVISION IN INDONESIA

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Executive summary

Water is an essential need in every human's daily life.Unsurprisingly, people are eager to fulfil this need. Sometimes even through methods that are sometimes harmful for the environment.In Indonesia, individual groundwater exploitation and purchasing water on the informal market tend to increase because of the unreliability of existing water services provided by the government. If this trend is not countered, it will degrade the environment.Moreover, a large part of the population isn't provided properly with their most basic need.This report explores these issues and presents an alternative to deal with them.

This report begins with discussingthecurrent conditions and the historical background of drinking water supply in Indonesia. Through this exploration, problems that need to be addressedare articulated. It continues with the theoretical perspective to view dilemmas andsolutions in water related issues in Indonesia. The policy perspective is chosen to manage the transition under discussion and to determine the position of the transition manager. Formulating strategies to cope with water related issues is covered in the third part of this report. As is an exploration of the strengths and weaknesses of the alternative strategies, the criteria these will be judged withand the goals that are desirably achieved. The result of this process are four alternative strategies.Finally the most reasonable and appropriate strategy is discussed in the end of this part.Furthermore, the question of how the selected strategy can be oprationalised will be explained in the fourth part. In this section, the real actions that are required to implement the chosen strategy will be elaboratedupon. It will consist of five sequential steps for streering the transition regarding water supply in Indonesia

1. Introduction

Indonesia is blessed with abundant rainfall and has access to approximately 6 percent of the world's fresh water resources, equivalent to about 2,500 km3 of annual renewable water (Sofiani, 2003). According to this, Indonesia should not have any problems concerning water supply. However, Gleick et al (2002) mentioned that the average domestic water consumption in 1990 was only 34.2 litres per person per day. According to data from Bappenas (2007), it was recorded that only 30.8 per cent of households in urban areas had access to a piped water supply in 2006, while just 9 per cent of rural areas have access to piped water. Nationally, this means networked water provision could reach only 18.4 per cent of households. Thesefigures show that Indonesia is definitely fronting water supply issues.

According to the constitution of Indonesia (article 33, verse 3), water is controlled by the state and utilised as much as possible for the prosperity of the people. Furthermore, the responsibility of delivering water services belongs to PDAM (Perusahaan Daerah Air Minum), the government-owned water company. In the beginning of the independence era (1945), PDAM was part of the public work offices and the management belonged to the national authority. In 1960 infrastructures that had been built by PDAM in some provinces were given to local governments as was the authority to manage them. However, in the 1970s the national government took back PDAMs management until the issuance of Government Regulation number 14 in 1987. By this regulation the national government handed over some public workswhich were previously owned and controlledon a national level, including water supply services. Nowadays PDAMs officially are owned by local governments, mostly on municipality level, although the influence of the national government on their management is still evident.

The management of PDAMs is quite complex since many government institutions are involved and even overlap in the operation (Hakim, 2000). For instance, the Department of Public Works is responsible for the technical matters of infrastructure and raw water management, while managerial aspects are the responsibility of the Department of Home Affairs. On the other side, financial matters are under authority of the Department of Finance. Moreover, the Department of Health is responsible for setting the standards for drinking water quality, whilst the ownership of PDAMs lies withmunicipal or provincial governments.

The role of local governments, either on a municipal or a provincial level, as the owners of PDAMs in managing this kind of companies has become larger since the first of January 2001 through the issuance of the Law Number 22/1999 about Local Government. Through this regulation, PDAMs are decentralised to local government basically aiming to generate local income. This situation implicates to a tendency among governments and political parties at local level to view that PDAMs are mandated to encourage local revenue, regardless of whether their financial situation is profitable or not (Hadipuro, 2003).

Perpamsi in cooperation with theDepartement of Public Works has analysed the problems faced by PDAMs (the Department of Public Works, 2005). The study concludes that most of PDAMs faced many operational and financial problems. The major problem was foreign loans, which after the financial crisis in 1998 trapped a large number of PDAMs in very difficult situations. Unsurprisingly, the performance of PDAMs has not been sufficient yet to meet drinking water requirements, especially the need for domestic water consumption in Indonesia. To be more detailed, the service coverage of PDAM in Indonesia is shown in figure1:

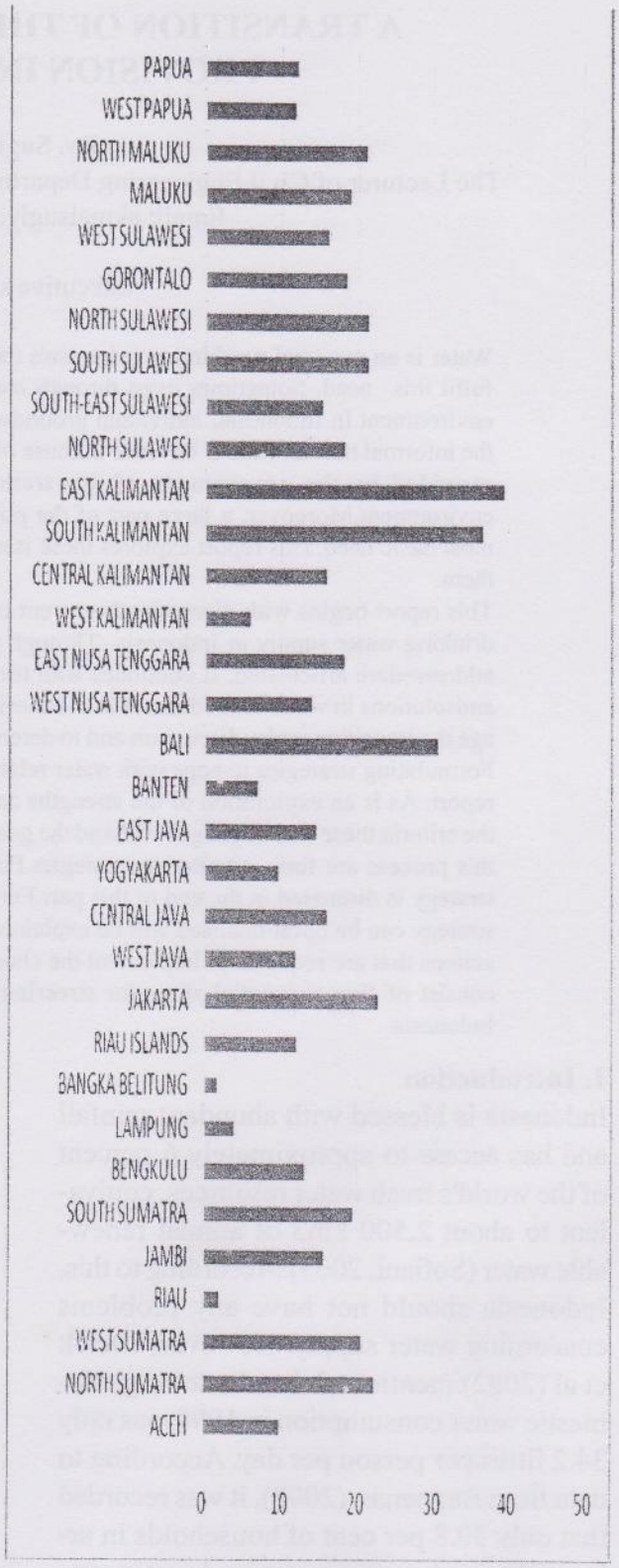

Figure 1.Piped water supply service by province in 2009. Source: Survei Sosial Ekonomi Nasional Badan Pusat Statistik- National Social Economic Survey of the National Statistics Bureau (BadanPusatStatistik-National Statistics Bureau, 2009)

formed. The most urgent reason is the lack of sustainability of the drinking water supply system because of the growing demand and already over-exploited sources, (Shofiani, 2003)

Several dilemmas have to be tackled when creating the new policy for Indonesia's drinking water supply and this must be done within a fairly narrow framework of interdependence between public and private interests. The government must make sure to keep the conditions they set within the parameters considered acceptable by private parties willing to participate in Indonesia's drinking water supply; because it is unlikely the government will be able to invest enough without private funding (Rietveld, Rouwendal&Zwart, 2000; Shofiani, 2003). At the same time, the policy must lead to a system sustainable on the long term socio-economically and ecologically. The criteria for measuring the sustainability of a system are discussed in chapter 5.

One major problem is the pricing system. Rietveld, Rouwendal&Zwart (2000) write that the current system is fair for poor households using only little water, but too complicated to attract private investors and not profitable enough to generate the necessary funds which are needed to maintain, upgrade and expand the piping network. A new pricing system will also have to be more transparent and less sensitive to fraud. Much is to be gained here which will also make the drinking water market more attractive to investors. (Shofiani, 2003)

Al Afghani (2007) warns that solving Indonesia's drinking water problems shouldnot be left to the market without strict regulations. Because that will very likely mean that the interests of the poor will be overlooked, long-term external costs will be insufficiently accounted for and the ecosystem will not be guarded well enough. Also profits will be moved out of the system, rather than being re-invested. He continues to explain that the drinking water market is a natural monopoly, which means that it can be provided best by a single provider. As long as there is an authority enforcing the rules, both provider and client will benefit.

Considering a lack of effective rules is the main problem (Shofiani, 2003), making new and better rules is the most sensible solution. A transition guided by the policy perspective is therefore a good way to go forward (Rietveld,Rouwendal&Zwart, 2000; Rotmans, Kemp & Van Asselt, 2001)

3. Opportunities and challenges in developing strategies regarding water supply

Water supply policy in Indonesia is indeed complicated, but there are many opportunities to develop a better situation. In this part some opportunities as well as challenges with regard tothe drinking water supply will be more elaborated on. By identifying opportunities and challenges, a suitable strategic management plan can be composed. The following table lists opportunities and challenges that are embedded in water related issues in Indonesia.

	Opportunities	Challenges
Institutional		
Decentralization	Smaller coverage area eases the burden of local government to serve water supply	Inter governmental coordination amongst authorities is more complicated
Institution	Privatization or community based management (local community agency) can be another option in providing drinking water	Capacity of existing water companies has to be accelerated in order to encounter the ocurrent condition and its dynamics
Societal		
Urbanization	Increasing water demand is a potential to be managed	Uneven distribution of water service accessibility
Population growth	Public awareness can be encouraged more	Population growth implicates to an increasein the demand for water
Mindset	Reframing and changing mindset from individual interest towards common interests	Water is still considered as a "free" common resource
Resources	Indonesia has great potential sources of freshwater	Uncontrolled land use change, such as urbanisation, deforestation, etc. affect water resource conditions
Technology	Improving the small scale technology	Physical constraints and technological inability to deal with water related issues

Table 1: The challenges and opportunities which will be encountered during the transition to a new drinking water supply system.

Table 1 shows the opportunities and challenges related to improving water supply services in Indonesia. At least, there are four main factors in water supply problemsthat can be identified. They are regarding to institutions, society, resources and technology. Generally, all the opportunities and challenges are been being faced not only in Indonesia, but all over the world, especially in developing countries. Problems such as urbanization and technology, for instance, are becoming a major problem in all developing countries resulted from a lack of financial resources to expand the technology while urbanization is more or less uncontrollable.

Institutional factors are vaguely defined with regard to water supply. Institutional could be defined as agencies or institutions. Besides, institutional is also commonly understood as political context. In this case, decentralization is categorized to institutional factor as its closely connected on how the government regulates the policy. Before the establishment of the decentralization system, the central government was strongly influential in determining policies related to water provision from national to local levels. The notion of decentralization through reformation era is sort of windows opportunity. Decentralized system allows local government, respectively to water supply, to responsible for their local community. It brings both opportunity and challenge. From institutional perspective, small scale coordination among stakeholders has to improve the water supply's service. It should be easier to distribute the water equally to the community. However, it does not simply work in any circumstances. One of the main issues is cooperation and coordination among local governments in exploiting and managing water resources, especially is these are located in more than one jurisdiction. This situation becomeseven more complicated when there are limited water resources.

As stated above, involving private parties in the water sector could be an alternative. Butthe government has to regulate and control private sector because water should remain a common resource. Another opportunity is so called community-based water supply. The main idea of this type of organization is people in rural areas managing the water supply by themselves.

Besides institutional factors, societal factors are also interesting to zoom in on. There are many more problems in recent social trends in Indonesia which influence the water supply. Urbanization, population growth and themindset of people are among the most crucial factors related to water supply. It holds both opportunities and challenges to elaborate. For example, urbanization on one hand could lead to an increasing water demand. On the other hand, there is an opportunity to educate people to make them more aware about water. This is also in line with the fact that water resources are under pressure. Even though Indonesia is one of the richest countries in terms of annual rainfall, there is a scarcity of water and it's becoming more and more acute.

Indonesia has a great amount of freshwater resources that are essentially characterised as renewable. Naturally,the existence of these resources relies very much on environmental quality. Shifting in land use, for example, can influence this natural resource in terms of both quality and quantity. Therefore, it can be seen that this resource actually is vulnerable. It can be deemed as a huge potential to be exploited, but not free from challenges in conserving this resource.

4. Four alternative strategies

Based on the opportunities and challenges listed above, possible strategies to manage the transition can be developed. Those four aspects basically can be utilised to formulatethese strategies. Institutional, societal, resources, and technology can be used as a starting point. From an institutional point of view, for example, the recent political atmosphere that is more democratic and decentralised provides an opportunity in developing regulations that can guarantee the availability and accessibility of drinking water for the people of Indonesia. The existing regulations can be improvedor augmented locally in this era. In addition, this mandate is explicitly stated in the constitution of Indonesia.

Furthermore, the quality ofhuman resources, which tends to increase, is a potential factor to be optimised. The increase of human resource quality is in linc with a growing concern for environmental protection. There could be a certain approach employed to profitfrom this trend. In addition, the technological capacity should be enhanced to adapt to recent dynamics. In the next chapters of this report, four alternative scenarios are worked out, each embedding these factors in a different way and each designed to

steer the transition along a different route, towards the same destination.

4.1 Defining the criteria for judging the alternative scenarios

The essential shortcomings that Indonesians are facing on a daily basis regarding their water supply are uneven distribution and unreliable quality. Adequate water services are merely available in some major cities. By contrast, inhabitants of remote areas are struggling for water. Furthermore, the reliability of water services is still far from desirable condition. For instance, poor quality and quantity which is not reliable especially in the dry season. To counter this, several management approaches are proposed regarding the transition into a system providing the conditions under in which the issues can be solved. Each approach to encounter the problem and dilemma is based on the basic idea of sustainability. Figure 2 depicts the decision criteria of transition approach in this case.

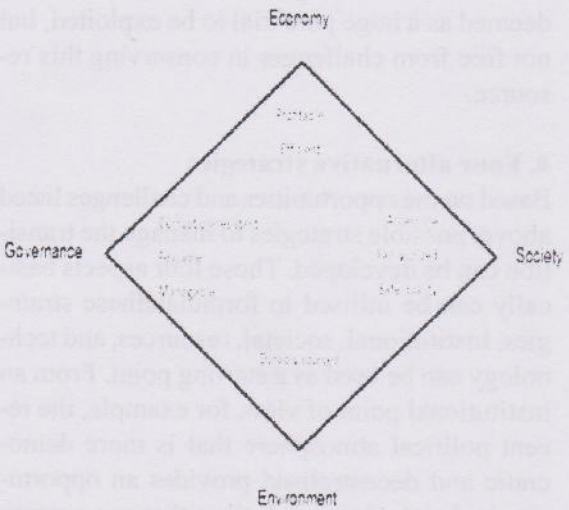

Figure 2:The criteria of sustainability of a drinking water supply system and the main components they include (designed by authors).

From an economic perspective, a water supply system should be able to generate sufficient funds to maintain quality and reliability, cover for costs of renewal and expansion as well as the costs of protecting the water sources it relies upon. Moreover, as water is a basic need of a human being, water supply system has to be generally accessible and provide water that is safe to drink.Continuing, the UNCED (1987), Constanza& Daly (1992) along with Prüss-Üstün et al. (2008) and many others emphasize the importance of protecting the environment and its natural resources. Ground and surface water sources close to settled areas are the most important providers of fresh water for purification into drinking water, and these are under stress in Indonesia even though the country receives abundant rainfall (Sofiani, 2003; Bakker, 2005). Most of the literatureon sustainability is using these three factors (economy, society and environment). However, a successful drinking water supply system needs to be well-governed as well (Constanza& Daly, 1992, McKenzie, 2004).It needs to be manageable and corruption-resistant to work on the long term and it needs to be feasible to be implemented in the first place.

4.2 Community Based Water Supply Management (CBWSM)

The community will serve as the main actor (subject) instead of just being an object of apolicy, including in water supply policy. Moreover, community based management is important because by allowing the community to manage their own resources, they could be more responsible and more inclusive, which simultaneously will lead to sustainability (Carter et al.,1999). Unlike the state-controlled management currentlyin place, this type gives plenty of room to the community to make decisions on the project (Carter et al., 1999).CBWSM, therefore, allows the community to design their own water supply system based on their own initiative and needs (Winters, 2011).

Interestingly, the government contributes to the emergence of community based management. The prominent reason is that in managing this common resource, the government tends to be unserious and even corrupt, which leads to dissatisfaction on the local level (Beard &Dasgupta, 2006). Indonesia is an unexceptional example where water supply is unevenly distributed al-

though there is a state-owned company which is officially responsible for distributing water across the country. This kind of dissatisfaction leads to more involvement on the community level.

The CBWSM approach has several main strengths. Social cohesion through deliberative action is pivotal and culturally embedded in Indonesia. Since a long time ago, deliberation on a local level (Musyawarah or Consultative) has been used as a primary decision making approach. The change of agovernmental system to a bottom-up approach creates the window of opportunity to develop this alternative. In addition, communities are given the power to initiate exploitation and management of their local resources. Particularly the use local wisdom is another opportunity. Indonesia has thousands ethnicities which have various cultures which havetheir own wisdom. It could work effectively on a local level when local knowledge is used to manage water resources.

Although community based management is claimed as socially sustainable (Carter et al.,1999), some weaknesses remain. Geographical challenges related to water sources is one of the weaknesses because water resourcesare not equally available in every community. A potential; lack of local capacity is another crucial issue. It will often be found that people at a local level are less educated. Although it is also true that this type of management facilitates a sort of training to enhance local capacities, in practice some facilitators are unfortunately poorly trained and inexperienced, particularly in short-term projects (Mansuri&Rao, 2003). Moreover, talking about local projects, funding procedures tend to be corrupted by the elite of communities or spending is insufficiently accounted for to the donors (Mansuri&Rao, 2003).

	Strengths	Weaknesses
Community-based water supply management	Strengthens social cohesion	Water sources are unevenly spread over the country
	Windows of opportunity are only needed locally (uses the decentralized system)	Lack of coordination between communities
	Profits from local knowledge and experience	Lack of local social capital(educated and skilful people)
	Raising local awareness of sustainability	Unaccountable funding system

Table 2: Strengths and weaknesses of community-based water supply management

4.3 Centralized Water Supply Management

One of the possible solutions in providing water supply for domestic use is the centralising of water services to the national government. Through this approach, the central government gets the authority in managing and distributing water resources, delivering water to citizens, providing and maintaining infrastructure to fulfil water requirement (Mays, 2004).

There are some rationales to be considered. First, water is a public good that has multiple uses (Braga et al, 2009). Therefore, it requires government intervention to accommodate common interests and to avoid individual exploitations. In addition, government interventions are also needed to avoid market failure that often means poor households do not have an adequate access to water supply services (Bakker, 2007; Bakker et al, 2008). Furthermore, river basins as one of the major water resources are frequently located across boundaries among municipalities or even provinces. Thus, the role of higher level government is required to deal with jurisdiction-related issues as well as to coordinate various sectors within various government levels.

However, there are also some constraints inherently embedded for the national government to manage all aspects of water supply services. One of the major obstacles is the capability of the government itself to man-

age water-related issues. This limitation can be viewed in technical, financial, and institutional terms. Technically, it is very difficult to satisfy more than two hundred million of inhabitants who are spread over the huge archipelagic country Indonesia. Then, financial limitations is also one of the important considerations. Water supply infrastructure needs high investment that cannot be wholly covered by the government budget. Finally, institutional incapability is also an essential issue to be considered. Existing conditions of poor water services in Indonesia, in terms of organisation and regulation, is undoubtedly empirical evidence explaining that institutional capacity is still far from desirable situation.

	Strengths	Weaknesses
Centralized water supply management	Involves less actors	Requires very large investments by the government
	Does not face problems related to transboundary jurisdictions	Technically it is very difficult to serve a big archipelagic country like Indonesia
	Market failure can be possibly avoided	Limiting potential participation that can probably be encouraged

Table 3: Strengths and weaknesses of centralized water supply management

4.4 Privatization of the drinking water supply

Piped water supply by private companies is nothing new. During the industrial revolution many cities in the Western world were supplied with drinking water by private companies (Budds&McGranahan, 2003). In the last decades, as the world has seen a wave of privatizations, the topic has become controversial. Signs of neglect towards the poor and moral objections against the sale of public assets started to grow (Budds&McGranahan, 2003; McDonald &Ruiters, 2005). Bakker (2005) and Sofiani (2003) for example write about the many problems that currently trouble Jakarta's privatized water supply. Most, however, are caused by poor governance and not inherent in a privatized water market (Al Afghani, 2007). This proves the importance of supervision over a privatized water supply market.

McDonald &Ruiters (2005), Sofiani (2003) and Johnstone& Wood (2001) discuss different forms of privatization being practised in the drinking water market. The forms of privatization in this context, are either BOO-type operations (build, own, operate - variations with different acronyms exist, but are similar in nature), concessions to operate the system for several years, or full divestiture, whereby the state sells the water supply system to a private investor. In a BOO-type operation a company finances, builds and operates a system. Figure 3 in chapter 6 depicts this more clearly.

The main strength of privatization is the availability of money and expertise with private utility companies (Sofiani, 2003). This can be very important, because in developing countries, governments often struggle with a lack of financial means and technical know-how. Galiani et al. (2004) mention private companies can supply high quality of drinking water and Sofiani (2003) adds to this, that privatization typically leads to a more efficient and more profitable water market with better service to the customers. The same principles that drive private water suppliers to be efficient and to expand their networks also make them prone to cut corners on environmental and social commitments, such as the connection of poor areas to the network and the protection of water sources (Sofiani, 2003; Budds&McGranahan, 2003). Another issue is the accounting for externalities. This is difficult because these may take years to arise. To make it more complicated, there are external costs as well as external benefits (Budds&McGranahan, 2003; McDonald &Ruiters, 2005), and these will greatly vary over time and space. This brings us to the third risk, which lies in allocation. McDonald &Ruiters (2005) stated that the supply and demand of water should be allocated properly over the country and over the seasons. To sum up, privatizing the water market can accelerate and improve the introduction and expansion of drinking water supply systems in terms of sustainability as long as there is a government carrying out strict supervision and control.

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	Strengths	Weaknesses
Privatized water supply management	Availability of capital and technology	Risk of overexploitation of resources
	Can be done with current stakeholders	Risk of losing public resources
	Incentive to expand services	High water prices
	Good customer service	Lack of control by the public
	High quality and reliability	Bureaucracy needed to control operations
	Can be implemented relatively quickly	Inclusion of poorer areas
		External costs may not be covered

Table 4: Strengths and weaknesses of privatization

4.5 Public Private Partnership (PPP)

The term "public private partnership" (PPP) has become popular in the international discourse. The popularity of PPP has been increased because the old terms "nationalization" and "privatization" have attracted strong supporters and strong opponents. Nationalization -leading to the creation of a very large public sector- has been questioned. However, there is also considerable evidence that privatization -seeking to replace public sector with a huge private sector- is flawed in several aspects. PPP came as the powerful suggestion that it is possible to take the best elements of both of the public and the private sectors and put them together in "partnerships" (Wettenhal, 2006).

Within PPP's scope, private companies take the responsibilities for the operation and maintenance activities, general service contracts, and control over management of facilities, but ownership continues to reside in public hands (Gleick et al., 2002). Figure 3 depicts an illustration of PPP's position between the public and the private sector.

As a result, governments throughout the world have been considering PPPs as a solution to overcome water supply issues because of three key reasons. Firstly, PPPs have been effective in helping governments respond to the increasing demand for water infrastructure services. Secondly, by shifting the burden of capital spending to the private sector, PPPs can help governments to do more with less. Thus, PPP is a good solution for a developing country with a limited budget like Indonesia. Thirdly, PPP contributes to enhanced efficiency in delivering water services (Wettenhal, 2006). PPPs will also generate profit for both of the government and the private sector. Moreover, the two ways control required between government and private sector during the partnership is also effective to counter corruption.

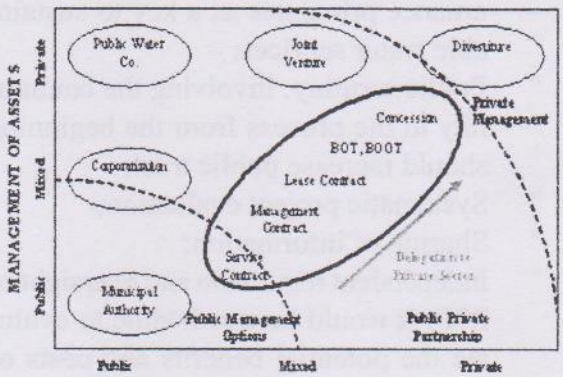

Figure 3: Types of public and private sectors (Source: Blokland et al., 1999)

Despite of all the benefits, PPP also has some drawbacks; PPP involves many actors with different interests, thus in a way it might be less effective than the centralized or privatization approach.Because so many actors must be involved, the implementation of PPP will be complex, costly, and time-consuming. PPPs need to be regulated in order to give incentives to the private sector and to protect consumers from monopoly abuse as well, especially since water is a vital issue and directly affects the livelihood of the consumers. Moreover, the different interests of consumers, investors and the government usually generates friction and conflicts throughout the life of the partnership.

Governments are more concerned with environmental and social issues, while the

private sector's objective is mainly to maximize profit. Periodic bargaining and negotiations over allocation of risks and price setting will be important during the partnership. Furthermore, investments in low-income and scattered areas are will be too risky for the private sector. Thus, the government has to face a trade-off when making potential investments attractive for private investors (Ouyahia, 2006). To ensure the smooth implementation and operation of PPPs, in correspondence with the sustainability criteria discussed in chapter 5.1, there are some measures recommended by Ouyahia (2006) to support the realizations of PPPs in water supply:

- Good governance: There is a need to find tools to better implement good governance principles as a key to sustainable water services;
- Public scrutiny: Involving the community in the process from the beginning should increase public trust;
- Systematic project evaluation;
- Sharing of information;
- Independent regulation and oversight of PPP: It would be worthwhile to evaluate the potential benefits and costs of having an independent regulator, most probably at the provincial level;

If all the measures recommended byOuyahia (2006) to support PPP are being implemented, than PPP will be the best solution to overcome the water supply problems in Indonesia.

	Strengths	Weaknesses
Public Private Partnership	Effective way to increase water infrastructure services	Complex
	Less capital spending for Government	Time-consuming to implement (need to be regulated first)
	Enhanced efficiency in delivering water services	Government makes a trade-off to attract private sector
	Government still hasover quality, price and availability	
	Profitable	
	Corruption resistant	

Table 5: Strengths and weaknesses of PPP

4.6 The best alternative

It does not actually matter to the society in Indonesia who controls or manages the water. Therefore, other criteria such as those stemming from a governance, environmentalor economical point of view, should be used to make the decision.The best alternative is proposed by looking at and carefully weighing all the strengths and weaknesses usingthe decision criteria.

Criteria	Centralization	PPP	Community based	Privatization
Accessibility	-	+	-	+
Fairness of pricing	+	+	+	-
Safe quality	+	+	-	+
Protection of sources	+	+	-	-
Corruption resistance	-	+	-	+
Feasibility	-	+	-	+
Manageability	+	+	+	-
Profitability	-	+	-	+
Efficiency	+	+	+	-

Table 6: Overview strengths and weaknesses of the possible alternatives

Based on the information visualized intable 6 and described above, and the recent conditions in Indonesia, it will be hard to implement a community based water supply system. Geographical conditions make water resourcesunevenly available in different areas. Additionally, Indonesia also still faces lack of local capacity (Mansuri, G and Rao, V., 2003). Both of centralizing and privatization have positive and negative sides. Due to technical, financial, and institutional limitations, it will be hard for Indonesia to implement the centralizing approach. On the other hand, a lack of protection for citizens and the environment under water supply privatization will impose riskson the availability of drinking water for future generations in Indonesia. Therefore, privatization is also not anideal solution.

PPP come as an idea to take the best elements of both of the centralizing and the privatization approaches. A mixed-level public management option will be the best alternative to be implemented in Indonesia. The involvement of the private sector obviously can be a significant support in

terms of financial and technical matters for the government. Financially, the involvement of private parties can reduce the financial burden for the government would need to bear to provide its citizens with drinking water.

Another benefit of implementing public private partnership is related to environmental protection. Unlike with pureprivatization, inPPP the government still has an important role. There is still a kind of checks and balances mechanism between the government and the private sector in this approach. Therefore, environmental issues are still manageable. The government still has a significant power to regulate environmental protection issues.

The most important point when engaging in PPP is how to regulate and share thecompetences and responsibilities of each party proportionally. From both sides, it has to be a clear agreement as well as a strong commitment in sharing benefits and risks.

To sum up, public private partnerships can be a good way instrument by which a t or even improve recent condition of water services in Indonesia. In the context of transition, this approach can be viewed as an instrument to shift the paradigm from individual efforts of fulfilling water requirement which is environmentally harmful to be more manageable water provision. In addition, through this approach the participation of society, in this case the private sector will also be encouraged. It will bring potential improvement in terms of economy, society and ecology that are in line with sustainability principles.

5. Conclusion

There are several problems with Indonesia's current water supply system. The formal water supply system doesn't work properly, so individuals, small entrepreneurs and local businesses are providing water instead. Either for their own household's use, or for others on the informal water market. This causes problems for the environment and for society. On the one hand the uncontrolled sourcing causes environmental degradation, while on the other hand the uncontrolled saleleads to high prices per litre and poor water quality. The main reasons the formal system doesn't work are the failing infrastructure and the lack of a comprehensive legal framework. The first creates the demand for water on the informal market; the latter enables opportunists to provide the supply.

A transition is needed to deal with these problems and to generate solutions which are sustainable in every aspect. It needs to be managed carefully and this will be done guided by the policy perspective. This perspective is suited, because a lack of rules is part of the problem and proper legislation is essential for the solution. The policy entrepreneurs who will initiate the transition will be the provincial governments. They will join private investors in public-private partnerships which will be set up in every province to operate and maintain the water supply system.

As Huitema and Meijerink (2010) state, a policy entrepreneur should have his or her transition management strategy ready when a window of opportunity opens up. The most important part of the strategy to realize the transition in Indonesia's water supply system is to have the blueprints for an effective new system ready at hand. Developing such a system for a country as big and as diverse as Indonesia is a very precarious operation. This is why it is good to start the transition on a smaller scale with three pilot provinces. In this way lessons can be learned from mistakes at an early stage and the system can be perfected whilst at the same time on a national level the parliament can work on the legal framework, based on the pilot projects and the same lessons.

For the pilot projects to be successful, the provinces of Jakarta, East Kalimantan and Maluku must have a centralized and safe

water supply system with proper billing and sustainable sources. However, the road to that point will be long and the process should not be rushed.

When after some time the water supply in the pilot provinces is working well, the national government can assume its role as a policy entrepreneur in this transition and implement it on a nation-wide scale as soon as a window of opportunity opens up.

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