

# Case Study— PDAM Tirtanadi, Indonesia

Alizar Anwar and Maria Salvetti

AUGUST 2017

## Key Characteristics of Aggregation Case Study

	PDAM Tirtanadi, Indonesia
<b>Context</b>	<ul style="list-style-type: none"> <li>• Low-income country</li> <li>• Aggregation covering urban areas</li> <li>• Low level of water performance</li> </ul>
<b>Purpose</b>	Performance, professionalization, economic efficiency
<b>Scope</b>	WSS functions and services
<b>Scale</b>	<ul style="list-style-type: none"> <li>• Administrative boundaries</li> <li>• Localities covered: 7 for water and 2 for wastewater</li> <li>• Population covered: 1,803,917 inhabitants for water and 83,440 for wastewater</li> <li>• Coverage: 20% for water and 4% for wastewater</li> <li>• Connections: 360,783 for water and 16,688 for wastewater</li> </ul>
<b>Process</b>	Bottom-up, voluntary, and incentivized
<b>Governance</b>	<ul style="list-style-type: none"> <li>• Delegated (25 years)</li> <li>• Public company</li> <li>• Decision making: regular meetings between PDAM Tirtanadi and local water utilities</li> <li>• Asset transfer: at the end of the 25-year agreement, all assets will be returned to the respective utilities</li> <li>• Liability: liabilities and debts occurring after signature of cooperation agreement are taken over by PDAM Tirtanadi</li> <li>• Staff transfer: part of the staff was transferred</li> <li>• Clear entry and exit rules</li> </ul>
<b>Outcome</b>	Increased performance and costs
<b>Findings</b>	Technical and management skills from PDAM Tirtanadi are to be transferred to other utilities through cooperation; limited staff transfer occurred (40 employees from PDAM Tirta Deli as well as employees from other local water utilities); PDAM Tirtanadi reached cost recovery in 2013, but further tariff increases are needed to fund investment needs and maintain financial sustainability

In 1998, Indonesia's central government encouraged water services to regroup to improve water supply and sanitation (WSS) quality and coverage. Following a strengths, weaknesses, opportunities, and threats (SWOT) analysis, aggregation in the form of a cooperation agreement was decided on at local level and was supported by local governments from the province of North Sumatra. As a result, the water utility of Tirtanadi (PDAM Tirtanadi) signed agreements with nine local PDAMs (water utilities), with a goal of transferring some of its technical, financial, and managerial skills and expertise to those utilities. A decade later, in 2009, that aggregation process proved successful: three water utilities ended their cooperation agreements because they had gained sufficient skills and knowledge to manage their water services by themselves.

### **A Water Sector Undergoing Important Reforms in the 1990s**

Before 1997, the provision of drinking water in Indonesia was a public duty supervised by the municipalities, whereas the central government's main role was to establish a standard water sector policy and prepare technical assistance for the sector development. Because of economic turmoil in 1997, the government of Indonesia began to place a stronger emphasis on water, recognizing it as both a crucial economic good and a social good for society. As a result, the Indonesian water sector experienced major changes following important institutional, economic, and political reforms that enabled private sector participation in the 1990s. In 2004, a regulation regarding water resources was enacted to promote integrated and sustainable water management and to decentralize further responsibilities from the national level to the provincial governments. Further regulations opened the possibility for the development of water provision through private sector participation, associations, or self-provision. A regulatory body was also established to promote good-quality service at a realistic price, to ensure a balance between consumers' and

providers' interests, and to improve the efficiency of drinking water services.

### **A Province-Led Initiative Encouraging PDAM Tirtanadi to Establish Cooperation Agreements**

North Sumatra is a province of Indonesia that is located on the island of Sumatra. It covers 73,000 km<sup>2</sup> and is populated by 13.3 million inhabitants.<sup>1</sup> Only 54 percent of its population has access to a drinking water supply; in comparison, under the Millennium Development Goals (MDGs), the target was to achieve 71 percent coverage by 2015 and 100 percent coverage by 2019. The construction of water supply systems in Medan, North Sumatra's capital city, started in 1905—during the colonial era—and its operation was managed by Waterleiding Maatschappij NV Ajer Beresih. After Indonesia's independence was recognized in 1950, the management of the company was handed over to the provincial government of North Sumatra. In 1979, a provincial regulation established a provincial water supply enterprise under the name of PDAM Tirtanadi North Sumatra Province. In 1991, the regulation was amended to allow the water utility to also manage the sewerage system. To achieve the MDG target, PDAM Tirtanadi—which already had good technical, financial, and management skills—was expected to help weak local utilities improve their performance. In April 1998, within this context, the Ministry of Home Affairs provided guidelines to PDAM Tirtanadi on establishing a holding company; that was one of several possible options to improve water and sanitation services in North Sumatra. Following a review of those guidelines, the PDAM Association of North Sumatra decided that another option—arranging a cooperation agreement between PDAM Tirtanadi and local water utilities—was preferred. The concept of cooperation was then presented to the governor and the head of the districts, who, in March 1999, formed a merger team to formulate the cooperation framework. In July 1999, PDAM Tirtanadi and PDAM Tirta Deli signed a cooperation agreement, which stated that PDAM Tirtanadi would

manage water provision in some of PDAM Tirta Deli's service areas. In the following 14 months, PDAM Tirtanadi arranged cooperation agreements with nine other water utilities in several districts of North Sumatra—namely, Simalungun, Deli Serdang, Toba Samosir, South Tapanuli, Central Tapanuli, Mandailing Natal, Nias, South Nias, and Samosir. In 2000, PDAM Tirtanadi also took over the operation and maintenance of the sewerage system in the city of Parapat, a tourist resort with a population of 6,105 inhabitants. (See map 1 and table 1.)

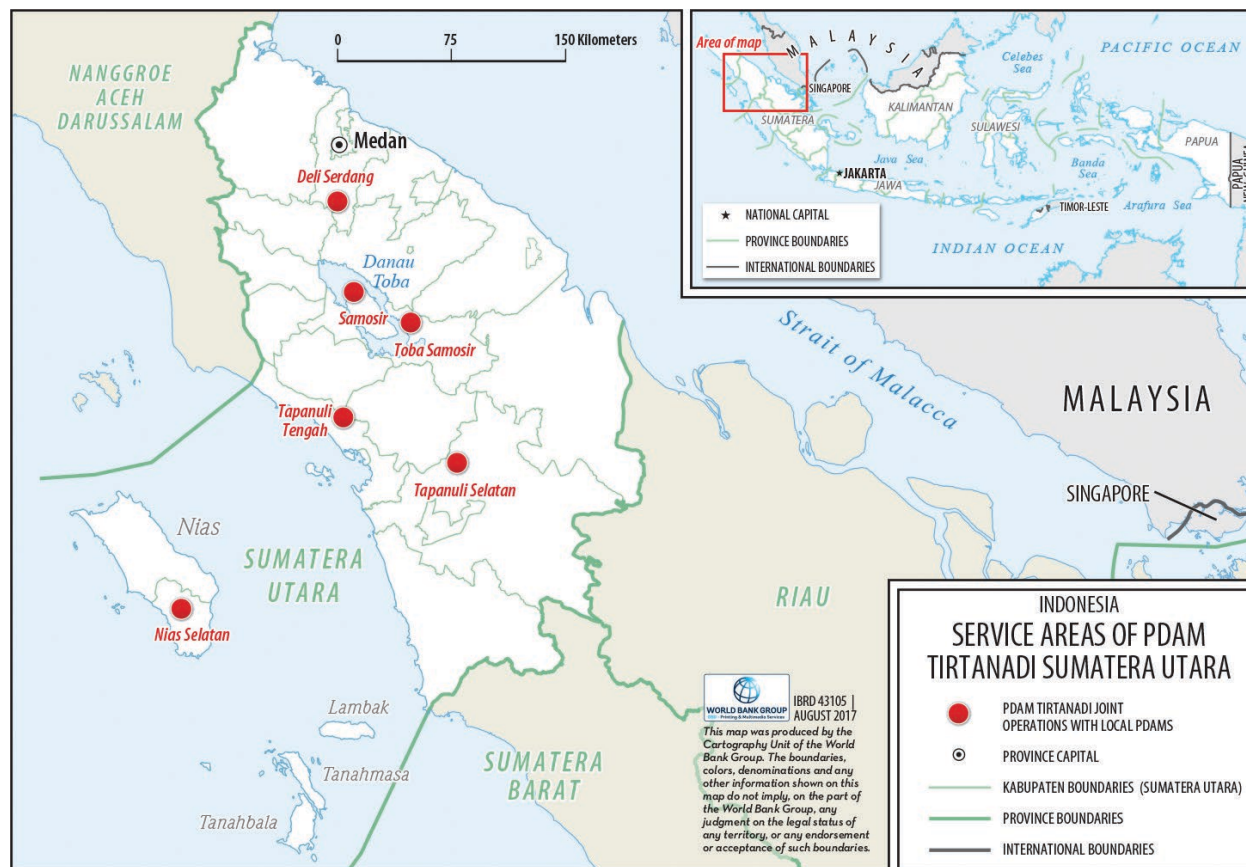
The cooperation agreement between PDAM Tirtanadi and the other utilities covers a period of 25 years. The agreement is voluntary, although it is recommended by the central government and supported

by the provincial government. It encompasses all WSS functions and services. The existing WSS asset, for which ownership remains under local water utilities, has been handed over to PDAM Tirtanadi for the duration of the agreement. At the end of the agreement, PDAM Tirtanadi will return all assets to the individual water utilities.

### A SWOT Analysis to Support Aggregation and Identify Its Advantages

The rationale for the cooperation agreement was analyzed using a strengths, weaknesses, opportunities, and threats (SWOT) analysis jointly conducted by PDAM Tirtanadi and the local water utilities. The strengths of PDAM Tirtanadi are, among others, (a) its

**MAP 1. Service Area of PDAM Tirtanadi**



Source: World Bank.

**TABLE 1. Municipalities Where PDAM Tirtanadi Operates**

	Medan	Deli Serdang	Samosir	Toba Samosir	Tapanuli Tengah	Tapanuli Selatan	Nias Selatan
Total population (inhabitants)	2,137,011	1,911,797	121,924	175,226	324,006	204,615	295,914
Population served (%)	73.2	4.9	12.8	15.7	8.2	32.9	2.9
Number of house connections	415,200	18,762	3,125	5,510	5,309	13,479	1,740

Source: PDAM Tirtanadi, 2004.

experience and expertise in water and wastewater utilities and (b) its equity and good performance. The identified weaknesses of local PDAMs consisted of (a) the absence of technical, financial, and management skills and expertise; (b) a lack of funds for the optimization of the systems; (c) a low motivation to develop; and (d) a low service coverage area. The strengths of the local utilities comprise (a) raw water availability, (b) existing water facilities, and (c) potential consumers. Following the SWOT analysis, aggregation was perceived as an opportunity to use the strengths of PDAM Tirtanadi to compensate for the weaknesses of local PDAMs. Further analyses explored the opportunities offered by an aggregation in the form of a cooperation agreement. Provincial and district governments supported that aggregation option because it would allow for technology and expertise transfer, drinking water services improvement through the 2Q1C program (quantity, quality, continuity), and increased revenues. As such, the cooperation agreement was seen as a means to improve coverage and performance, to accelerate the achievement of MDGs, to enhance managerial and human resources capacity, and to increase economic efficiency through full cost recovery pricing.

### **An Aggregation Leading to a Successful Capacity and Expertise Transfer**

Although local water utilities remain under the stewardship of local governments, PDAM Tirtanadi is in charge of the organization and management of the water service operation. It has established a branch

office in the territory of each utility to manage customer relationships. Each branch office reports to the headquarters in Medan. Meetings between PDAM Tirtanadi and the local utilities are conducted regularly. Any dispute is brought in front of the governor for final and binding arbitration. Upon the signature of the cooperation agreement, PDAM Tirtanadi became responsible for all liabilities taken on behalf of other utilities during the 25-year agreement. After the signature of the agreement with Tirta Deli, 40 employees were transferred to PDAM Tirtanadi. Those employees underwent a selection process to determine their rank and job assignment. Employees from other local water utilities were also transferred to PDAM Tirtanadi when cooperation agreements were signed. Drinking water tariff adjustments were made to support the five-year program to strengthen the water utilities' performance. PDAM Tirtanadi has reached full cost recovery, but further tariff adjustments are needed to avoid any imbalance in individual water utilities' financial capability. The requirement to achieve full recovery is crucial to allow the water utilities to sustainably finance their operational costs as well as their investment needs. According to the provisions of the cooperation agreements, PDAM Tirtanadi applies the existing tariff issued by the district utility, which will be adjusted based on the tariff-setting guidelines issued by the Ministry of Home Affairs. The local regulation specifies that water tariffs are decided by the head of the regency on the basis of a proposal formulated by the local utility.

In February 2009, responsibility for the PDAM Tirtanadi branches of Nias, Madina, and Simalungun

**TABLE 2. Performance Level in PDAMs Simalungun and Nias When Responsibility Was Turned Over to Their Respective Local Governments**

Performance indicator (2014)	PDAM Simalungun	PDAM Nias
Service coverage (%)	33.8	27
Continuity of service (hours/day)	18	23
Staff ratio per 1,000 connections	9.4	6.7
Consumer complaints handled (%)	100	88

Source: Badan Pendukung Pengembangan Sistem Penyediaan Air Minum (BPPSPAM) monitoring of PDAMs' performance in Indonesia.

was returned to the branches' local governments because those branches had acquired the skills and knowledge to efficiently manage their own water supply provision. (See table 2.) Since then, PDAM Tirtanadi operates water provision for only six water utilities—namely, Deli Serdang, Toba Samosir, Samosir, Central Tapanuli, Tapanuli Selatan, and South Nias regencies. As such, the aggregation can be seen as a success because it reached its purpose of professionalization and expertise transfer.

## Aggregation Case Study at a Glance

### Key Lessons Learned from the Aggregation Case Study

#### *Lesson 1: Aligning Interests of Stakeholders at all Levels is Essential*

When mandated, aggregation is generally designed at the national level. Nevertheless, a broad consultation with local stakeholders should still be organized early in the process to ensure the alignment of interests between national and local levels. Such an early engagement helps build stakeholder ownership of the reform. It allows potential problems or resistance to be tackled, and their potential impacts to be diffused, thereby improving conditions for success. In the case of PDAM Tirtanadi, national and local stakeholders have worked together to come up with the option best suited for aggregation, thus successfully aligning their interests. On April 20, 1998, the Ministry of Home Affairs provided guidelines to

PDAM Tirtanadi on the establishment of a holding company as one of the options to aggregate and improve WSS in North Sumatra. However, on April 30, 1998, following a review of the guidelines by the PDAM Association of North Sumatra, PDAM Tirtanadi decided that its preferred aggregation option was to arrange specific cooperation agreements with other local water utilities. That aggregation option was then presented to governors and heads of districts for approval. Two years later, the cooperation agreement between PDAM Tirtanadi and PDAM Tirta Deli was signed.

#### *Lesson 2: Having a Large Utility as Nucleus can Work, But Aggregation of Similar-Sized Small Utilities also can be Successful*

In Indonesia, one of the rationales for aggregation was to have PDAM Tirtanadi—which already has good technical, financial, and managerial skills—help other, smaller, surrounding utilities build and develop those competences.

#### *Lesson 3: Asset Ownership, Development, and Management Depend on the Governance form of the Aggregation*

In Indonesia, WSS assets belong to either the provincial governments or the local government, depending on the status of the utilities. Investments are funded through public funds coming from provinces, municipalities, and international aid.

#### *Lesson 4: Managing Staff Transfer is Key to Mitigating Transaction Costs*

PDAM Tirtanadi hired 40 employees from PDAM Tirta Deli. Those employees went through a selection process to determine their rank and job assignment. Employees from other local water utilities were also hired when cooperation agreements were signed.

## Note

1. 2013 census.



© 2017 International Bank for Reconstruction and Development / The World Bank. Some rights reserved. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. This work is subject to a CC BY 3.0 IGO license (<https://creativecommons.org/licenses/by/3.0/igo>). The World Bank does not necessarily own each component of the content. It is your responsibility to determine whether permission is needed for reuse and to obtain permission from the copyright owner. If you have questions, email [pubrights@worldbank.org](mailto:pubrights@worldbank.org).