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Indonesian Water Security: Improving but Still Subject to Shocks

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Key Points

- Population growth and an expanding manufacturing sector will increase demand for water.
- New dams will likely improve agricultural water supplies, at least in the short-term, but will not improve municipal supplies.
- Water privatization in Jakarta has failed to improve service delivery. The return to public management, however, will only succeed if adequate funds are made available.
- Expanding access to clean water resources will improve social and economic outcomes.

Summary

Indonesia is not water scarce as it has enough water to satisfy the needs of its population and economy. Uneven distribution, poor management and a lack of infrastructure, however, have left parts of the country with insufficient access to water. Increased private investment in Jakarta failed to significantly improve access to clean and affordable water. Returning water resources and infrastructure to public management will only lead to favourable outcomes if the necessary funds are made available. Without considerable investment, water security in Indonesia will remain tenuous and subject to rapid deterioration.

Analysis

Indonesia contains about 21 per cent of the total water resources in the Asia-Pacific, equal to about six per cent of the world's total. It is not a water-scarce country, but poor water management, limited infrastructure and rapid economic development has driven scarcity in parts of the country. Java, where almost 60 per cent of the population lives, has less than ten per cent of the country's water. Kalimantan, on the other hand, has six per cent of the population and 30 per cent of the water. Due to Indonesia's physical geography it is not possible to redistribute water from areas of abundance to areas of scarcity.

The warm waters that surround Indonesia create a relatively stable equatorial climate. Monsoons drive seasonal variations and bring considerable amounts of rain during the wet season. While rainwater harvesting is becoming more popular, it is still underdeveloped. Climate change, however, has the potential to disrupt the established alternating dry and wet periods that it usually experiences, possibly leading to drier conditions in the future. The dry season could become more arid, leading to greater demands for water. The wet season, on the other hand, could be shorter and more intense. If this occurs, parts of the country are likely to become increasingly susceptible to flooding and it will be increasingly challenging for this rainfall to be captured and stored. While the country has enough water to satisfy the needs of its 255 million citizens, its uneven distribution means that sections of the country are considered water scarce.

The Indonesian Government aims to ensure universal access to sanitation and drinking water by 2019. In 2015, 32.3 million Indonesians, approximately 13 per cent of the population, did not have access to clean water sources. While the situation has improved compared to a decade ago, progress is not occurring at a rate fast enough to suggest that the entire population will have access by 2019. In the long-term, the situation is unlikely to be significantly different and by mid-century Indonesia is likely to suffer from high water stress, according to the World Resources Institute.

East Nusa Tenggara Province, the country's most south-eastern region, is one of the most poorly developed parts of Indonesia. Those living in the region rely on rainfall and groundwater. During dry periods the province turns to contaminated water sources, which leads to a rise in the incidence of disease. A lack of rainfall also threatens the regions

Rapid economic growth across the country has not been accompanied by infrastructural development. Changing land-use patterns, deforestation and the spread of extractive industries have altered the natural landscape, left many areas susceptible to floods and increased the incidence of water pollution.

By 2030, the Indonesian population is projected to increase to 295 million. The majority of the population will live in cities. At the same time, the level of industry could increase. President Joko "Jokowi" Widodo has a focus on making Indonesia a centre for manufacturing. These developments, if they come to pass, will place greater pressure on the country's water supply, particularly as Jokowi also desires to increase agricultural production.

Increasing Demand for Water

The agricultural sector is the main consumer of water, 80 per cent of surface and ground water is used for the irrigation of crops. The industrial sector faces considerable challenges, however, as Indonesia could face increased completion from other South-East Asian countries. Securing foreign investment could prove difficult as supporting infrastructure, such as electricity and transport networks, remains underdeveloped compared to elsewhere in the region. The sector has also declined for the past 17 months, suggesting that it could continue to face considerable challenges in the future.

If industrial sector growth recovers, competition for water between it and the agricultural sector will also rise. Industry also has the potential to pollute water sources, further diminishing water security. The Citarum River in West Java, for instance, has been labelled the dirtiest river in the world due to the high level of consumer and industrial waste littering its waters. More than 35 million people continue to rely on it for drinking and washing water, despite some nearby village wells containing four times the recommended safe levels of mercury. It also supplies surface water to Jakarta, the city of Bandung, the greater Jakarta region and irrigates five per cent of Indonesia's rice farms.

Regulations prohibiting the dumping of waste and effluent into waterways exist, but are poorly enforced. The disposal of waste is a major problem, landfill sites struggle to deal with the 64 million tons that Indonesians produce each year. Recycling could reduce some of the pressure, but it has been slow to develop. The process is also costly for municipalities to implement and can be expensive to operate. The alternative is likely to be far costlier, however, as cities and waterways continue to choke on waste, much of which could be repurposed and reused.

Developing Water Infrastructure

Jokowi was elected on a pro-development platform in 2014. As part of his electoral campaign he promised to build 65 dams during his five year term in office. The Public Works and Housing Ministry has the largest budget allocation for 2016 at 104.1 trillion rupiah ($10.8 billion). Basuki Hadimuljono, the Public Works and Housing Minister, has indicated that improved irrigation systems will be a major part of the government's infrastructure development. Details on infrastructure development for non-agricultural water resources, however, remain sparse.

The Indonesian Government continues to focus on improving the amount of water available to the agricultural sector. There are currently 22 dams under construction across the archipelago and 9.12 trillion rupiah ($952 million) has been earmarked to begin building another eight in 2016. The 2016 infrastructure budget is the highest on record, but given the slow pace of government spending and regulatory hurdles, this might not lead to greater infrastructural development.

Some of these dams have faced considerable hurdles in their construction. The filling of Jatigede Dam, the country's second-largest, was delayed due to difficulties in the relocation of local residents who refused to move from the area. Many of the residents argued that the

terms of the compensation package they received were unfair and did not adequately cover the cost of relocating. Local concerns present another challenge to the development of water resources throughout the country.

Dams will benefit the agricultural sector, at least in the short-term, as they allow for the wider adoption of irrigation. Once demand for water surpasses the capacity of the dam, however, the agricultural sector is in the same predicament it was before. Addressing demand-side pressures will also help to ensure long-term water security.

Dams are unlikely to solve the problems faced by the Indonesian water sector. Failing to develop and maintain other water infrastructure will only worsen the situation. According to the World Health Organisation and the United Nations, only 22 per cent of Indonesians had access to water piped onto their premises in 2015. This lack of water infrastructure leads to negative health, economic and human development outcomes. Without the infrastructure to get clean water to where it is needed the security of residents and industry will remain tenuous.

Impact of Water Privatisation

Private companies were encouraged to invest in Jakarta's water sector in 1997. Underinvestment from the public sector had led to poor infrastructure and a lack of service to many parts of the city. It was estimated in 1995 that the state-owned water operator, PAM Jaya, could only serve 340,000 households - about 42 per cent of the city's population. In the early 1990s, the World Bank loaned the public operator funds to improve the level of service it provided. By the end of the decade, the World Bank was actively lobbying for the increased involvement of the private sector.

President Suharto invited Thames Water Overseas (TWO) from England and Suez Lyonnaise des Eaux from France to become PAM Jaya's partners. After his ousting in 1998, these two companies adopted domestic arms, PT Thames PAM Jaya (TPJ) and PT PAM Lyonnaise Jaya (Palyja) respectively. After TWO sold its Indonesian interests to Acquatico International in Singapore, TPJ became known as PT Aetra Air Jakarta (Aetra). These foreign companies were contractually obliged to improve the level of service provided by PAM Jaya, to date, they have failed to uphold these obligations.

The private operators were invited to reduce the amount of unaccounted water – water that is lost due to theft or leaks. Since the beginning of their involvement, however, they have consistently failed to meet their targets. Meanwhile, the cost of water delivery for those lucky enough to get it rose considerably. Since 1998, the average water tariff has increased by 240 per cent. Water is considerably more costly in Jakarta compared to Singapore, Manila, Kuala Lumpur and Bangkok. Piped water remains unavailable for the majority of Jakarta's citizens who continue to rely on groundwater and expensive water vendors.

In 2015, the Constitutional Court annulled the 2004 Water Resources Law. Critics of the law argued that it encouraged the privatisation and commercialisation of water resources to the detriment of the community. Its abolition means that private companies can no longer be granted exclusive rights to water resources, such as rivers, springs, lakes and swamps.

Instead, they can apply for licenses that give them access to specific quantities of water that are determined by the government. The annulment of the law could return the operation of the city's water supply to the public sector, which could lead to the lowering of water tariffs, making it cheaper for consumers. Without increased public investment in the water network, however, there will not be significant improvements to the delivery of water in Jakarta.

Increased Water Pollution

Water pollution has an impact upon human health, the economy and industrial growth. Poor quality water sources have been linked to increased cancer rates, skin disease, mental illness and slow childhood development. Water shortages and increased pollution can force businesses to shut down. Industries in cities, such as Jakarta and Surabaya, have been forced to close during dry years due to a shortage of clean water. Fisheries and aquaculture have also been adversely affected as poor quality water damages fish stocks.

According to the 2012 Demographic and Health Survey, bottled water is the most common source of treated water in Indonesia with close to 30 per cent of the population regularly purchasing it. Relatively few Indonesians have water piped into their dwelling and most rely on protected wells. Those that obtain drinking water from non-improved sources do so mainly from unprotected wells, springs, rivers and streams. Nationally, 70 per cent of the population use an appropriate water treatment method, such as boiling, bleaching, straining or filtering, prior to consuming water.

Increased rainfall and flood conditions, as a result of climate change, could make water-borne disease more prolific. Floods can rapidly overwhelm urban infrastructure, leading to sewage spill-over and the contamination of fresh water sources. Without adequate infrastructure to protect and treat water, the likelihood of water-borne disease pandemics increases.

Poorer Indonesians are particularly exposed to poor quality water. Those that reside in urban slums lack basic sanitation facilities and are less likely to be connected to wastewater treatment plants. These areas are at higher risk of water-borne diseases such as cholera, dysentery, gastroenteritis, typhoid and hepatitis A. Improving access to sanitation facilities and clean sources of water as well as increasing awareness of proper hygiene practices will help to reduce the spread of disease.

Water Security to 2030

Indonesian water security is likely to continue to improve up to 2030, but universal access is unlikely to be achieved by this time. As the population continues to grow and economic diversification puts increased stress on the water supply it is vital that efforts to improve and expand the distribution network continue. The poor results of water privatisation in Jakarta suggest that the government is best placed to ensure that water infrastructure is built in an equitable manner for the benefit of all Indonesians. To date, however, it has appeared unwilling to invest in water infrastructure that will improve social and economic outcomes.

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