

# CURRENT TRENDS IN PRIVATE FINANCING OF WATER AND SANITATION IN ASIA AND THE PACIFIC

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The present paper shows the current trends in private sector investment in the water and sanitation sector. After peaking in 2007, private investment in the water and sanitation sector has been volatile. The decline in private investment has also been accompanied by a shift in the type and size of investments taking place. Post-2007, private investment is increasingly concentrated in a few large and wealthy countries and municipalities; and are bankrolled and developed by smaller, regional-based investors. This is especially worrying for low-income countries, which stand to benefit the most from private investment, but have been receiving less than 1 per cent of the total project allocations in the sector. The huge financing gap requires more innovative financing that can only come by attracting private sector capital to improve water and sanitation services in the Asia-Pacific region, especially for the least developed and low-income emerging economies.

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I. INTRODUCTION

Achieving universal access to safe and affordable drinking water along with adequate sanitation (Sustainable Development Goal 6) are essential to improving people’s livelihoods and the environment in Asia and the Pacific. It remains, however, a huge challenge across the region. Although 94 per cent of the population has access to improved drinking water, only 65 per cent of it has access to basic sanitation facilities; that means that almost 1.5 billion people lack sanitation services. The “access to water” coverage for Asia and the Pacific is comparable to other regions (table 1), but “access to improved sanitation” in the region lags significantly (table 2). Moreover, wastewater is

Table 1. Access to improved water source

Region	National	Rural	Urban
Latin America and the Caribbean	94.63	83.90	97.38
Middle East and North Africa	93.50	89.32	95.67
North America	99.26	98.28	99.46
Sub-Saharan Africa	67.54	55.82	86.75
East Asia and the Pacific	94.14	90.19	97.34
South Asia	92.37	90.88	95.33
<b>East South Asia and the Pacific</b>	<b>93.25</b>	<b>90.53</b>	<b>96.33</b>
Europe and Central Asia	98.49	96.06	99.41
World	90.95	84.58	96.45

Source: World Bank, Private Participation in Infrastructure dataset. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

Table 2. Access to improved sanitation facilities

Region	National	Rural	Urban
Latin America and the Caribbean	83.15	64.12	87.95
Middle East and North Africa	91.14	86.89	93.31
North America	99.98	99.90	100.00
Sub-Saharan Africa	29.79	23.30	40.37
East Asia and the Pacific	77.21	64.33	87.10
South Asia	44.77	35.07	64.60
<b>East South Asia and the Pacific</b>	<b>60.99</b>	<b>49.70</b>	<b>75.85</b>
Europe Central Asia	93.08	89.22	94.67
World	67.53	50.33	82.19

Source: World Bank, Private Participation in Infrastructure dataset. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

often discharged into rivers or seas without treatment. Between 80 and 90 per cent of all wastewater produced in the Asia-Pacific region is released untreated (ESCAP, UN-Habitat and Asian Institute of Technology, 2015). The situation is particularly alarming in the coastal zones of South, South-West and South-East Asia. For instance, an estimated 77 per cent of the wastewater released in Thailand is untreated, 82 per cent in Pakistan, 84 per cent in Armenia, and 81 per cent in Viet Nam.<sup>1</sup>

Incomplete and ageing infrastructure systems face stress from increasing consumption, leakages, theft and extreme weather events, which affect the quantity and quality of water, and the distribution networks that supply it. The dilemma is how to pay for water and sanitation investments, and whether local, municipal or national governments will have the financing to invest and achieve Sustainable Development Goal 6. More than 80 per cent of the financial investments in water and sanitation come from public sources. Public sector funds are mainly from local or municipal governments and have not sufficiently covered the needs of growing populations and improved the performance of existing water utilities. Developing country governments are constrained by the total amount of funds they can raise through taxes, and budgetary resources compete for many worthwhile programmes in all sectors. Governments complement their own resources with official development assistance (ODA), and, when available, from domestic and international private sector resources. While commercial finance is generally far more abundant than public finance, it is also substantially more risk averse. Commercial finance will not be channelled if the risk-return criteria of private investors and lenders are not met. While there has been much discussion about accessing the private sector through public-private partnerships (PPP), experiences of these collaborations in the water and sanitation sectors have significantly fallen short of expectations.

In the present paper, the current trends in private sector financing for the water and sanitation sectors in the Asian and Pacific region are examined and the motivation behind private investments, their destination and source countries, and the size of the investments are analysed. The decrease in private investments in water and sanitation over the past several decades is highlighted. Investments by global water multilateral corporations have steadily decreased in the sector. This slack has been taken up by smaller private regional and local water investors, but it has not been enough to cover the gap. This paper is organized as follows. Section II presents the total investment needs of the water and sanitation sector in Asia and the Pacific. Section III contains an outline of the water and sanitation sector financing architecture, and highlights of some of the key private sector investment trends. Section IV then provides a simple model to explore the determinants for private investment in water and sanitation in the region. Section V concludes and includes policy recommendations on mobilizing private financing in the water and sanitation sector in Asia and the Pacific.

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<sup>1</sup> See <https://sdgasiapacific.net/>.

## **II. ASIA-PACIFIC WATER AND SANITATION FINANCING NEEDS**

Physical capital investments in water and sanitation globally, excluding operation and maintenance costs, need to triple to \$1.7 trillion to meet Sustainable Development Goal 6 by 2030. This is three times the amount that has been historically invested in the sector (Hutton and Varughese, 2016). The Asian and Pacific region requires \$800 billion, or \$53 billion annually, in investment over the period 2016–2030 to meet its water and sanitation infrastructure needs (ADB, 2017). However, according to the most recent UN-Water Global Analysis and Assessment of Sanitation and Drinking Water report of 2017, 80 per cent of countries globally reported insufficient financing to meet national water, sanitation and hygiene access targets, and many countries in the Asia-Pacific region are lagging significantly in this regard (WHO, 2017). To attract investments and make progress towards achieving water and sanitation-related Sustainable Development Goals, countries in the region must focus on policy and actions, and define strategic frameworks to improve the financial sustainability and resilience of water systems and infrastructure. This requires governments to strategically mobilize public resources and expand opportunities for private investment.

Water and sanitation infrastructure is ultimately paid for by one, or a combination, of the following parties: users through tariffs or charges; taxpayers through local and national taxes; or aid donors through ODA. Traditionally, the largest funding sources are from local sources, primarily local and municipal government coffers, and, to some extent, from user fees. Local domestic banks also play a significant role, although related accurate data are scarce. Local banks mostly provide financing for working capital or operational or current expenditures of short maturity. Rarely do local banks finance longer-term capital investments. International aid, foreign banks and foreign private companies also extend funds for water and sanitation infrastructure, but the total amount is a much smaller share of total expenditure (Winpenny, 2003).

In the mid-1990s, the public sector provided 65 to 70 per cent of the sector's resources, while the domestic private sector covered 5 per cent, ODA was responsible for the 10 to 15 per cent and the international private sector investors, consisting of banks and multinational water companies, covered the remaining 10 per cent (Hahm, 1996). Two decades later in the mid-2010s, the breakdown skewed even more to local and public sources, with a notable reduction in private international funding.

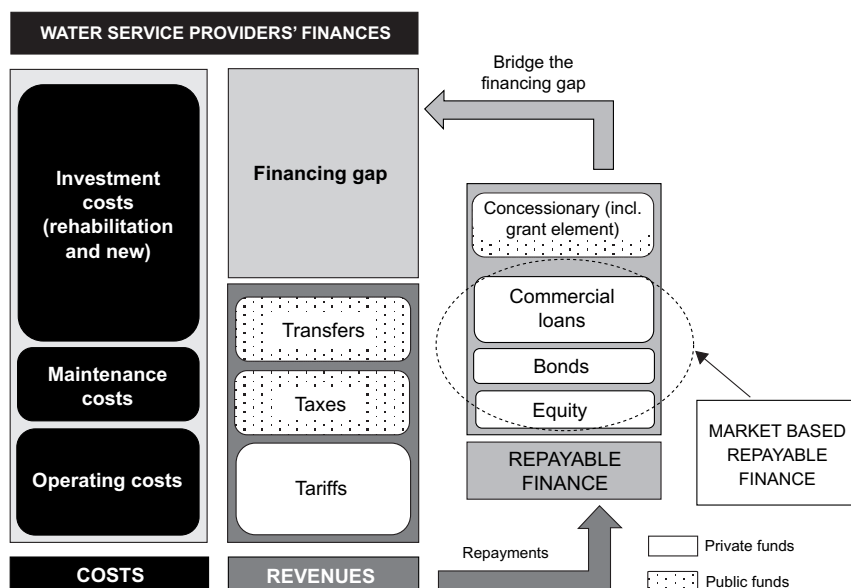
Private investment in water and sanitation has tended to occur in spurts, not as a steady flow. It takes place when there has been strong demand for investing in water and sanitation services infrastructure (from the public, government officials, and the water utilities themselves) and when there is ample financing. Given the vast water and sanitation investment requirements, existing sources of funding do not cover the needs. Countries must not only tap into new sources of finance to meet growing demand, but they also need to fund adequate operations and maintenance required for more sustainable services.

### III. WATER AND SANITATION FINANCING ARCHITECTURE

Physical investments in water and sanitation, such as major network expansions and new wastewater treatment facilities, are capital intensive with high upfront costs and long payback periods, repaid in local currencies. Investments require long-term financing (long maturities), preferably with ample grace periods to accommodate long construction schedules, and in local currency to minimize foreign exchange risks. The water and sanitation sector has historically relied on public funding to meet its investment needs. Municipal or local governments, regional or provincial, or national Government – through taxes, transfers, tariffs, and user fees – are the main funders of water and sanitation infrastructure. Accordingly, in most countries, government-owned agencies or organizations are responsible for drinking water supply and wastewater treatment.

The current financing architecture relies on public, private and ODA investments. With a few exceptions, developing Asia and Pacific countries have made substantial progress towards the delivery of water services provision, but many have not fared as well on the treating wastewater and the delivery of sanitation. Population growth and rural to urban migration will continue to pose significant challenges for the provision of water, and especially sanitation services. Figure 1 shows the financing framework for the

**Figure 1. Financing framework for water and sanitation investments**

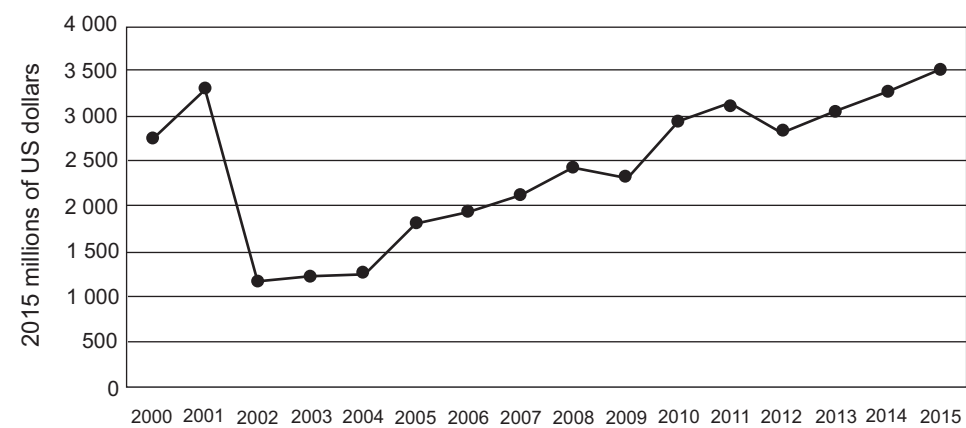


Source: OECD (2010).

water and sanitation sector. The demand for water and sanitation investment exceeds the supply of funding sources. Taxes and user fees cannot cover the investment needs. The financing gap needs to be filled from private sector sources.

In many developing countries, the water sector’s cash flow does not meet the mark of financial sustainability for either service provision or sector development. Accordingly, ODA for water and sanitation is sought. However, ODA totals are approximately \$4 billion – a far cry from the \$50 billion in investments required by the sector (figure 2). ODA includes bilateral support for water and sanitation. Australia and Dutch aid have played significant roles, but regional donors, such as Japan and the Republic of Korea, have also become major players in recent years. For example, K-Water, a specialized water company of the Government of the Republic of Korea, invests in overseas water projects by taking equity stakes and financing water and sanitation projects; many of the projects are co-financed with multilateral development banks.

**Figure 2. Total overseas development assistance for water and sanitation in Asia and the Pacific**



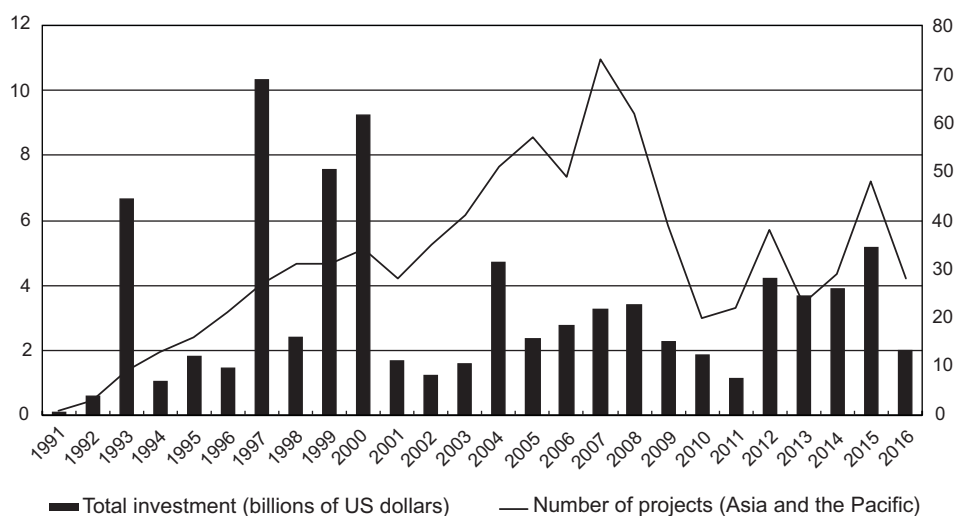
Source: World Bank, Private Participation in Infrastructure dataset. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

Public and ODA funding combined do not adequately cover the needs related to water and especially to sanitation. Countries need to tap into new sources of finance to meet the growing demand by expanding opportunities for private investment. In the 1990s, the greatest influx of private spending occurred under a situation in which governments, frustrated with poorly performing public sector monopolies, sought private participation in infrastructure as a way of reducing the drain on government budgets. Even though the investment of international private investment in water and sanitation

infrastructure increased during that period, such projects still constituted only 5.4 per cent of all private commitments to infrastructure, including financing for energy, transport and telecommunications.

The Private Participation in Infrastructure database of the World Bank shows that private investments in water and sanitation peaked in 1997 and have since dropped. The Asian financial crisis of 1997 contributed to the decline of investment flows in the following years. The boom in the 1990s was largely replaced with pessimism, as projects were renegotiated, cancelled or renationalized, further subduing private investments in water and sanitation. The largest recorded amount of private investment in water and sanitation, \$10.2 billion globally and more than \$8 billion in the Asia-Pacific region alone, continues to be in 1997. In terms of projects financed, the number of privately financed water and sanitation projects peaked in 2007 when 90 projects were implemented around the world. This growth was driven by Asia and the Pacific, where 73 projects were implemented during that year (figure 3).

**Figure 3. Private participation in water and sanitation projects, 1991-2016**

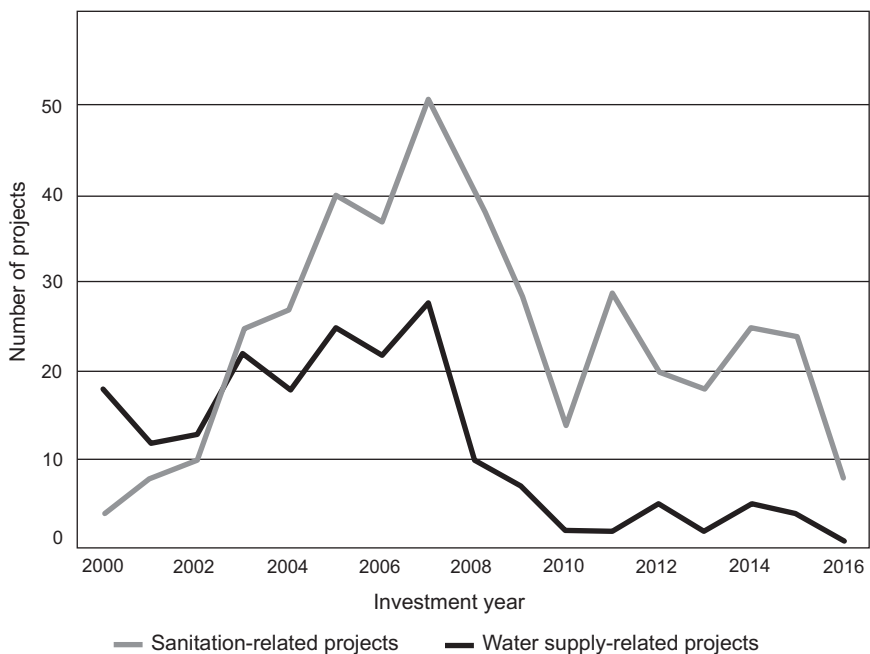


Source: World Bank, Private Participation in Infrastructure dataset. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

While the Asia-Pacific region slowly recovered from the 1997 Asian financial crisis, the 2008 global financial crisis marks a significant turning point for private investment in water and sanitation. In the post-2007 environment, new water and sanitation investments (structured as project finance or PPPs) are primarily taking place only in developed economies that have developed capital markets capable of issuing long

maturity transactions. The provision of drinking water and wastewater services by private companies in 2017 was approximately 14 per cent globally. Some 47 per cent of the population is served by the private service providers in Western Europe, approximately 23 per cent in North America, and only 20 per cent in Asia. In the Asia-Pacific region, since 2002, there has been more sanitation-related projects with private investments than projects related to water, as most Asia-Pacific countries have met their water supply-related investments (figure 4).

**Figure 4. Trends of private water and sanitation investments in Asia and the Pacific**



Source: World Bank, Private Participation in Infrastructure dataset, 2017. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

A total of 1,072 privately financed water and sanitation projects (partly or wholly) were undertaken between 1993 and 2017 globally. Out of this, 654 projects were carried out in the Asia-Pacific region, with China being the greatest recipient, at 499 projects. In comparison, Latin America and the Caribbean received 335 projects, and the Middle East along with Africa received only 63 projects. Countries belonging to the upper-middle-income category were the major recipients of private investment. Out of the total 1,072 projects, 955 were in upper-middle-income countries whereas only 10 were in low-income countries. The same pattern can be observed in the Asia-Pacific region,



where 577 out of 654 projects were implemented in upper-middle-income countries and only one was implemented in a low-income country.

Close to 68 per cent of all the projects undertaken between 1993 and 2017 were granted at the local or municipal level, compared to 10 per cent at the national level. In terms of investment value, during the period, approximately 40 per cent of the projects were sanctioned at the local or municipal level, compared to 33 per cent at the national level. This shows that even though a lower number of projects were undertaken at the national level, their investment value (project size) has generally been higher. The same pattern can be seen in the Asia-Pacific region, with approximately 85 per cent of the projects and 55 per cent of the project value being sanctioned at the local or municipal level.

More than 26 projects were taken up each year in the Asia-Pacific region between 1993 and 2017. The predominate number of projects were carried out in China, averaging 20 projects per year. The country's share of the total number of projects undertaken in the region accounted for approximately 33 per cent between 1993 and 2017. Moreover, China held a 28 per cent share in terms of the value of the privately financed portion of these investments.

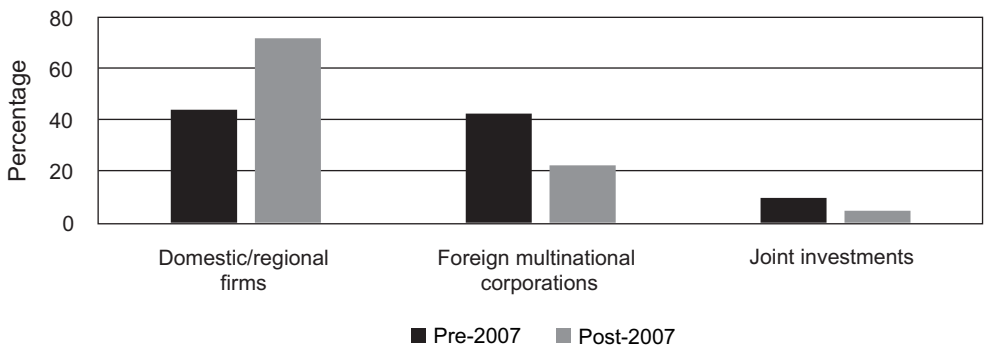
There were three notable changes in the size, type, and character of private investments in water and sanitation pre- and post-2007. First, the average size of private investment in a water and sanitation project fell from \$91 million between 1993 and 2007 to \$82 million between 2007 and 2016. In addition, the number of projects per year has declined. The year 2007 marked the peak, with 73 water and sanitation projects in Asia and the Pacific; subsequently, since 2007, the number of projects has not exceeded 30 in any given year.

Second, upper-middle-income countries remain the key beneficiaries of private investments in water and sanitation projects. Pre-2007, upper-middle-income countries had a share of 87 per cent of total number of private investments, while lower-middle-income and low-income countries had a share of 12 per cent and 1 per cent, respectively. In terms of value, upper-middle-income countries had a share of 74 per cent as compared to lower-middle-income countries and low-income countries shares of 26 per cent and 0.08 per cent, respectively. The trend has continued post-2007, with upper-middle-income countries accounting for a share of 93.5 per cent of total investments and lower-middle-income and low-income countries having shares of 6 per cent and 0.5 per cent, respectively. In terms of value, upper-middle-income countries had a share of 91 per cent compared to lower-middle-income and low-income countries shares of 9 per cent and 0.003 per cent, respectively.

Finally, there has been a notable shift away from global multinational corporations to smaller, regional water companies post-2007. Pre-2007, the share of domestic and foreign investments in water and sanitation facilities was almost equal in size in which

domestic firms constituted 44 per cent of total private investments versus 43 per cent for foreign investments. The share of joint investments from domestic and foreign firms accounted for the remainder. The situation changed in post-2007, with a surge in domestic investments. Domestic investments constituted 72 per cent of all the private investments, while the share of foreign investments has declined to 22 per cent (figure 5).

Figure 5. Domestic versus foreign investments



Source: World Bank, Private Participation in Infrastructure dataset. Available at <https://datacatalog.worldbank.org/dataset/private-participation-infrastructure>.

The post-2007 decline of private sector funding in the water and sanitation sector reflects the changing landscape of private investors (OECD, 2009). Many large multilateral water companies have pulled back their investments in Asia and throughout the world, and only a handful of global water investors remain. Despite the availability of foreign exchange risk mitigating tools, most international water companies have simply moved out of emerging markets to focus on developed high-income emerging markets. The few private investments in developing economies are highly concentrated in large urban centres and municipalities, typically in economies with developed capital markets.

During the period 1990–1997, five international multinational water operators (Suez, Veolia, Thames, Agbar and Saur) accounted for 53 per cent of all water and sanitation projects awarded. Starting five years later, over the period 2003–2005, their share dropped to 23 per cent. Suez, a French-owned international water concession company, and Thames, a British firm, largely withdrew their investments in developing countries. On the other hand, Veolia and Agbar have focused on investing through local partners or through joint ownership with local governments. Severn Trent, another international player, has redirected its operations to concentrate on management and service contracts, with little to no capital investment (table 4).

**Table 4. Top five companies incurring foreign investment in 2016**

Company	Home economy	Host economy	Number of foreign projects undertaken
<b>Suez</b>	France	Argentina, Brazil, Bolivia, Colombia, others	65
<b>Veolia Environment</b>	France	China, Armenia, Romania, Argentina, Colombia, others	58
<b>NWS Holdings</b>	Hong Kong, China	China	23
<b>Berlinwasser International</b>	Germany	China, Albania, Azerbaijan, Armenia, others	15
<b>Manila Water Company</b>	Philippines	Indonesia, Philippines, Viet Nam	13

The retreat of multinational companies from the water and sanitation sector in emerging markets has been partially filled by new emerging regional and niche players. The new private investment players come from diverse backgrounds, including, among them, water construction or engineering companies; industrial conglomerates; and local companies seeking to expand or diversify beyond their borders. There has been a rise in joint ventures between local and regional water operators with international operators. Notably, regional investors have been investing in countries of their ethnic origin. The new regional investors are focusing on water and sanitation projects within and from their “own countries”, as diaspora investments. Among them are Manila Water, NWS Holding, and other smaller investors from Singapore and Malaysia. The future of private investment in water and sanitation in Asia and the Pacific may depend on these new, regional, small private investors.

#### IV. REGRESSION ANALYSIS

The withdrawal of multinational water operators and the focus of private investment in high-income countries provides the context for a regression analysis to determine if a causal relationship exists between these factors and the level of private investment in water and sanitation in Asia and the Pacific. The regression model presents the main factors that determine the level of private investments in the water and sanitation sector in the Asia-Pacific region between 1993 and 2017.

##### Data sources

Country-level data on “water and sewerage”, “treatment plant” and “water utility” were obtained from the World Bank Private Participation in Infrastructure database. The

time-series data spans the period 1993–2017 (first half). The database provides information on total investments in the sector along with private share in these investments, making it possible to calculate the total private investments in projects across countries.

Data on “access to improved water source” and “access to improved sanitation” are from the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (WASH) database. The database covers the period 1993–2017. Data on population, gross domestic product (GDP), gross domestic product per capita and growth rate for Asia and the Pacific countries are from the World Development Indicators database for the period 1993–2017.

As no comprehensive data are available on the diaspora, a dummy variable is used by analysing the management board structures and other regional characteristics of the investing private sector firm. For instance, if the management board of a country includes several members having host country origins, the investments are classified as a diaspora investment, and the dummy variable is assigned a coefficient of 1. Similarly, other subjective criteria (such as CEO birth country) was used to decide if an investment falls in the category of diasporic investment.

The data were cleaned and checked for consistency. Once all the data were collected, suitable fields were used to build a comprehensive dataset, which could be used for statistical testing. The primary model was made based on panel data. Although all possible efforts are made to complete the missing data, the information for total investments and share of private players in those investments were not available for many projects.

### Regression equation

Using panel data, the relationship between total private investment and GDP, population, and a diaspora proxy is examined, using the behavioral equation:

$$PI = f(GDPPC, population, diaspora)$$

where, PI = private investment in natural logarithm

GDPPC = gross domestic product per capita in natural logarithm

Population = population in natural logarithm

Diaspora = dummy for diaspora in investing country

## Regression results

The regression provides the following result:<sup>2</sup>

$$PI = 2.297 + 0.385 (GDPPC) - 0.334 (Population) - 0.563 (Diaspora)$$

(3.662)                      (5.487)                      (-9.433)                      (-3.394)

Notes: (1) The figures in brackets represent the respective t-statistics.

(2) All the coefficients are significant at the 5 per cent level.

(3) Multiple R<sup>2</sup> is equal to 0.399 and R<sup>2</sup> is equal to 0.159.

The regressions yield a relatively low R<sup>2</sup>. This is mainly because private investments in the water and sanitation sector are affected by many factors, above and beyond the three independent variables modelled here. Such factors as governance, ability to set prices, local government support, water supply availability and conditions of physical infrastructure could affect the decision to invest far more than income and population alone.

The regression shows that an increase in gross domestic product per capita of a country affects private investment in water and sanitation in that country positively. Every 1 per cent increase in GDPPC increases private investment (PI) in water and sanitation by roughly one third in that country. The positive correlation between *gross domestic product* and private investment is consistent with the findings that upper-middle-income countries are the major beneficiaries of private investments. Upper-middle-income countries also have a higher share in the number and the total value of private investments. Countries with higher GDP per capita provide a better risk return profile to private investors – they rank higher in terms of “ability to pay”. Accordingly, private investors can better recover their investment and earn a return. These countries also usually have better financial and judicial institutions, making their respective markets more reliable for private investors. This raises serious challenges for low- and middle-income countries. Low-income countries are especially a concern, as the data show that less than 1 per cent of the total projects were directed to these countries between 1993 and 2017.

<sup>2</sup> Using time-series data, and deleting the dummy variable for diaspora, the regression produces a similar result:

$$TotPI = -3.772 + 0.658 (GDPPC) + 0.173 (Population)$$

(-2.199)                      (4.954)                      (2.406)

The time-series regression shows that GDP per capita and population positively affects private investment in the country. All the variables in the above equation are significant at the 5 per cent level. The model has a multiple R squared of 0.372 and R squared of 0.139.

The regression also shows that there is a negative correlation between population size and the level of private investment in water and sanitation in that country. Private investments in countries with a large population are likely to be of a smaller size than private investments going to a country with a smaller population. This does not mean that countries with large populations receive smaller total private investments. Running the regression using country-level time-series data show that the population is in fact positively related to the amount of private investment. Thus, the negative sign in panel data regression results show that private investors prefer to make smaller, more spread out investments in countries with larger populations, such as China and India. This is verified by data that indicate private investments in highly populated countries are more likely to be smaller, but are more inclined to be targeting local governments and municipalities.

The regression shows that *diaspora* investments have a negative relationship with private investment in the host country. Private investment received from a country in which its diaspora is present will likely be smaller as compared to investments received from countries in which no diaspora is present. This result reflects that most of these diaspora investments are regional in nature, and unlike other foreign investments, these are small regional players making smaller investments in their “home” countries. During the period 1993–2017, the median size of private diaspora investment was \$16 million, about half the size of non-diaspora investments, which averaged \$31 million in value terms.

## V. CONCLUSION – THE WAY FORWARD

Meeting the water and sanitation needs of Asia and the Pacific and achieving the 2030 Sustainable Development Goal of universal access to safe and affordable drinking water along with adequate sanitation requires urgently development and strengthening of mechanisms to finance infrastructure and services in the sector. This is especially true for sanitation. To date, private financing has not lived up to its potential in catalysing universal access and connection to water and sanitation services. Despite the low interest rate environment, water and sanitation projects have not been very successful in mobilizing private capital. Public water service providers have typically low, if any, private finance mobilization capacity. Even for the few existing corporate water supply and sanitation providers, it is rare for them to borrow from commercial lenders because of weak incentives or poor creditworthiness or both. Only 15 per cent of water utilities in developing countries are currently commercially viable, meaning that they can cover their operation cost and generate a surplus that can be used for other financial needs (Kolker and others, 2016). Local commercial banks have limited experience in financing water and sanitation infrastructure, perceiving it to be extremely risky. Moreover, the financial sector in many developing countries is very thin and lacks the capacity to offer long-term loans at affordable rates. As such, the recourse for governments has typically

been to source debt financing from international financial institutions, which offer long-term loans at low concessional rates. Unfortunately, this approach neglects the development of the private sector, which could play a significant role in financing water and other infrastructure, in particular because commercial loans can be made timelier and in local currencies, foregoing foreign currency risks. Many developing economies, however, still lack domestic financial markets that have the capacity to offer affordable long-term local currency financing. Emerging market countries in East and South Asia are gaining ground by developing more robust financial sectors, but exposure to the water and sanitation sector is still low and needs to improve.

Private investment in water and sanitation has dramatically shifted over the past 10 years. Since peaking in 2007, it has been volatile in terms of size and number. While 73 new projects in Asia and the Pacific were undertaken in the sector in 2007, no more than 30 projects per year had been initiated in each of the preceding years. The decline in private investments has also been accompanied by a shift in the type and size of investments taking place. The “new” private investments are increasingly concentrated in a few select wealthy countries and municipalities; and the investments are being bankrolled by smaller, regional investors, including diaspora investors.

Bearing in mind these post-2007 features, the regression analysis was intended to analyse factors that affected private investments in water and sanitation in Asia and the Pacific between 1993 and 2017. The regression showed that GDP and population size positively affected investment in water and sanitation in country, while diaspora had a negative effect. This is worrying for low-income countries, which stand to benefit the most from private investment, but have been on the receiving end of less than 1 per cent of the total projects in the sector. The regression analysis confirmed that investors preferred to diversify their investments across many smaller valued projects in countries with larger populations. It also showed that diaspora investment tended to be smaller than otherwise. Since 2007, investments from smaller, regional diaspora investors have been significantly higher than non-diaspora investments.

This paper has illustrated the present trends in private sector investment in the water and sanitation sector in Asia and the Pacific. The need for greater focus on improving sanitation services in the region, especially for the least developed and low-income emerging economies, is highlighted. The huge financing gap requires more innovative financing that can only come by attracting private sector capital to support development objectives and by repurposing public sector financing instruments to address persistent development deficits. The Asian and Pacific region must focus on developing and strengthening mechanisms to finance sanitation infrastructure that will enable it to reach the Sustainable Development Goal of universal access to safe and affordable drinking water and adequate sanitation by 2030. A new financing paradigm needs to be built around partnerships between governments and the public and private sectors by mobilizing commercial lenders, raising credit-worthiness of service providers

and blending public and private financial resources to invest in sanitation infrastructure. Greater attention is needed to empower regional and local governments to develop policies and norms for financial frameworks and investments in decentralized projects. The leadership of local governments and municipalities in framing policies and in attracting increasing investment for water and sanitation infrastructure is crucial in this regard. Additional mechanisms to attract and mobilize regional investments in the water and sanitation sector should be considered.



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