Natural resources

Water world

Indonesia is facing a water crisis.

"Water, water everywhere, but not a drop to drink." It may be something of an overstatement to compare Indonesia's water problems with the familiar lament of Coleridge's ancient mariner, but it is an irony that tropical Indonesia is facing a water crisis.

As the country moves fitfully from the dry to the wet season, it will soon be easy to remember why Indonesia is one of the nine countries in the world which account for 60 percent of the Earth's freshwater reserves.

Government officials question the quality of water piped into our homes.

But for many of the country's residents who actually get water piped into their homes, it is anything but fresh. "About 30 percent of the water distributed by water companies in Indonesia is contaminated with E. coli because many water reservoirs are located close to septic tanks," Ismail Malik, head of environmental health and sanitation at the Ministry of Health, recently told *The Jakarta Post*. "We can test this ourselves. If tap water is stored in a container for one day, it quickly turns yellow."

80 percent of Indonesians live without piped water.

The quality of the piped water, however, is the least of most people's problems. With one of the lowest service coverage rates in Asia, 51 percent of urban dwellers in Indonesia have no access to piped water at all; this figure rises to 86 percent in rural areas. Because the weight of the country's population is concentrated in rural areas, this amounts to an astonishing 80 percent of Indonesians living without access to piped water.

The mismanagement of water has led to a cycle of droughts and floods.

Clearly, the delivery of water is a major problem, but at the other end of the process where water is collected there is also cause for concern. Some experts predict that major urban conurbations such as Jakarta will face massive water shortages in the next five years if action is not taken immediately. Despite Indonesia's high levels of annual rainfall, a cycle of droughts and floods has ensued due to the poor management of this precious resource. And with the pressures that population growth and the development of both agriculture and industry increasingly place on water (see Table One), the situation is becoming progressively worse.

Table One: Water Availability per Capita (Cubic metres per year)

1930	54.5
1961	34.7
1971	27.7
1980	22.4
1990	18.4
1995	17
2000	16

Source: Sutopo Purwo Nugroho (ed) Peluang dan Tantangan Pengelolaan Sumberdaya Air di Indonesia (2002) (p.74)

The coffers run dry

Government spending on water has traditionally focused on agricultural irrigation.

Throughout the New Order period and until the end of 2002, 79 percent of government spending on water infrastructure was allocated to agricultural irrigation as part of Soeharto's commitment to improving agricultural productivity. In comparison, 18 percent was spent on dams, 3 percent on flood prevention and 0.1 percent on raw water sources.

While government attention was focused on the agricultural sector, the

provision of clean water into people's homes was sidelined and the development of pipe networks all but stagnated (see Table Two).

THE INFRASTRUCTURE SUPPORTING PIPED WATER IS IN NEED OF REPAIR.

When government spending on infrastructure was slashed after the onset of the 1998 economic crisis, water infrastructure fell further into disrepair. The antiquated system of pipes, which the state-owned water utilities inherited at independence, today leak an average of 30 percent of the water channelled through them and around a quarter of irrigation networks are now in need of repair.

Table Two: Total Percentage of Homes with Access to Piped Water

1992	14.7
1993	14.7
1994	16.2
1995	16.4
1996	17.6
1997	19.2
1998	19.1
1999	18.6
2000	19.2
2001	18.3
2002	18.3

Source: Susenas, BPS 2003

THERE IS A SHORTFALL OF RP 20 TRILLION IF THE COUNTRY IS TO MEET INTERNATIONAL COMMITMENTS ON WATER BY 2015.

This means that a dramatic rise in spending is needed if the country is to reach its 2015 millennium development goal of 60 percent and 80 percent access to piped water for rural and urban areas, respectively. With the total amount of investment needed to reach these targets estimated at Rp 23 trillion, the current government expenditure of Rp 400 billion per year only covers around Rp 3.2 trillion of that. Since Regional Autonomy started in 1999, local governments are now officially responsible for the nation's water companies but on average commit less than 2 percent of their annual budgets to water, leaving a gap of some Rp 20 trillion over the next 10 years.

Dead in the water?

During the last year of Soeharto's reign, the government turned to private sources for investment in water infrastructure, but in doing so generated a massive controversy that continues today. For many of its detractors, the first and most high profile case of private sector participation in Jakarta's state-owned water company set the subsequent tone of the debate.

PRIVATE SECTOR PARTICIPATION IN WATER HAS BEEN TAINTED BY SOEHARTO ERA CORRUPTION.

In 1997, two of the world's biggest multinational water companies, Thames Water (UK) and Suez Lyonnaise (France), were issued 25-year concessions to take over the operational rights of Jakarta's state-owned water company, which meant control over everything from customer billing to raw water supply. But the timing of the deal was unfortunate for the two companies, as just months later Soeharto fell and it emerged that both had won their contracts by cutting one of Soeharto's sons and a close Soeharto business associate into the deal. The foreign companies were forced to withdraw from the contracts but regained them after 10 days of diplomatic lobbying and agreed to buy out the shares of Soeharto's associate.

MANY NGOS FUNDAMENTALLY DISAGREE WITH THE IDEA THAT WATER IS AN ECONOMIC GOOD.

Still tainted by their association with Soeharto, these companies and private participation in general, have encountered fierce resistance from civil society activists who believe that water is a social and not an economic good. "We reject the fundamental idea that water can be owned, it is a human right linked to the right to life and health and it should be available equally to all," Hamong Santono of the People's Coalition for the Right to Water told the *Report*.

A PETITION FOR A JUDICIAL REVIEW OF PRIVATE SECTOR PARTICIPATION WAS MADE IN 2005.

The movement against private participation in the water sector peaked in 2005 when a group of NGOs lodged a request with the Constitutional Court for a judicial review of the 2004 Water Resources Law which facilitates privatisation. Campaigners' hopes were high that this law would be found in contravention of the constitution because just months earlier the same court had invalidated the Law on Electricity because it was considered to have gone too far in loosening state control over the sector. Several articles of the 2001 Law on Oil and Gas had also been annulled by the Constitutional Court in 2004 on the same basis.

Article 33 of Indonesia's constitution states that sectors which affect the livelihood of a considerable part of the population are to be controlled by the state. But "state control" is defined as the ability of the state to regulate and supervise sectors rather than involving any notion of ownership.

THE COURT CONDITIONALLY REJECTED THE PETITION.

In the end, the case against the Water Law at the Constitutional Court hinged on the degree of control which the government has over the setting of water tariffs. Under subsequent implementing regulations of the Water Law the government has the right to determine the price of water, but this must be based on the cooperation contracts signed with private companies. With seven judges consenting and two dissenting, the Court finally ruled that the law was "conditionally constitutional," meaning that it is constitutional on the condition of its interpretation. This pleased neither the anti-privatisation activists nor the private water companies.

TARIFF HIKES FROM PRIVATE WATER COMPANIES HAVE CAUSED WIDESPREAD PROTESTS.

The fallout from these decisions has been seen in Jakarta in the last two years. A local government agreement to raise water tariffs automatically every six months for three consecutive years was finally annulled in July 2006 after four consecutive price rises since 2004 and widespread public protests. "The companies' performance has not been good until now," Hamong explained. "Why should they benefit from automatic price increases when the supply of water is regularly interrupted and water leakages from damaged pipes still account for so much? That is not good business sense. Indonesia's water tariffs are already among the highest in the world."

Jan Drozdz, a senior water and sanitation specialist at the World Bank, disagrees. "Water tariffs in Indonesia are very low. How can you expect private companies to make additional investment to improve services when their production costs cannot be covered by the prices they charge?"

WORLD BANK STAFF SAY THAT THE POOR CAN AFFORD THE CURRENT TARIFFS.

So which is it? Are Indonesia's water tariffs comparatively high or low compared to other countries? The answer seems to lie somewhere in between. Table Three shows data collected by the Asian Development Bank from a variety of Asian cities.

"The poor *can* afford higher tariffs for water." Jan continues, "In Jakarta those who do not have piped water buy it from street vendors, which is 20 percent more expensive than from the utilities. It's not a problem that the poor cannot afford higher rates because they pay much more now."

However, the World Bank's own figures show that out of the estimated 50

million urban poor in Indonesia who are unconnected to piped water, only around 6 million pay the higher rates to private vendors.

Table Three: A Comparison of Asian Water Services and Tariffs

Asian Cities	Lowest Water Tariff (US$) per M3	Business Tariff (US$) per M3	Average Water Tariff (US$) per M3	Service coverage (percent of population)	Private Sector Participation	Unit Production Cost (US$) per M3
Colombo (Sri Lanka)	0.013	0.451	0.22	69	Yes	0.050
Delhi (India)	0.007	0.104-0.332	0.07	69	Yes	0.085
Dhaka (Bangladesh)	0.079	0.263	0.06	72	No	0.031
HoChiMinh (Vietnam)	0.113	0.265-0.431	0.18	84	Yes	0.128
HongKong	Free	0.587-0.912	0.35	100	No	0.845
Jakarta	0.036	0.337 – 0.5	0.29	51	Yes	0.112
KualaLumpur (Malaysia)	0.15	0.47 – 0.51	0.30	100	Yes	0.229
Manila (Philippines)	0.036	0.146 – 0.176	0.14	58	Yes	0.064
PhnomPenh (Cambodia)	0.141	0.243 – 0.371	0.24	84	No	0.082
Shanghai (China)	0.124	0.181	0.10	100	Yes	0.094
Tashkent (Uzbekistan)	0.023	0.058	0.01	99	No	0.005
Vientiane (Lao)	0.023	0.058 - 0.143	0.04	63	No	0.033

Source: Asian Development Bank (January 2004) Water in Asian Cities

THE COST OF WATER TO BUSINESS IS MINIMAL, BUT CROSS SUBSIDIES DO NOT WORK.

As for business, one entrepreneur who is intimately involved in the water industry told the *Report* that "the cost of water to business is minimal, except for those very few businesses which use a lot of water, like shipping." Despite this, the World Bank maintains that cross subsidies, where businesses pay more to subsidise the cost of water to the poor, are a bad idea as they are too complex to administer effectively and create opportunities for fraud and corruption.

THE BIGGEST PROBLEM FOR THE POOR IS THE CONNECTION FEES NOT CONSUMPTION TARIFFS.

But Jan also argues that the debate should not focus only on the price of water delivered to consumers. "The problem for the poorest is not the tariffs, but the connection fees, which are very high. The smart thing to do would be to subsidise connections and then have tariffs based on the level of consumption because the poor consume less than the more wealthy. At the World Bank we are now focusing on subsidising connection fees for the poor, we have a very good project in Surabaya which is doing just that."

Bridge over troubled waters

The World Bank position is that water is not free. "It has to be treated, it has to be delivered into homes, that means electricity bills, salaries and infrastructure," explains Jan.

Given such a difference of opinion between those in favour of private sector participation and those against it, there may seem little hope for agreement. But beyond these rather fundamental debates, the two sides show a surprising amount of convergence.

THERE IS SOME AGREEMENT BETWEEN PROPONENTS AND DETRACTORS OF WATER PRIVATISATION.

Hamong's group has conducted research on the country's 318 regional water companies, comparing those 20 or so which have had private sector participation and the rest which remain fully under the control of the state. "Improving the management of water should not be reduced to a polemic

about privatisation," he told the *Report*. "Only a couple of the privatised water companies have shown improvements in their performance, this leads us to believe that there are other factors at play." For example, he cited internal management and the political will of the regional governments.

INTERNAL MANAGEMENT AND POLITICAL WILL ARE CRUCIAL TO IMPROVING WATER DELIVERY.

Jan is in agreement. "You can't expect that everything will be resolved by just hiring a private company and all the problems will disappear. The water companies would benefit enormously from internal re-structuring and a degree of corporatisation, making them autonomous entities which are no longer subject to the cronyism of some of the local governments."

STATE WATER COMPANIES ARE SUBJECT TO POLITICAL INTERFERENCE AND HIGHLY INDEBTED.

Both Jan and Hamong are referring to the practice where state water companies are officially obliged to hand over 55 percent of their net profits to the local government and unofficially often function as cash cows for other political purposes.

Saddled with enormous debts run up during the Soeharto administration from international institution loans, around 65 percent of the 318 water companies nationwide are financially unsound and disqualified from further preferential loans to reinvest and improve their service.

THE GOVERNMENT IS DOING LITTLE TO ADDRESS THESE PROBLEMS.

Neither camp has any real solution to this problem, but both agree that the debts should not just be forgiven outright. Jan is adamant that the water companies have enough funds to pay the debt back but not the will, although it is difficult to square this with the earlier idea that water companies cannot make enough money to even cover their operational costs. Hamong suggests that the debts should be restructured and some of them forgiven based on clear performance criteria. Meanwhile, the central government has done little to address the problem.

THE GOVERNMENT IS STILL FOCUSED ON ATTRACTING PRIVATE SECTOR PARTICIPATION.

Instead, the government is still focused on attracting private sector participation into the water sector, but in many ways that ship seems to have sailed. Out of the 96 projects offered at last year's infrastructure summit, almost a quarter were for water projects, but one year later only four of those are set to go ahead.

WORLDWIDE THE TIDE HAS TURNED AGAINST WATER PRIVATISATION.

Worldwide the multinational water companies are pulling out of developing countries, as Thames and Suez are currently doing from Jakarta. This is all backed up by a glut of authoritative research pointing to the dismal failure of the private sector to improve the delivery of water, especially to those who need it most. The UN's second world water development report released in March 2006 states, "Those who have benefited from private water services in developing countries are predominantly living in relatively affluent urban pockets ... the very poor sections normally tend to be excluded." Concluding that, "There is a need to refocus privatisation. It is high time to bring the government back in."

PRIVATE DOMESTIC COMPANIES COULD BE A NEW SOURCE OF FUNDING.

Some hold out hopes that domestic private companies will step into the breach and take over the role of the multinationals. Indeed the recent sale of Suez shares in Jakarta have gone to two domestic companies, Astratel Nusantara and Citigroup. Whether or not domestic companies, which in this case have

no history of involvement in the water business, have the expertise or the investment clout to make water work for both of them and the general public remains to be seen.

It's the environment, stupid

THE MANAGEMENT OF RAW WATER IS ALSO A CONCERN.

While the final delivery of water to consumers most often grabs the spotlight with its political and nationalist overtones, the management of water sources before it even reaches the water companies is another major concern. Every year a familiar story of farmers' crops being devastated by drought, householders travelling miles to find a water source and homes ruined by flooding hit the headlines.

Sutopo Nugroho, a hydrologist working for the government's Agency for the Assessment and Application of Technology (BPPT), has a very clear idea of what needs to be done. "There would be no problems, no deficit of water in the dry season nor flooding in the wet season, if there was better care of the natural environment," he told the *Report*.

THE KEY IS TO PROTECT FORESTS.

"All over Indonesia it is the same problem: the unregulated clearing of forests. At least 30 percent of the land area should be given over to forest to ensure that water is absorbed into the ground during the wet season and then available from the ground throughout the dry season. On Java this 30 percent limit has already been breached and it is heading that way for Sumatra and Kalimantan too."

OVEREXPLOITATION OF GROUNDWATER BY CITIZENS IS CREATING A WATER TIME-BOMB.

Around half of Jakarta's 12 million inhabitants currently obtain their water from wells. Every household has the right to exploit groundwater in this way, but whereas in theory a license is required, in practice most households do not possess one. Soemardono from the Ministry of Public Works points to the unregulated exploitation of groundwater which has led to an alarming 10 cm of subsidence in Jakarta over the last 10 years and the intrusion of seawater underground up to 10 km from the coast, right up to Hotel Indonesia in central Jakarta. The continued overexploitation of groundwater is therefore creating a time-bomb in the capital.

The other major source of raw water in Indonesia is rivers. Sutopo, the hydrologist, explains that the water companies here follow the US model in taking raw water from rivers, because it is both easier and cheaper. But it would be far better to take the water from the ground but in a controlled way. "Most people take ground water from 15m below surface, but you can get a better quality of water if you go at least 30m below ground level."

WATER FROM RIVERS CAN NO LONGER KEEP PACE WITH JAKARTA'S POPULATION GROWTH.

The problem with the current system is that the supply of water from rivers is limited and as Jakarta's population continues to grow, a crisis looms. Haryadi Priyohutama, the director of Jakarta's state water company PAM Jaya, says that Jakarta currently uses 16 cubic meters of water per second, while the city's reservoir supplies only 14 cubic meters per second, according to a *Jakarta Post* article. He estimates that by 2009 21.6 cubic meters of water per second will be needed and by 2015, demand will have reached 42 cubic meters of water per second.

Plans are afoot to build a new reservoir for Jakarta, but construction will not start until 2008, and it is expected to take four years before it becomes operational.

EFFICIENCY OF WATER USE IS KEY.

Netafim Indonesia, a private company involved in irrigation and water treatment, offers a different solution to combat the cycle of droughts in rural areas. "Building more reservoirs is no answer. What we need in this country is a more efficient use of water," a spokesperson for the company told the *Report*.

MODERN IRRIGATION SYSTEMS CAN REDUCE WATER CONSUMPTION AND RAISE CROP YIELDS.

"The cultivation of rice requires huge amounts of water using traditional flood irrigation techniques. We conducted trials in Lombok using a system of drip irrigation where water is delivered directly to the roots of the plants. The results show that around half the amount of water is needed using this method and productivity of the land actually rises. Even the driest part of Indonesia in the east could become the breadbasket of Asia if such modern irrigation systems were used. In Australia they produce 40 tonnes of mangoes per hectare using drip irrigation, whereas in Indonesia the farmers can only manage four tonnes of mangoes per hectare using flood irrigation."

GOVERNMENT COORDINATION ON WATER IS SERIOUSLY LACKING.

If such creative solutions to Indonesia's water problems are to have a meaningful impact, a systematic and integrated approach is needed from the central government. But, according to Hamong, this is not likely to happen anytime soon. "In the end, the biggest problem for the sustainability of water in this country is a lack of government coordination on the issue. The Department of Public Works deals with tap water, responsibility for wells is with the Department of Mining, the Department of Forestry deals with forest clearance and the Department of Farming with farmers but crop irrigation is the responsibility of Public Works. It's a mess."

STEPS HAVE BEEN TAKEN IN THE RIGHT DIRECTION BUT MORE NEEDS TO BE DONE QUICKLY.

The government has begun moves to coordinate the water sector with the establishment of a national consultative body operating at the ministerial level known as BPP SPAM. While this may be a step in the right direction, what is needed most now is a regulatory body with a legal mandate to coordinate and enforce decisions across the whole of this most vital of sectors.❐