Iran. J. Environ. Health. Sci. Eng., 2009, Vol. 6, No. 3, pp. 143-152

Review

ISSUES AND CHALLENGES IN WATER GOVERNANCE IN MALAYSIA

N. W. Chan

School of Humanities, Universiti Sains Malaysia, Penang, Malaysia

Received 1 March 2009; revised 6 June 2009; accepted 20 July 2009

ABSTRACT

Water is one of the central issues in the 21st century in Malaysia. Of all the issues associated with water management, governance is considered of primary importance. This paper examines water governance in Malaysia and concludes that it is successful in the sense that water is served to more than 95 % of the population, water tariffs are some of the cheapest in the world, the poor is not denied access, and water supply is 24 hours per day. However, there are many areas that need improvement to achieve better governance in water management. One is to improve Government-controlled water departments by ensuring their workers are well-trained and committed to excellence, public service and integrity instead of the usual laid-back government-servant mentality. Another is to ensure politicians do not interfere in the water sector. Currently, it is widely believed that many water companies are linked to powerful politicians, making the awarding of contracts, tariffs and other management aspects non-transparent and ineffective. Ideally, politicians that govern should act on the professional advice of the water managers and not the other way around. Another area of water governance that needs to be intensified is the war against corruption. In the water sector, there should also be an all-out war on corruption at all levels of governance, in both the public and private sectors. Government should make all contracts in the water sector awarded through open tender with public consultation to ensure professionalism, fairness, transparency, accountability and good governance. Equally, all contracts and other relevant documents drawn up between the government and private companies should not be "classified" but instead be public documents available to the public for discussion, review and improvement. Another area to ensure better governance is for the government to engage and actively involved all stakeholders in the water sector, especially civil society and NGOs. Finally, the Federal Government should reconsider its plans to centralize the water sector by taking it over from State Governments. This is because, centralization would be contradictory towards involvement of all stakeholders and also pose problems to many states that had already privatized the water sector. Finally, governance of the water sector should be based on Integrated Water Resources Management which is the logical way forward in ensuring sustainable development.

Key Words: Water resources management, Water governance, Privatisation, NGO, Civil society

INTRODUCTION

Throughout the world, water is under threat from depletion, pollution, mismanagement and even from being hijacked by multi-nationals (Bouguerra, 2006). Despite the many problems facing the water sector, including wastewater treatment (Majlesi, 2008), none can be as pervading in determining the success or failure of water management in a country than governance (Anwar Fazal, 2007). Hence, if a country has bad water governance, its water resources would not be managed sustainably (Alam et. Al., 2007). In general, water governance is not merely a case of managing water resources, either by government, private sector or other institutions. According to UNDP, water governance refers to the range of political, social, economic, and administrative systems that are in place to develop and manage water resources and the delivery of water

*Corresponding author: *nwchan@usm.my*
Tel:+6 012 5193355 Fax: +6 04 6563707

services at different levels of society. Hence, water governance compromises the mechanisms, processes, and institutions through which all involved stakeholders, including citizens and interest groups, articulate their priorities, exercise their legal rights, meet their obligations and mediate their differences in relation to water (http://www.undp.org/water/about_us.html 14/07/09).

Malaysia is a country richly endowed with copious rainfall and rich water resources, but ironically many parts of the country are subject to water stress (Chan, . Droughts had occurred in 1977 and 1978, devastating the padi crop in most of the irrigation schemes in Northwest Peninsular Malaysia. In 1982 and 1991, drought resulted in drop of the water levels of the Pedu and Muda dams dropping to critical levels, resulting in cancellation of the off-season crop. In 1998, an El Nino related drought also caused severe water stress in Kedah and Penang, but caused severe water rationing in Kuala Lumpur and Petaling Jaya for many months. In 2002, drought destroyed thousands of hectares of padi in Perlis and many areas also suffered water stress. With 3000 mm of rain per year and about 20,000 m^3 of renewable water per capita per year, the above water problems can only mean that there is mismanagement (Tan Sri Razali, 2001). Hence, water problems in Malaysia are not an issue of scarcity as much as it is an issue of governance.

To substantiate this point, the authorities have used the water problems as an excuse to shift the governance of the water sector from government control to private hands. Ineffective institutional arrangements amongst public sector organisations is given as the excuse (Chan, 1998). Hence, privatization of water supply and raising water tariffs were preferred governance options as privatisation was seen as the panacea to all of Malaysia's water woes (Chan, 2006b). Consequently, since the Mahathir period of active privatization of government utilities since the early 1980s, many states have privatized some or all of their water supply functions. Unfortunately, however, this form of water governance has not yielded the success that it claims but on the other hand has led to losses and failures in the privatization (Chan, 2004a). Hence, civil society has argued strongly against privatization (Santiago, 2005).

Traditionally, water governance in Malaysia is largely based on a top-down approach. Under this approach, the Water Supply Department (JBA) under the various state governments' machinery builds the dams, treatment plants, main pipes and supplies the water to the consumers. Management of rivers is largely top-down. As the main source of water supply (97 % of water supply) is from rivers, such an approach is not effective in controlling pollution (Chan, 2002). Elsewhere, a top-down approach for river management is proven ineffective (Karamouz et. al., 2004). This approach is also characterized by a water supply management (WSM) approach. This approach has been found wanting as consumers do not cooperate. Water consumers should be allowed to play a more active role as a "partner" of the water authorities via participation in the privatization exercise, fixing of water tariffs, conservation and recycling of water, water education and awareness and the ultimate aim of creating a "Water Saving Society" in Malaysia.

The authorities need to employ a more "people friendly" approach by allowing the public, including NGOs, to play a greater role in water management via consultation and participation in all developments relevant to water (Sharma *et. al*., 2004). Water is everybody's business and everyone's responsibility ranging from the government to water corporations, water authorities, water companies, consultants, industries (including hotels, resorts and theme parks), businesses, NGOs, and the citizenry (Chan, 2006a). All should work together in a partnership to ensure that water resources are exploited sustainably in the best economic manner that does not harm the environment but guaranteeing everyone access and protecting the need of future generations with adequate and clean water.

Water governance

Governance is of utmost importance in determining whether a country succeeds or fails in its water management. This is especially so when a country moves from abundant water availability towards scarcity (Mesdaghinia, 1997; Mesdaghinia and

Nadali, 2007). The World Bank defines two types of water governance regimes: First, there is "Good governance" which is epitomised by "…predictable, open and enlightened policy-making, a bureaucracy imbued with professional ethos acting in furtherance of the public good, the rule of law, transparent processes, and a strong civil society participating in public affairs" (Santiago, 2005). In terms of "Poor governance", however, the World Bank says it is "…characterised by arbitrary policy making, unaccountable bureaucracies, un-enforced or unjust legal systems, the abuse of executive power, a civil society unengaged in public life, and widespread corruption." Elsewhere, the UNDP defines governance in the following way: It is "… among other things participatory, transparent and accountable. It is also effective and equitable. And it promotes the rule of law." In short, governance is about the exercise of power in managing a nation's affairs, in this case the management of water resources. UNDP's activities at the 3rd World Water Forum in Japan in March 2003 highlighted the importance of water governance. UNDP together with its partners committed to continue the Dialogue on Effective Water Governance, among other things, to follow up actions as a part of the Type II Partnership for Effective Water Governance. For example, UNDP Malaysia presented the Urban Governance Initiative (TUGI), highlighting a tool that helps to promote good water governance which has a score card that allows people to assess the quality of local water services from a governance perspective. Such a level of governance is experienced in Penang state whereby Water Watch Penang, an NGO, is working in close-partnership with the government and the private sector in ensuring good governance of the water sector (Chan, 2007a).

However, despite claims that the country is undergoing a civil society revolution with the proliferation of NGOs and other civil society groups, much of water governance, as is the case of governance of other sectors, is still largely run by a top-down government machinery. Moreover, when government has relinquished such powers of governance to the private sector, the power of governance is then left in the hands of powerful companies with close connections to those in power. Hence, it is not surprising to see power being exercised in the governance of water resources in the country that lacks transparency, accountability and professionalism. For example, Santiago (2005) has lamented that when the town of Kluang experienced water shortages between July 2005 and Nov 2005, it was discovered that the water was being channelled to a 2000-acre agri-business farm and a 700-hectare oil palm estate. How and why people are placed as second to business is beyond comprehension.

Because of bad governance, people believe that the Johor state government has compromised the peoples' right to water, and that the state government has acted in favour of agri-business interests as opposed to the collective interests of 200,000 citizens (Santiago, 2005). This is bad governance to say the least. Santiago (2005) has also alledged that bad governance is to blame for the non-transparent water concession agreement between Syabas and the Federal and the Selangor state governments. How can a government agreement that affects water supply to hundreds of thousands of citizens be considered as "Classified"? This is not only bad governance but totally disrespectful of citizen rights. Santiago (2205) asks "Why is the concession agreement still a secret? Is there a role for civil society and consumers in the governance structure of the concession?" Equally, lack of transparency resulted in consumers in Selangor, Putrajaya and Kuala Lumpur being excluded in water tariff increase discussion.

In Malaysia, however, legislation and the role of law in water governance is strong. There are sufficient laws to ensure water governance is governed by law. Unfortunately, enforcement of laws is loose and ineffective due to poor governance practiced by those in charge. Water governance in Malaysia has a long history, with legal providing the legitimate and legal framework for water governance. Most laws and rules related to water in Malaysia relate to the protection of water resources, prevention of pollution and thefts, abstraction, treatment and supply of water but fail to underline the social aspects such as the principles of water management, the rights and responsibilities of states, private sector and

individuals. But new laws have been passed that can better take care of issues of water ownership and access; water protection and development, environmental flow and ecosystem protection.

More recently, the Federal Government has initiated a move to transfer water governance from State Governments to the Federal Government. Although governance implies a shift in authority from state governments to federal government, critical issues remain regarding how one should locate power and authority in the area of water governance. This appears to throw the privatized water companies into disarray as the Federal Government would have to literally "buy" back the privatized rights from the private companies. Hence, while most countries are decentralizing their water governance, Malaysia is going the opposite direction by centralizing its water governance. All over the world, the debate on decentralization versus centralization in the water sector is a continuing one (Chan and Bouguerra, 2007). In some countries, there are indications favoring centralization while elsewhere, there are also trends facing decentralization. However, many countries are moving towards decentralization as it is argued that centralization does not take local stakeholder knowledge and interests into account; but that it imposes a top-down approach which often benefits the vested interests of the rich and powerful while undermining the poor and the powerless. Furthermore, decantation can be more cost-effective and can improve local democratic control over water resources and make government more transparent and accountable.

The situation in Malaysia

Currently, only about 30% of water utilities in the country are privatized. With the proposed take-over of the water sector by the Federal Government, full privatization of the water sector becomes the main thrusts of the government's long term objective of achieving greater effectiveness and cost reduction. Arguably, the government has a case when it comes to many non cost-effective agencies which consume a great chunk of the annual budget. However, privatization has its pros and cons, and not all public utilities can be privatized. Several questions will have to be asked before privatization of water can go ahead: (i) Should a basic need of humanity be privatized? (ii) Can privatization be justified on moral or ethical grounds? (iii) Who will determine the price of water after privatization? (iv) What happens if a poor person cannot afford to pay his/her water bill? (v) What will happen to our water supply if the water company goes bankrupt? If and when all the above questions are justifiably addressed, and privatisation is 100 % transparent (based on meritocracy) and it brings about greater efficiency, professionalism, less burden to the masses and government, and will improve the economy, then by all means privatise.

In Malaysia, the "Privatization Policy" was mooted when Dr Mahathir Mohamad, our fourth Prime Minister came into office in 1981. Since its introduction in 1983, the country's privatization program has saved the Government some RM132.16 billion and RM7 billion in capital and operating expenditure, respectively (RM = Ringgit; RM1.00 = US$0.31). In addition, the sale of the Government's interests in various entities raked in proceeds amounting to RM23.1 billion. However, it must be pointed out that the majority of the privatized entities were already highly successful even before privatization. These include manufacturing, transportation, telecommunications, etc. For example, the national car Proton and its distributors were a monopoly.

Arguably, the main argument for privatization is that government can shed a large chunk of its annual expenditure on water supply, and could use the money elsewhere, for example in education. In addition, it has been argued that the majority of water works departments, water corporations and other government departments involved with managing water are not as effective as they ought to be, as testified by their susceptibility to water stress. There are now increasingly frequent occurrences of dry spells and water crises in recent years, most notably happening now in

Malacca, Selangor and parts of East Malaysia.

The painful fact is that Malaysia does not possess an efficient water management system yet. How else can one explain the average Non-Revenue Water (NRW) losses (water loss through leakage, theft, public use, faulty meters, meter-reading errors and other unaccountable losses once it leaves the treatment plant) ranging from 38 % to more than 50 % in many states? Water thefts are also rampant and pipe bursts often take the relevant agencies a long to repair, hence losing a great deal of precious water. If we can tackle half of the NRW losses (via replacement of old mains), many states would have solved their water problems and there would be no need to build expensive large dams (the negative impacts on the environment, wildlife and local communities of which are well known).

There are more cases of failures in privatization of water resources in Malaysia than there are successes. Sabah is deep financial crisis and never recovered from massive overspending and privatization resulting in a cycle of debt that caused serious cash flow problems for the government. Since 1992, the Sabah government had signed several lopsided deals and over-priced contracts with private firms well beyond its capacity to pay and these had completely drained its treasury. By the end of 2002, the state owed RM524mil to three water concessionaires – Jetama, Timatch and Lahad Datu water supply. Clearly, such massive debts have never happened in the old days before privatization. The privatisation of water supply in Kelantan to KelantanWater Sdn Bhd was debated at the State Assembly sitting and six of the 19 oral questions forwarded by assemblymen to the State Government were on the issue. UMNO Kelantan has proof that Menteri Besar Datuk Nik Abdul Aziz Nik Mat was aware of the contents of the agreement on the State's privatization of water supply, its deputy chief Datuk Annuar Musa said today. He said Nik Aziz was aware of the agreement signed between Water Thames Water of London and the State-owned Kelantan Darul Naim Foundation. Another glitch in the privatisation programme is the one involving the debt-ridden Indah Water Konsortium (IWK), which the Government has to buy back from Prime Utilities Bhd for RM192.54 million early 2000; the latter is now managing IWK on behalf of the Government (IWK was awarded the sewerage treatment and management services in 1994). Regrettably, the Government was forced to buy back the company to safeguard public interest and ensure that the services are not disrupted.

Arguably, there have been some successes in water privatization. One is the Perbadanan Bekalan Air Pulau Pinang Sdn Bhd (PBAPP). Subsequently, the PBA Holdings, was listed on the KLSE main board. The main point to note here is that the PBAPP is involved in the entire spectrum of the water supply business from the sourcing and treatment of raw water, to the final sale of treated water to end customers. This is done through its sole and wholly-owned subsidiary PBAPP, the corporatised entity of the Penang Water Authority (Perbadanan Bekalan Air Pulau Pinang).

Other water companies such as Puncak Niaga and Intan are also privatized but are only involved with water treatment, the lucrative part of water supply. Both these companies are also successful, as they do not take on the burden of building dams or repairing leaking mains/pipes. PBAPP has an excellent reputation and is well regarded as among the best-managed water companies in the world. It boasts the lowest non-revenue water (NRW) of 22% in the country, high water revenue collection of 98%.It has a good profit track record and is considered the "cash cow" of the Penang State Government. Although the PBAPP holds the monopoly to supply water to 1.26 million customers in Penang, it is regulated (and somewhat controlled) by the director of water supply. Another note is that its existing licence is not forever, but will expire in 2005. This means its performance will be up for review, and a renewal is only assured as long as the state government's shareholding does not fall below 51 %. In order to maintain control of the company in government hands, the Penang State secretary, will hold 55% of PBAPP (which is to be maintained at all times) plus 1 % special share upon listing.

Privatisation of the water industry has limited advantages based on the current approach to water management. Many state's water agencies are encountering problems simply because they rely almost 100% on water supply management, i.e. focussing only on supply – i.e. when there is not

enough water, we build more dams and treatment plants. They do not focuss on water demand management (most agencies do it on an ad hoc basis, like during World Water Day or when there is a drought) which I think, is the key to effective water management. This is because, by virtue of their nature, humans will always want more if you do not limit them to any resource. Imagine giving a child a bank account with a thousand Ringgit but not teaching him/her the virtues of savings. Soon he/she will spend all the money and ask for more! Moreover, water demand (doubles every two decades) is increasing at a much higher rate than water supply (limited due to the fact that the amount of water is fixed – or can become less if we pollute more and more of it) can cope with and many river basins have already reached their water supply capacities. At the moment, the Malaysian system does not limit people to water use (until there is a problem). Unless privatization also focuss on demand management (which I think is unlikely because you cannot make money from a water saving campaign! Hence only NGOs like Water Watch Penang will do such "unprofitable" things).

The government must seriously examine the pros and cons of privatization before jumping into it. This is because an inefficient water company (there have been numerous examples in Malaysia) will seriously harm foreign direct investment into Malaysia. The fact is there can be no development without water! Every time we build a new housing or industrial estate, we need water. Similarly, it is not possible to develop any new projects (agriculture, mining, industrial, etc) without water. Foreign investors do not just look at political stability, cheap labour, and economic viability but also the existing infrastructure – one of which is water. If one were to count the amount of losses incurred by businesses during the 1997/98 water crisis in the Klang Valley, it would run into millions of Ringgits. Hence, if water supply is awarded to an inexperienced and inept company (which may likely go bust), the consequences can be much more severe than merely water rationing!

Water tariffs can be used as a tool in controlling water abuse and wastage. However, tariffs themselves are closely linked with privatization and can be abused if not controlled. Despite all the claims that there will not be hikes in water tariffs after privatization, the majority of cases have experienced hikes in water price. Some examples are in Penang, Selangor, Kelantan and the Federal Territory. Even the Works Minister Datuk Seri S. Samy Vellu has warned the public to be prepared for costlier water. In fact, many water agencies have increased their water tariffs in recent years and many are planning to do so, ostensibly to discourage people from wasting water. Samy says our water tariffs are one of the lowest in the world for 43 years, ranging from RM1.40 to RM1.59 per 1,000 gallons. As a comparison, Malaysia's average water price is one of the lowest in the world and has not increased much over the years though internationally, the average price of water had increased by 3.8 % from 2000 to 2001. The World price for water averaged 76.4 cents/m^3 (1 m^3 = 264 gallons of water). Interestingly we now sell water to Singapore at 3 sen per 1000 gallons or 0.007 US cent per 1000 gallons (0.0265 US cents/m^3).

The current water rates are simply too low, being politically controlled. All states charge less than RM1 for the first 35 cubic metres of water used. In fact, the price ranges from 31 sen (Pulau Pinang) to 90 sen (Sabah), meaning Sabahans pays three times as much for their water compared to Penangites. The strange thing to note is that domestic rates are the same as industrial rates. Surely, the Sabah government should charge industries a much higher rate than the rakyat. A higher rate for industries could be used to subsidise the domestic rate. For example, if we raise the industrial rate to RM1.35 then the domestic rate can be charged at 45 sen. Samy says the water charge makes up only 1 % of average household's monthly disposable income. Such a cheap tariff, while ensuring that everybody has access to water, is counter-productive as it inadvertently encourages over-usage and wastage.

Table 3 indicates the percentage of monthly household expenditure spent on numerous essentials in Penang, based on a survey done by Water Watch Penang in December 2002. It indicates that the amount spent on water is almost negligible, 0.75 % of monthly household income. Certainly, such a low percentage of income will

not hurt Penangites even if the price of water were to be increased ten times. While not suggesting that the price be increased that much, this being an example, the water bill would still be only RM150 per month, 7.5 % of the household income. Should there be a price increase, the basic amount that a family of 5 needs (about 30,000 litres/month) should be charged at existing rates. Families using 40,000 litres per month ("Slight Water Wasters"); those using 50,000 litres per month ("Moderate Water Waters"); those with water consumption of 60,000 ("High Water Wasters"); and those using 70,000 litres or more per month ("Excessive Water Wasters") should be charged based on an increasing tariff rate, kind of like income tax tariffs. Such a tariff would then be fair (as the poor will not be victimized, only the water wasters).

The percentage of water bill over household incomes for poor and hardcore poor households in Malaysia is of high importance. Hence, even for poor households and the hardcore poor, the percentage of the household income spent on water is still small, ranging from about 1 to 11 %. However, the poor would feel the implications of a price increase. For example, if we increase water tariffs two-fold, the large users (large families) would spend more than 20 % of their monthly income on water. This would become unacceptable and puts too much a strain on the hardcore poor. Logically, as suggested earlier, price increases should only be for the water wasters. Those who save water, i.e. use the minimal amount, will not be affected by price increase. The increase should only be at the higher end, i.e. for large users or water wasters.

In the case of large extended families that use a lot of water, they can apply to the water authorities for exemption from price increase. For example, in Penang, if one lives in a house with 16 persons or more, one can apply for the special rate. In any case, large extended families would have higher household incomes and would be able to afford it.

Pricing is one sensitive issue that has been kind of left aside by politicians, ostensibly to ease the public's burden during the current economic slowdown. Based on the current water rates for domestic consumers in Penang (22 sen per litre for the first 20,000 litres; 42 sen per litre for the subsequent 20,001 to 60,000 litres; and 70 sen per litre for anything higher), it is clear that no one will pay any attention to save water. The current rates are simply too dirt-cheap! Such a cheap tariff, while ensuring that everybody has access to water, is counter-productive as it inadvertently encourages over-usage and wastage. The international standard recommends that each person have access to at least 165 litres of water per day. But to make sure nobody suffers any water stress and that everybody has more than enough water for their entire daily needs, a 200 litres per day limit is proposed. Based on a mean family of 5 persons, a family would need 200 litres X 5 = 1000 litres per day or 30,000 litres per month. This is the basic amount that a family of 5 needs. A family using not more than this amount is considered to be using water normally without wastage. Families using 40,000 litres per month would be classified as "Slight Water Wasters"; those using 50,000 litres per month will be "Moderate Water Waters"; those with water consumption of 60,000 are "High Water Wasters"; and those using 70,000 litres or more per month are "Excessive Water Wasters". Privatisation, according to the principles set up by our national privatization policy, is neither a crime nor a pain to the rakyat. It is supposed to bring about better and more service, less burden to the government, be a catalyst in kick-starting the economy, create jobs, etc. However, it is the way in which privatization is carried out that is the problem. Privatisation should be independent of politics. It should be transparent, accountable, based on meritocracy and open tender. If we cannot guarantee these principles, then there is no guarantee that privatisation will succeed. Privatization has inadvertently created a very disturbing pattern in that many of the failed privatization cases in Malaysia are "saved" by the government. Apparently, when a privatization venture goes wrong, it is kept afloat by the government through various means. For example, within the water sector itself, the government has bought back Indah Water Konsortium when it failed. Another example is the Bakun Dam. There are other examples in MAS, the LRT systems, shipping, banking etc. All these examples are clearly not good for the country as the money used to keep them afloat comes from the taxpayers. Such funds could have been used more meaningfully in

education, health care, improving rural conditions, environmental restoration, etc.

Notwithstanding the success of privatization in other sectors of the economy, privatization of the water sector presents numerous ethical/moral, equity, economic as environmental considerations. Government should weigh its options very carefully before making the plunge. Water should not be treated like a commodity as it is a basic need without which nothing will survive. The authorities, whether water departments or related departments, must review and examine all water privatization proposals before given the green light. More significantly, the National Water Resources Council (NWRC) must preside over all privatizations of water services. The NWRC should set up a panel of assessor (made up of government, consultants, NGOs, academics and the public) to assess and evaluate privatization proposals. Privatisation in itself is not a bad thing. It is the ways and means by privatisation is carried out that makes it ugly at times. The authorities should work with industry and NGOs (who are made up of professionals and experts). As such, NGOs have rich human resources that can be tapped by government in government-NGO partnerships in water management. There are numerous areas which need attention in the area of water management, including protecting of catchments, controlling pollution, managing NRW, educating the masses and water conservation campaigns, improving water efficiencies in homes, recycling options for industry, etc. All these need to be addressed. Privatisation is not the panacea of all our water woes, even when it is successful. Water issues must be tackled holistically in all areas. Ore importantly, water is everyone's responsibility ranging from the government to water corporations, water authorities, water companies, consultants, industries (including hotels, resorts and theme parks), businesses, NGOs, and the rakyat. It is with all these partnerships that we can ensure that water resources remain sustainable and our children and future generations guaranteed with adequate and clean water.

Chan (2004b) stresses that stakeholder participation in water governance is imperative in ensuring sustainable management of water resources. This is because without the support of all stakeholders, both domestic and international water governance will not succeed. There will be wastage, abuse and non-cooperation as the water management is deemed to only benefit a minor section of involved parties. Involving the people affected in decision-making in the water sector elicits better response and cooperation. When people feel that ownership of water resources, they are more motivated to cooperate and implement whatever decision arrived at. Involving all stakeholders in governance also becomes more inclusive as it actively engages people generally excluded from the decision-making and policy process (e.g. the poor, the powerless, women, indigenous groups, squatters, illegal immigrants, etc). Obviously, stakeholder involvement also enhances fairness of the decisions made in the water sector. In modern societies, stakeholders are well educated and are often water experts who can contribute substantially to management of water resources. Clearly, more transparent and greater stakeholder/public empowerment governance structures are needed to improve governance of the water sector in Malaysia.

Finally, other than the above mentioned issues, Santiago (2005) mentioned that there are many challenges to better water governance in Malaysia. First, the country is confronted with the following questions: Is government-managed or private-control water sector more efficient? (Barlow and Clark, 2002) Second, are the examples currently on public and private sectors management practising good or bad governance? Thirdly, is the public good served in an open, transparent, and democratic manner? Fourthly, are there enlightened policy making coupled with a bureaucracy committed to excellence and the welfare of the people? And finally, is there strong NGO and peoples' participation in the governance of water resources? All these questions need to be addressed adequately before Malaysia can claim that it is successful in water governance. Moreover, even if it is considered successful (for example in comparison to neighbouring South-east Asian countries countries), Malaysia may not be at par in water governance efficiency when compared with developed countries. Moreover, success in water governance need not necessarily be measured in terms of the usual water industry

Key Performance Indices (KPIs) such as high profits, percentage of population served, low non-revenue water rates, or low water tariffs but should incorporate other socio-environmental KPIs such as access to the poor, public consultation, involvement of stakeholders, Corporate Social Responsibility (CSR), Corporate Environmental Responsibility (CER), Social Impact Assessment (SIA), environmental indicators, recycling, etc. (Chan, 2007b)

In conclusion, water governance in Malaysia can be considered successful in the sense that water is served to more than 95 % of the population, water tariffs are some of the cheapest in the world, the poor is not denied access, and water supply is 24 hours per day. However, there are many areas that need improvement to achieve better governance in water management. Privatisation is not the main problem in water governance. Government should consider all the good points of governance while eliminating the bad points. If carried out professionally with transparency and accountability, privatisation can be successful as shown by Penang State. Government should also consider improving Government-controlled water departments (JBAs) by improving efficiency, staff qualifications, state of the art infrastructure and training, and the committed to excellence, public service and integrity. State-owned water entities should be audited professionally by third parties annually to ensure profitability and efficiency. Governance of the water sector should be strictly run by professionals with no outside interference.

Politicians (whether or not they have a vested interest) should be barred from interfering in the water sector. Currently, despite claims of non-interference, it is widely believed that many water companies are linked to powerful politicians, the awarding of contracts and the setting up of contracts not fully transparent, and that the tariffs are also influenced by politicians. Within the JBAs that run the water supply, politicians that govern should act on the professional advice of the civil service and not the other way around. Santiago (2005) has also claimed that under the current scenario, politicians have successfully subjugated the civil service in order to promote their personal and political agenda. Much like the entire government machinery, the Prime Minister has launched a war against corruption since coming into office in 2003.

In the water sector, there should also be an all-out war on corruption, both in the JBAs as well as in the private sector. To achieve the above objective, the government should make all contracts in the water sector awarded through open tender with public consultation. This would ensure professionalism, fairness, transparency, accountability and good governance. Equally, all contracts and other relevant documents drawn up between the government and private companies should not be "classified" but instead be public documents available to the public for discussion, review and improvement. Furthermore, in order to ensure better governance, the government must involve all stakeholders in the water sector, especially civil society and NGOs (Chan, 2005; Chan, 2008).

Finally, the Federal Government should reconsider its plans to centralize the water sector by taking it over from all State Governments and to eventually privatise the entire water sector. Even today, many states are not totally in favour of such a takeover. Moreover, takeover attempts have stalled in many states due to costs, prize of assets, tariffs, and other issues. Most importantly, civil society argues that such centralization would be contradictory towards involvement of all stakeholders, especially local communities. Additionally, the takeover would also pose problems to many states that had already privatized the water sector. In such cases, the Federal Government would have to negotiate to buy back the concessionaires. Finally, governance of the water sector is currently lacking in terms of Integrated Water Resources Management (IWRM) (Jonch-Clausen 2004). For greater overall effectiveness of water governance, the logical way forward in ensuring sustainable development of Malaysia's water resources is via IWRM.

ACKNOWLEDGEMENTS

The author acknowledges the research grant 203/PHUMAINITI/671011 provided by Universiti Sains Malaysia that has resulted in the publication of this paper.

REFERENCES

Alam, J. B., Chowdhury, R. K ., Uddin, Z. A., Amin, A. S .M., and Chowdhury, A. K .M . H .B., (2007) .Sustainable approach of solid waste management of small urban area: case for Habibganj Municipality in Bangladesh. *Iran. J. Environ. Health Sci. Eng.* 2007. **4** (3): 181-190.

Anwar Fazal (2007). The Challenges of Good Governance in the 21st Century. In Chan N W and Bouguerra L (Editors) (2007) *World Citizens' Assembly on Water: Towards Global Water Sustainability.* Penang: Water Watch Penang and Alliance for a Responsible, Plural and United World, 14-18.

Barlow, M., and Clarke, T., (2002). *Blue Gold – The Fight to Stop the Corporate Theft of the World's Water*. New Delhi: LeftWord Books.

Bouguerra, L., (2006). *Water Under Threat*. London: Zed Books.

Chan, N. W., (1998). Institutional Issues for Water Management in Malaysia. In *Selected English Papers of The Asian Conference on Water and Wastewater Management, Tehran, March 2-4 1998.* Tehran: PR Committee of Asian Conference on Water and Wastewater Management, 27 - 42.

Chan, N. W., (Editor) (2002). *Rivers: Towards Sustainable Development.* Penang: Penerbit Universiti Sains Malaysia.

Chan, N. W., (2004a). *Tackling Water Crisis: Is Privatisation and Increasing Water Tariffs TheAnswer?* Proceedings in CD Rom of the International Conference "Inaugural International Conference – Southeast Asia Since 1945: Reflections and Visions", 20 – 23 July 2004, Penang, Malaysia. Penang: Asia Pacific Research Unit, School of Humanities, Universiti Sains Malaysia.

Chan, N. W., (2004b). *Managing Water Resources in the 21st Century: Involving All Stakeholders Towards Sustainable Water Resources Management in Malaysia*. Bangi: Environmental Management Programme, Centre for Graduate Studies, Universiti Kebangsaan Malaysia.

Chan, N.W., (2005). Sustainable Management of Rivers in Malaysia: Involving All Stakeholders. *Intl. J. River Basin Management*(2005). **3**(3): 147-162.

Chan, N. W., (2006a). A Comparative Study of Water Resources Usage by Households in Georgetown - Malaysia and Pattaya - Thailand. *Iranian Journal of Environmental Health Science & Engineering* (2006). **3** (4): 223-228.

Chan, N. W., (2006b). "Using tariffs and water demand management for sustainable water resources management: examples from Malaysia." Paper presented at the Regional Conference on Water Financing "Addressing Financing Challenges through Good Governance", May 30-31, 2006, EDSA Shangri-La Manila.

Chan, N. W., (2007a). Partnerships in Integrated Water Resources Management (IWRM): A Case Study of Water Watch Penang. In Chan N W and Bouguerra L (Editors) (2007) *World Citizens' Assembly on Water: Towards Global Water Sustainability.* Penang: Water Watch Penang and Alliance for a Responsible, Plural and United World, 47-56.

Chan, N. W., (2007b). The Perbadanan Bekalan Air Pulau Pinang Sdn Bhd (PBAPP): A Good Example of Corporate Social Responsibility of a Private Water Company. In *Proceedings of International Forum on Water Environment Governance in Asia – Technologies and Institutional Systems for Water Environmental Governance*, Ministry of Environment, Japan, Tokyo, 19-25.

Chan, N.W., (2008). Sustainable Management of Water Resources in Malaysia: A Shared Future Involving All Stakeholders. Paper presented at the Asia Pacific Regional Water Conference 2008, Sheraton Subang Hotel & Towers Malaysia, 18 & 19 November 2008.

Chan, N. W., and Bouguerra, L., (Editors) (2007). *World Citizens' Assembly on Water: Towards Global Water Sustainability.* Penang: Water Watch Penang and Alliance for a Responsible, Plural and United World.

http://www.undp.org/water/about_us.html. Accessed 14/07/09

Jonch-Clausen, T., (2004). "…Integrated Water Resources Management (IWRM) and water Efficiency Plans by 2005" – Why, What and How? Global water partnership TEC Background Papers No. 10, Global Water Partnership,Stockholm.

Karamouz, M., Mahjouri, N., and Kerachian, R., (2004). River Water Quality Zoning: A Case Study of Karoon and Dez River System. *Iran. J. Environ. Health Sci. Eng***.** **(** 2004). **1** (2) :16-27.

Majlesi, M., and Yazdanbakhsh (2008). Study on wastewater treatment systems in hospitals of Iran. *Iran. J. Environ. Health Sci. Eng.* (2008). **5**(3): 211-215.

Mesdaghinia, A., (1997). Water and Wastewater Situation in Iran. In Chan N W (Editor) (1997) *Proceedings of the international conference Meeting Water Challenges in the 21st Century*. Paris: Water Mobilising Programme of the Alliance for a Responsible and United World, 78-81.

Mesdaghinia, A., and Nadali, A., (2007). Water Situation in Iran: Challenges and Achievements. In Chan N W and Bouguerra L (Editors) (2007) *World Citizens' Assembly on Water: Towards Global Water Sustainability.* Penang: Water Watch Penang and Alliance for a Responsible, Plural and United World, 80-83.

Santiago, C., (2005). "Murky figures cloud water tariff hikes: Challenges and issues of governance in water management in Malaysia" *Aliran Monthly*(2005). **25** (11).

Sharma, D. S. K., Mathew, D., Chan, N.W., and Wong, C. F., (2004). "Employment of Water Demand Management Measures for Effective Water Resources Management in Malaysia". In Jamaluddin Md. Jahi, Kadir Ariffin, Salmijah Surif and Shaharudin Idrus (Editors) *Facing Changing Conditions. Proceedings of the 2nd Bangi World Conference on Environmental Management*. Bangi: Environmental Management Programme, Centre for Graduate Studies Universiti Kebangsaan Malaysia and Environmental Management Society (EMS) Malaysia, 235-249.

Tan, Sri Razali Ismail., (2001). *Keynote Statement*. In *Sustainable Management of Water Resources in Malaysia.* Global Environment Centre, Petaling Jaya, 7 -10.