

## Invited opinion interview: Two decades at the center of world water policy

Interview with John Briscoe by the *Water Policy* Editor-in-Chief<sup>1</sup>

**Jerome Delli Priscoli (JDP):** John, you have been at the center of many important water resources policy changes over the last few decades. I would like to start by asking: “What do you think have been the most important water policy changes in the last decade?”

**John Briscoe (JB):** Ten to fifteen years ago the discussions on water policy were discussions of how the contemporary lessons based on rich countries’ experiences can be transferred to the poor countries. For example, discussion would cite the challenges in the United States or Europe and then infer principles which must guide water management and water policy in the developing world.

Today, the economic geography of the world has changed, and it is the big middle-income countries that are increasingly the driving force and increasingly setting the tone for debates on development. The Chinese, the Indians, the Brazilians and other middle-income countries are now finding their own voice and saying that the simple transposition of contemporary lessons from industrialized countries to the developing world is inappropriate.

For example, look at infrastructure. In the rich countries, infrastructure, be it for navigation, energy, irrigation or water supply has basically been built and therefore the challenge in the rich countries is primarily one of managing with the infrastructure they have. People in rich countries have often not understood their own history and have often concluded “since we need no more infrastructure, poor countries also do not need it”. However, in the developing world, the huge challenge is both to build infrastructure and then manage with it. The big middle-income countries are restoring some balance to this debate, by investing themselves, and in policy debates at institutions like the World Bank.

This change is very welcome in the poorer countries of the world.

**JDP:** In that regard, what contribution to this changing environment do you think the World Bank has made?

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**JB:** The Bank's Board comprises members who represent the 180 countries who own the Bank. So the Bank is a place where contesting ideas from around the world should be played out and where changes in broader economic geography are reflected. The World Bank Water Strategy of 2003 was a watershed, if you will, for the Bank; not just on the issue of water and but even more broadly on the issue of infrastructure. In its early days the World Bank was basically an infrastructure bank. By the late 1990s only 5% of Bank lending was for infrastructure. The fashion of development lending had shifted to social issues as embodied in the Millennium Development Goals which prioritize health, education, gender and water and sanitation services. But water infrastructure, as an instrument for growth and as a precondition for economic growth, had essentially been thrust aside through a process led by the rich countries which already have their infrastructure.

There was an enormous fight within the Bank and a struggle on the Bank's Board to redefine the Bank's position. This is documented in detail in Sebastian Mallaby's landmark history ("The World's Banker") of the Wolfensohn-era Bank. Critical in this process was that China, India and Brazil basically stood up to the "social-first" view of the rich countries and insisted that an adequate infrastructure platform was essential for development.

There are two good and lasting outcomes. First, the Bank has gone back into the infrastructure business largely as a result of the process that took place around the 2003 water policy. Infrastructure now accounts for about a half of all World Bank lending. Second, because of its role as the thought leader on development issues, the change in Bank policy has had huge impacts in bringing infrastructure "back in from the cold" in development policy.

Within the Bank, however, the job is far from done. Nothing has been done to change the "spaghetti" of internal regulations, which translate into long, drawn-out, costly and uncertain processes when controversial infrastructure is being considered. Risk-averse managers steer clear. The Bank finances no more than a few dams, for example (whereas the Chinese now finance over 200 large dams outside of China).

**JDP:** So when some international NGOs criticize the 2003 water sector strategy, saying it is getting the Bank back into building big infrastructure, your response is that that's generally a good idea if it's done properly?

**JB:** Absolutely. I am proud to have played a role in this change. The developing countries are totally supportive. And sometimes the Bank takes the right stance. To cite just one example, I was pleased to see Mr Zoellick, the President of the World Bank, is now saying that the Bank will help on the INGA Power Projects in the Congo. This would have been unthinkable ten years ago.

**JDP:** I and others have listened to many speeches you have given and one figure that you often show in your slides is how frequently large water infrastructure projects are contested or protested in the Bank's system. Is that changing?

**JB:** No. Bank country directors and vice presidents are well aware of what sorts of projects are going to bring major transactions costs and major headaches to them and so the "smart managers" know not to get engaged with them. For a typical, cautious manager, an Inspection Panel case is to be avoided at all costs.

The central point here is that this risk-aversion means that the Bank does not play what I believe to be its most important role, and one where it has a unique comparative advantage. Let me explain.

The Bank brings three assets to middle-income countries. It brings some money, some knowledge, but, most of all, it brings reputation. Let's take the case of Brazil. The Bank's lending in Brazil averages around \$2 or \$3 billion a year. It's the biggest hard currency borrower from the Bank. The domestic development

bank in Brazil lends around \$70 billion a year. So the domestic development bank in Brazil lends much more than the whole World Bank lends. The Bank's money in Brazil is relatively small. The Bank also brings practical knowledge. This is an important asset, especially when coupled with lending. But by far the greatest value of the Bank in a country like Brazil is its reputation. In the time I was Country Director in Brasilia, President Lula most valued the Bank's ability to engage in very difficult, very controversial issues; situations where the Government actually couldn't bring the issues to conclusion itself. The help of a highly-regarded third party was decisive in several areas.

For example, this was true on the controversial construction of two large run-of-the-river hydropower projects, each of around 4,000 megawatts, in the Amazon. If you think dams are unpopular in rich countries, try talking about a dam in the Amazon! These hydropower projects were the highest priority for President Lula because Brazil faced a growing gap between energy demand and supply and these were the cleanest and cheapest energy for Brazil. Since their location was difficult and contested and because the Bank was willing to put its reputation in play in Brazil, the Bank was able to actually help the Government of Brazil get the environmental licenses for the projects. Working with the Minister of Energy and the Electricity Regulator, the Bank also helped secure an open transparent bidding process which meant that the projects cost the Government \$5 billion instead of \$9 billion. And none of this shows up in the Bank's books as a 'project'! The Bank was able to do this through a technical assistance window, deploying both Bank knowledge and, especially, reputation.

If the Bank had actually invested in those projects, it would have had to deal with all of these extensive "safeguards" in the Bank. This would have cost an enormous amount in both time and money and the outcome would have been uncertain. So the sweet spot here was not to lend, but to use the much more important (in Brazil) asset of reputation to serve the country.

This is both a happy story and a sad one. Happy in that this was done (with the Minister of Energy writing: "the support you have given us is fundamental to setting Brazil on a new and sustainable energy development path... It is this support which makes the World Bank such a highly valued partner in Brazil"). But a sad one because, unlike Brazil, poor countries *do* need investment from the Bank. I was proud to have played a role in making two flagship hydro projects – Bujagali in Uganda and Nam Theun 2 in Laos – come to fruition. But whereas the Brazilians started building in a year, this took 15 years in the Bank-financed projects in Laos and Uganda!

It is regrettable, in my view, that within the Bank, "the Bank's reputation" usually means the way the Bank is perceived by rich-country NGOs and governments and is often regarded as something to put in a big locked box so that it won't be diminished. I have always argued that this is an abrogation of the Bank's sacred mission because the Bank is a development institution which should be far more concerned with its reputation in developing countries, and it should be employing its credibility especially on controversial issues where this credibility can be critical.

**JDP:** Historically, the World Bank has been involved in some major water issues and conflict. Today we hear many people speaking about water as causing conflict or wars or precipitating macro social violence in the future. You seem to be saying that the Bank is one of the institutions that could possibly help in some mediating function to avoid such futures. I am sure there are many voices that would disagree with this assessment. How do you feel about the broad functions of water investment and conflict and the potential World Bank role in the world of the 21<sup>st</sup> century?

**JB:** The Indus Water Treaty of 1960 is the iconic case of such a Bank role. In 1947, when the partition of India and Pakistan took place, the line between India and Pakistan went right across the five rivers which

feed into the Indus. Eighty five percent of the irrigated area was in Pakistan but after Partition the headwaters were in India. This was and is an existential threat to Pakistan. These were the heroic early stages of the Bank's existence. The Bank spent ten years working with the Governments of India and Pakistan to construct the Indus Waters Treaty (under which the Bank has a role as a trusted third party). The other element of success on the Indus was the Bank's ability to mobilize the billion dollars of investment at that time to build Tarbella and Mangla Dams in Pakistan, and the enormous link canals. As in all such situations, one has to walk on two legs – without the infrastructure the Treaty could not have worked (and vice versa). The Indus Waters Treaty is generally regarded both as the only mechanism that has worked between India and Pakistan over the last 50 years, and the Bank's proudest achievement. The sad reality is that the World Bank of today, which is more timid than heroic, could never play such a role. We see this in the Indus now. Pakistan alternates between drought and power shortages, on the one hand, and floods on the other. Pakistan desperately needs to build storage (it can store 30 days of average flow on the Indus, compared to the 1000 days that the US can store on the Colorado or Australia on the Murray Darling). But the World Bank, fearing challenges from NGOs, will not support such projects. And although the Indus Waters Treaty is now entering a perilous phase, the Bank will not engage again. If and when the Treaty comes apart the Bank will, in my view, reasonably be asked why it was so passive.

**JDP:** Switching topics, earlier you mentioned the MDGs, the Millennium Development Goals. How is the world doing in meeting those goals? What do you think about our progress or non-progress in reaching the MDGs?

**JB:** Shameful as it is to admit, I don't even follow their progress because I consider the Millennium Development Goals to be one of the greatest setbacks for development that I've seen in my 40 year career in development. I know that sounds scandalous so let me explain why I say this.

In my reading of history, every country which has successfully lifted its people out of poverty has done so primarily by building its basic productive capacity. Central to this process has been giving priority to improving the productivity of agriculture, and creating the energy, transport and water infrastructure for rural and urban economic growth and employment generation. In the water sector this includes what my colleague David Grey calls the infrastructure "platform for growth". No presently-rich country has developed without such investments, which have been the springboard for private sector growth, for job creation, for agricultural productivity. To take but one indicator every presently-rich country has developed more than 70% of its economically-viable hydro-electric potential. Africa has developed 3% of its potential.

Not only is this the path that has been followed by all presently-rich countries, but it is the path followed by the countries who have, in recent decades, pulled their people out of poverty – like China, India and Brazil. Of course infrastructure is not a sufficient condition for poverty reduction, but it most certainly is a necessary condition! And so in the early years of the development business, the prime focus was on infrastructure (as I mentioned earlier, in Brazil the World Bank financed 12 major hydropower projects – which still form the backbone of the Brazilian electricity system – in the Bank's first 12 years in the country).

Now when we look at the MDGs we see nothing about jobs, nothing about transport, nothing about energy, nothing about infrastructure. What we do see is a list of social outcomes – primary education, gender equality, empowering of women, reducing childhood mortality, improving maternal health, combating HIV/AIDs and malaria, and water and sanitation services. Of course these are all desirable outcomes, but they are presented as THE areas of priority action for development. The fact that no country

which has emerged from poverty either historically or currently has ever followed such a set of priorities is ignored. In my view the MDGs are the ultimate expression of the social cart being put before the economic horse in development. What do I mean by this?

Look at the food crisis last year. I was the World Bank's Country Director in Brazil at the moment food crisis hit. There were many voices bemoaning the crisis, with press coverage dominated by NGOs and aid agencies who immediately called for greater support for agriculture in the developing world. What they did not mention was what their roles had been in precipitating this crisis. The NGOs did not reflect on the fact that many NGOs had stridently lobbied against many irrigation projects and other agricultural modernization projects because these "were not pro-poor and destroyed the environment". What the aid agencies did not say was that lending for agriculture had declined from 20% of official development assistance in 1980 to 3% in 2005 when the food crisis hit.

The apotheosis of this opposition to modern agriculture was the 2008 report of a \$20 million "International Assessment of Agricultural Knowledge, Science and Technology for Development". The IAASTP process was turbulent, with NGOs dominating, and the private sector exiting, and major governments expressing their reservations. This report basically said that small is beautiful, that modern, technologically-sophisticated agriculture (and especially the use of GMOs) was bad, and that the path that should be followed was small and organic and local agriculture.

I did not even know about the IAASTP when the Brazilian Minister of Agriculture called me and said, "How can the World Bank produce such an absurd report. Following the 'wrong path' Brazil has become an agricultural superpower, producing three times the output we produced thirty years ago, with 90% of this coming from productivity gains (and only 10% from increased capital, land and labor)!" So I followed up with the Director for Agriculture in the Bank. He said: "No, it's not the Bank. It's 17 organizations and countries which have done this. It's not us". I said, "Well, where's the effort's secretariat or headquarters?" The answer? "The Secretariat is in the Bank. And the Chair is Bob Watson, the Chief Scientist in the Bank [and former IPCC chair]".

So here was Brazil, whose exports helped dampen the food crisis of 2008, being told they were the villains because they followed a path in tropical agriculture diametrically opposed to what is proposed in the IAASTP report! As the Minister said: "You look at what Brazil has done over the last 30 years. We did not follow the fads of the aid community (who so drastically reduced their engagement in agriculture). While they were reducing their support by 90%, Brazil maintained, out of our own resources, a consistent high level of investment in agricultural research. Through thick and thin, we've done this. We now have the world's most sophisticated tropical agricultural science capacity and this has been fundamental to our success. You would think the Bank and the development community would learn from this..."

On the water infrastructure side we see exactly the same diverging path between what works for countries and what the aid community does. The World Bank used to be the major investor in hydropower in the developing world. By the end of the 1990s the Bank had basically exited that business, as it had all major water infrastructure for flood control, sustainable energy, agriculture, navigation. And these are fundamental in building the fabric of economic production.

It is true that the Bank's books still showed substantial investment in "water". But now this was basically MDG-friendly water and sanitation projects. Which are certainly important, but no substitute for the large, path-changing investments represented by major infrastructure.

So to get back to the MDGs; obviously all of the things on that list are desirable. But what is not on the list (and thus has not been a priority for development assistance) is almost everything – energy, transport, agriculture, infrastructure, jobs – that have been the priority for the countries which have grown and

reduced poverty. In this sense I consider the MDGs to be a massively-negative process for poor countries who have had to give priority to the MDGs if they are to get aid from donors.

**JDP:** That's quite a message to lenders and donors in the world today. What would you say to the US as a lender or a donor in this complex environment?

**JB:** I am afraid to say the US development community has been a very poor performer in the period I've seen over the last 20 years. My perception is that USAID is an institution that is hobbled by a series of earmarks and special interests. It seems like every congressman has his own local NGO or charity that he thinks AID should be funding. Thus earmarks flourish and AID programs are chopped up so that nobody could manage it as a program.

You can see this at work in the recent congressional hearings for the new AID Director. Congresspeople come in and say they're happy to have the new head of USAID and please don't forget the issues championed by the NGOs in my constituency. AID has somehow become divorced from US Foreign Policy (something I am delighted to see Secretary Clinton and Secretary Gates starting to address). To me, this is absurd and counterproductive for the recipient countries.

**JDP:** Are you referring to the well known chasm between development investment and humanitarian aid?

**JB:** Yes, and I would go further. I would say the separation includes security and development. These are all linked and legitimate objectives of the US government. I saw an astonishing illustration of this when I was in Brazil. The Brazilian Minister of Energy called me about a USAID-funded project, the "Amazon Conservation Initiative". It was a project that was explicitly designed so that a group of US and Latin American NGOs could impede the construction of infrastructure projects (including the Madeira hydro-power projects we discussed earlier) that were the highest priority of the very popular, democratically elected government of President Lula. In short, this was a US government agency, using US taxpayers' money, going into another democratic country and financing a project to make it impossible for the legitimately elected democratic government of Brazil to achieve some of its highest priority projects! The Brazilian government was outraged (as was the US Ambassador, who knew nothing about the project) and immediately told the US Government that the project would not be allowed to operate in Brazil. Here you see an extreme version of advocacy groups forcing their own basic views of the world, unrelated to the US' very good relationship with Brazil and unrelated to the development priorities of the elected government. They decided what the priority was and, with the cooperation of USAID officials, they were going to use the US Government money to do this.

I am happy to say that there are some signs of change. Contrast this to Pakistan where I have worked for decades. The US finally seems to be paying attention to the longer-term issues, which are embedded in the security-development crisis in Pakistan. Ambassador Holbrooke and his team are quite clear – the US government will only work on those issues which are a priority for the Government of Pakistan, and will do so by fostering long-term institutional relationships (rather than off-shoring everything to consulting firms and NGOs). I think there is some sort of common sense starting to descend into the system as we realize that development issues are embedded in the security crisis.

**JDP:** Since you are speaking to *Water Policy*, we'd be remiss if we didn't ask you about something you've been identified with over the years. Many identify you with the revolution towards what is called privatization in water services. Some like this but many others vilify you for this. How do you respond to this whole movement to privatization; to what it may mean, and to your role in it?

**JB:** We all learn as we go. Probably what I would say today is not quite the same as I would say 10 years ago. I see the issue as follows.

In much of the developing world, many utilities perform very poorly, with the poor always at the end of the line, with no taps or no water. When you go to most cities in the developing world, the rich have water at 20 cents a cubic meter and the poor are buying water from vendors for \$2 a cubic meter. Many of the public utilities are functioning as sort of corruption fiefdoms. The central question was, and is, how you improve the performance of these vital institutions?

Now it is important to realize that since its founding, the World Bank had poured good money after bad into many such non-functioning institutions (to this day well over 90% of Bank lending to water utilities is to public utilities). The possibility of engaging the private sector, which came to the fore in the early 1990s, necessarily and appropriately led the Bank (and many countries) to see whether this could not help.

Take the case of Manila. From 1960 to 1990, the Bank had funded four projects with the MWSS, the public water company. One of the objectives of the first project was to reduce the level of unaccounted-for water from 45% to 35%. Fast forwarding 25 years, by the time the fourth project was finished; the unaccounted-for water had gone from 45% to 65%. After two and a half decades of investment, the public utility was functioning worse than it had been functioning when Bank investments began. Obviously it was an abrogation of responsibility (to the people of Manila and the shareholders of the Bank) to do yet another such project with the same institution and same incentive structures in place.

But in the 1990s there was a new political reality in the Philippines; President Fidel Ramos had used private sector energy concessions to great effect in rapidly solving an electricity crisis in the Philippines. He believed that a similar approach could be used to solve Manila's endemic water problems. He appointed excellent staff who did a superb job of learning lessons from other countries and sectors and who put together a modern legal and regulatory framework and then let two bids for concessions in Manila. The IFC and World Bank provided excellent support. The concessionaire in East Manila absorbed most of the debt and was seriously affected by the subsequent major devaluation of the peso. This concession has been re-bid and there is a new concessionaire in place. The second one, Manila Water, is a 65% locally-owned by a high-quality Filipino conglomerate, the Ayala Corporation (who has a partnership with United Water and Bechtel). This has been a great success. Unaccounted-for water has gone from 65% to 30%. All the poor people are served and the poor are paying a low tariff but still a tariff that covers the cost of service to them.

But there are also many failures. The most prominent of these is the failure of the Bechtel venture in Cochabamba, Bolivia. Summarizing a complex case, the World Bank withdrew from engagement when the mayor of Cochabamba wanted to build a big, unnecessary dam. The mayor then went it alone. Preparation was very poor and the contract was bid without competition. All of this took place in an explosive political environment. The result was a failure, with Bechtel expelled. This has been celebrated as a heroic story of the people expelling the big bad gringos and taking control of their own destiny. The sad epitaph is that six years later the situation in Cochabamba is worse than it ever was before. An interesting postscript is on the role of the press. There have been innumerable films, books and articles celebrating the victory of the people of Cochabamba against corporations and the World Bank. I believe that there is a moral obligation of the media which glorified the uprising to return and see what happened subsequently: how those who led the revolution moved on to other things, about how only 4% of people actually vote in elections for the water board, how corruption is re-installed, and how the poor are worse off than ever. So I wrote to some of the reputable writers and filmmakers – for example from PBS' Frontline and the New Yorker – suggesting that they return and do an update. Most did not bother to reply; those who did said they had “moved on to other things and were no longer interested”.

SABESP, the biggest utility in the world, which serves many of the cities in the State of Sao Paulo, is a different and an instructive case. Twenty years ago, SABESP was 100% owned by the state of Sao Paulo with its investments funded entirely by low-interest loans from the government. It had many political appointees and performed quite poorly. Today, SABESP is 51% owned by the state of Sao Paulo and a quarter of its shares are on Wall Street, a quarter of its shares are on Bovespa, the Brazilian stock market. SABESP raises much of its financing privately. Its annual report is indistinguishable from that of a private company. It now has excellent management and a highly professional staff. An important indicator of efficiency (the number of employees per thousand connections) is one quarter of what it was 20 years ago. A similar evolution to well-functioning hybrids has taken place in the states of Parana and Minas Gerais.

Parallel developments are taking place at the national level in Brazil. A new law requires that all of the 5000 municipalities have formal concession agreements and that these be competitively bid. No longer can State Water Companies assume that they can continue to be the providers of services. An environment of competition, regulation, and non-acceptance of poor performance has been created. It is likely that the well-functioning public companies will become service providers in many municipalities outside of their home states.

Chile is another interesting model. The government of Chile wanted to privatize the water utilities but realized that there were special challenges in doing this. They used a very interesting process. First they corporatized the big water companies (including EMOS in Santiago). They then put a regulator in place, who for ten years learned to do business in the relatively easy environment of regulating state companies. Once the regulator was strong and experienced they privatized, with great success.

I would summarize this as follows. The key underlying determinant is the seriousness and capability of the government. Where the government is serious and committed, there are different paths, some with privatized utilities (as in Manila and Chile) and sometimes with hybrid models (as in Brazil) and some with public models (such as Pnom Penh in Cambodia). Where the government is not serious and not capable (as in Bolivia) both public and private models have great difficulties. For an institution like the World Bank this poses some very difficult choices, since neither “more of the same” nor radical changes are likely to work where there is not ownership and seriousness from the government.

**JDP:** Much of your career has been as a water specialist. But then for your last three years in the World Bank you had a quite different job – being the Country Director and having responsibility for managing the Bank’s relationship with Brazil in all sectors. How was this experience and what did you learn from it?

**JB:** It was the experience of a lifetime, since this is widely regarded as the best job in the Bank. A Country Director controls the budget and is the person who determines what the Bank will do in a country. When the country is a sophisticated one like Brazil, this is an amazing opportunity. I would say I learned three main things.

First, as discussed earlier, the real contribution the Bank can make in a country like Brazil is to engage with difficult, controversial issues where the government wants the Bank to use its reputation to solve otherwise intractable problems. I am very proud of what we did in this regard, in a wide variety of areas, including water.

Second, I learned a lot about how good political leaders work and how technocrats are often tone-deaf when it comes to alignment with political leadership. Our program in Brazil was mostly with states. The Governors of the 26 states are powerful politicians. Many are young and bright and progressive. There was a lot of pressure from Bank technical staff to either continue with tried and tested programs in particular



states (“we have done three excellent road projects, and the government wants another one”) or introduce new sectors (“water is very important and the secretary for water in the state wants a project with the Bank”). Bank staff liked projects in their sectors and the secretaries for those sectors liked to have the Bank. But what I learned was that good political leaders have, through their campaigns, developed a belief in doing two or three “big things” during their four-year terms. No matter what the merits of a project in a particular sector, projects face implementation difficulties if they are not priorities for high-level political leaders. So my conversations with new governors were as follows: “Tell us your two or three priorities and we will work only on those, helping you to be successful and bringing the best knowledge to bear and the reputation of the Bank”.

This worked fabulously! One indication was the time between starting preparation of a project and approval dropped from 36 months to 10 months!

But this strategy was strongly resisted by Bank technical staff who felt that “their sector” was most important and should be pushed everywhere. What I had to say to, say, our water staff was: we will only work on water when it is one of the highest priorities of the Governor (or Federal Government). Since it is a big country with many states, each sector will have work, but we are going to go with the priorities of the Governor, not push our pet sectors.

**JDP:** Getting back to questions of privatization; I remember that many perceived that the private companies would bring capital for infrastructure investment. Has that happened in the poor countries? To what degree has that happened in transition countries?

**JB:** The record has been mixed. There have been huge inflows of private capital into telecommunications, large inflows into transport and energy and much smaller inflows into water. There are several reasons for this. First, water and sanitation is the infrastructure sector where the ratio of capital to revenues is highest and where the return periods are very long. In a typical concession contract there is negative cash flow for about ten years and then positive flows for the last 20 years. But if a contract is annulled after 10 years, the investor loses everything. The credibility of a government is thus critical. Second is the fact that water is a much more sensitive, visceral issue than electricity or telecoms. It is very easy to mobilize people around the issue of water, as we have seen in cases like Cochabamba. The number of concessions in telecoms which have been annulled is just 3%, in electricity 8% and in water 33%. Investing in water utilities in rich countries is a low-return low-risk investment – good for grandma to invest her retirement savings! But in developing countries where the political environment is less predictable these are low-return, high-risk investments which no investor likes. For sure naïve privatizations (like Bechtel in Cochabamba) have soured the investment climate, but to the degree that the anti-privatizers have helped accentuate these risks (and they have) they deserve some credit for ensuring that the water sector in poor countries have not and will not benefit from private capital flows.

**JDP:** There was another important and prevalent perception. Some were warning that the private companies were going to own our water; that they would somehow take over the world’s water. How did you react to this?

**JB:** In my view, this is another source of great confusion, much of it mischievous. First, one has to distinguish between the resource (raw water) and the services (water supply). You can have any combination of type of bulk water right, on the one hand, with form of provision of services, on the other. Thus, for example, in the western US and in Australia farmers and cities have private, tradable usufructory rights, but the water services are provided by public utilities. In France and the UK there are no

private rights to water but private companies provide most of the services under concession contracts. So there is no logical connection between the ownership of the resource and the way in which the service is provided.

So how have these issues become so conflated, with many claiming, as you said, private provision of water services means they the private water companies are going to take over the world's water? In my view a combination of mischief and ignorance from groups who purport to care about the poor but whose prime motivator is to oppose the market economy.

**JDP:** Let me ask you a few quick questions to get some quick responses. Everywhere in the world today, the poor countries and the rich countries, we seem to be facing the need to reallocate water, to shift the uses somehow. We all struggle with how we do that. Do you have any ideas on the best way to make these needed shifts in water uses? For example, should the markets do this or should it be done by regulations? What are your thoughts about this really large problem that we all share?

**JB:** It is a huge problem. I have no doubt that the market is the best way to do it in rich countries with capacity. The best example is Australia. Australia has seen a 70% reduction of water availability in the Murray Darling Basin in the last 10 years; with zero impact on agricultural production. Now, how can that possibly be? It is because they have markets in which willing buyers and willing sellers make deals. As water availability goes down, value goes up, price goes up. Instead of growing rice with a lot of water, in a dry year you sell to the guy who is growing vegetables and grapes. The person who was growing rice makes more money out of selling his water, so there is no conflict, there's nobody to compensate. The compensation happens through the market. Now, in places where you do not have those conditions, like in South Asia with tens of millions of farmers, we have weaker institutional structures. In these cases, you cannot go for that first best. But I think the principle that water needs to move from lower values to higher values in which the people surrendering the water need to be compensated so that they are encouraged to get out of the lower value use is a principle that remains. In such cases you have to find second- and third-best mechanisms whereby the water will shift to the place where it creates most value, most jobs, and it is compensated as much as possible on a voluntary process.

The government can mediate this exchange to a certain degree. The problem comes when government comes in and says they are going to protect the sugar cane industry, or they are going to protect the rice industry. When you get those rigidities, then you're running into these very severe problems of water allocation that we have.

**JDP:** As we finish, I want to you a few quick questions about some of the big issues of the water world today. Just give me bullet type responses.

*Climate change:* We hear a lot about change and variability in the climate and that people fear more frequent floods, droughts, sea level rises, snow melts and more. Most of the impacts portrayed as being caused by climate change are water-related. How does the water community relate to the climate change community?

**JB:** On the mitigation side: Hydropower remains an enormously underused source of power in the developing world. The rich world uses over 70% of its economically viable hydro potential; the developing world only about 20%, with Africa using less than 5%. More use of hydropower on the mitigation side is very important. On the adaptation side: adaptation is 80% about water. Thus, we need more robust systems of institutions and of infrastructure to deal with existing variability; we need them even more as variability changes.

Pakistan, which we talked about earlier, is a good example. Melting Himalayan glaciers is one of the iconic cases of what climate change will bring. Forty- five percent of Indus' flow comes from the glaciers. So does that mean as some glaciers retreat, the Indus will have 45% less water? Think about it.

First, most of the Himalayan glaciers are at very high, very cold altitudes. They are quite different from, say, the Andes where there has been sharp recession. Second, where is the moisture that falls on the Himalayas as snowfall coming from? It's being blown up off the hot ocean on to these mountains that go up well over 20,000 feet. None of that moisture is getting over or will get over those mountains. That moisture's all going to fall. At present that moisture falls and is held in the snow cap and then released in the dry season just when you need the water. In a warmer world the moisture will still not get over the mountains. Given the altitude and temperatures (even in a warming world) much will still fall as snow. But at lower elevations moisture will fall as rainfall, not snow. What Pakistan will lose is mostly storage, not water.

Now Pakistan already suffers from a huge storage deficit. Whereas there is 5000 cubic meters of storage capacity per person in the US and Australia, in Pakistan that figure is just 120 cubic meters. As a result Pakistan suffers since there is no infrastructure to buffer the people from either shortages or excesses of water, as we have seen so tragically in the floods this year (and will see in the endemic scarcity which is the norm). Of course you also need institutions – to manage the water and to get much more production out of available water.

So the way to look at climate change in Pakistan is to see that it provides an added reason to build multipurpose storage – to generate clean energy and to enable the society to live with even greater variability.

**JDP:** John, is water a human right?

**JB:** Should every person in the world have access to a reasonable quantity of water of good quality? Of course!

But the question is whether declaring water to be a human right is actually going to help this improvement happen. Here I see several dimensions.

First, my perception is that the greatest benefit of declaring water to be a human right is for those people who make this declaration and who think they have done something noble.

Second, what is the practical meaning of this declaration? Presumably it means that government should provide a basic amount of water for free (some human rights advocates say it does not mean that, but I have failed to understand what it does mean if not that). And here the record in practice is clear. The greatest injustice for the poor is not to have to pay a reasonable amount for basic services but to not have access to the services. And time and time again we have seen slogans about “services free for the poor” translate into non-viable utilities which cannot serve all, and ration supplies. And guess who is at the end of a dry pipe or who sees no pipe at all? The poor, in whose name the philosophy was proclaimed. The poor have time and time again shown that they want to pay – to ensure accountability, to be treated as normal citizens – but only if they get decent services, if the costs are reasonable and the providers accountable.

Three, why single out water? Isn't it also a human right to have education, health, electricity, housing, transportation, a job, etc., etc.? And here the sobering fact is that the very definition of being poor is that you don't have the resources for all of these desirable things. So the question, to my mind, is who makes the decision about how limited resources are allocated, and whether they are allocated to people or to particular services. I illustrate the importance of this issue – and the danger of “hydro-centricism”, a disease which most of us water people suffer from – by re-telling a discussion between the Finance and Water Ministers in South Africa.

Everybody always points to South Africa as enshrining water as a human right. The Minister of Water said this is great because now everybody has a human right. The Finance Minister had a different view: ‘If you expect me to now earmark a portion of the budget to every municipality for water, I’m not doing that because next thing we will have an earmark for housing, for health, for education, for... And long before the list is complete the sum of the earmarked resources will exceed the resources which we can make available to a municipality. So much as you may declare water to be a human right (which really means to be at the top of the list of important services), I am not doing this. We have a well-structured system of fiscal decentralization which takes into account the poverty levels in each municipality. I believe that local governments and people are much better able to prioritize than someone sitting in the capital’.

**JDP:** Well, John, you have left the policy world and you are now a Harvard Professor. What should the students, the young generation be studying about this?

**JB:** Four observations.

First, it is an incredible privilege to work with Harvard students (and many MIT students who also take my classes). I have been deeply impressed by their intelligence, commitment and openness.

Second, I am very pleased that there are students from rich countries who are concerned about global poverty. But it worries me that most students think that the solutions are mostly at the small-scale and community levels. The prevailing view is that NGOs and start-ups are good; governments and large-scale projects are bad. They take for granted the underpinnings of what has made their societies rich – functioning legal systems and governments, and reasonably functioning providers of energy, water and all the other services. They take for granted the public institutions and infrastructure that provide the platform for their well-being and don’t think constructing such a platform is the priority for poor countries.

Third, I worry a lot about the lack of historical perspective. There seems to be an automatic assumption that the things that now worry professionals in the US are the things that are most important and should be the concerns of all sensible people the world over.

A fourth observation is that most who teach on development draw primarily on the experience of very poor countries. Graduate students from Brazil, for example, tell me that they love their program (Brazilians are very polite!) but that they are tired of always hearing about the countries at the bottom of the barrel, and hearing relatively little about what the countries who are successfully emerging from poverty have done.

Fifth and finally is an observation of Harvard in the world. I have been very privileged to live the last six years in two of the successful middle-income countries (India and Brazil). At the World Bank I saw (and celebrated) the fact that the balance of relationships between the Bank and these countries had become much less vertical and much more horizontal. Now it seems to me that the same re-balancing has not yet happened in the academic world. There is still a sense that the world rotates around places like Harvard. Whereas what I see is that universities in countries like India and Brazil are now stacked with well-trained, capable academics who want to co-define research, and who want relationships of reciprocity. I think the reality of the new global economic geography has not yet sunk in elite institutions of higher education.

**JDP:** Are there any priorities in the water research agenda that you would recommend to the universities?

**JB:** A Harvard historian, David Blackbourn, recently wrote a great book (“The Conquest of Nature”) looking at the relationships between water management and the modern German state. In my view, there are two great lessons from the book. First, the book shows that all water management solutions are provisional – there are no final solutions. Second, the book documents how poor water professionals are in taking a historical perspective. They typically see “the problems that are left to them” by the previous

generation, devalue that which was achieved, proclaim those who went before them to be stupid, and imagine that the current generation is the repository of eternal wisdom.

If you switch from a longitudinal perspective to a cross-sectional one, countries in different stages of development face quite different water challenges. What is being taught in American universities today on water management derives largely from the contemporary challenges that the United States faces in terms of water management. This is done with little historical (or cross-sectoral) perspective.

The United States, sitting with a massive amount of infrastructure, is basically managing by constraints. Now, this is a completely different management paradigm from the paradigm of the young United States when it was growing. How did the US use water in the Mississippi, the Tennessee Valley, and the Colorado River as the country grew and become a continental country? Today's US management problems are not the problems of the Chinese, the Indians, the Brazilians, and the Africans. They are looking at water management problems which are closer to the problems of the United States 30 years or 50 years ago. Why is it that every country I work in wants to emulate the perceived success of the TVA, Grand Coulee and Hoover Dam (words which can hardly be enunciated in polite Cambridge society!)? Developing countries want to learn from the wealth-creating experience we've had without coming to the same conclusion that the United States has come to. I feel that the academic community in the United States must get out of what I see as a myopic narrow boxed-in type of approach into a much more expansive broader approach in which an appreciation of history is central.

**JDP:** John, thank you very much. As I close off, is there any kind of general reflection on Water Policy you may want to speak to? Any advice or ideas you may give our readers?

**JB:** Two observations.

First, over the past several months I attended several water conferences. I divide these into two worlds. One conference was the annual congregation in Stockholm of "the great minds" who propose all-embracing solutions and who generally have little experience in doing anything practical. This conference and others like it are dominated by erudite individuals who are very good at dealing with a receptive press.

The other set of conferences was with the doers. This included the National Waterways Conference (which focused on management of the Mississippi River), the annual global hydropower conference, and the annual International Water Association Conference. These are dominated by practitioners, the people who have dirt under their fingers, who have actually managed to build the platform of water security that we take for granted. They are all struggling with next generation challenges, but doing so with an acute realization of the danger of throwing the baby out with the bathwater! And they are generally far less erudite, and the press never pitches up.

So I see a great challenge in building a new water intelligencia, one which has learned that there is a big difference between idea and practice, but one which seeks to bring new ideas – but ideas which will work – to address this generation of challenges. And one which communicates far better than the practical water communities today manage to do!

Second, all of us in the water business have to open our horizons. Often we see the world entirely through water; we tend to be hydro-centric. A few examples: As I said earlier, we water people seem to think that water is the most important issue everywhere. We have to learn that political capital is limited, and challenges are many. The great advances are made in those special moments when political possibility aligns with our agenda. We have to learn to strike when that iron is hot (and not keep thinking that we are the ones who will heat the iron!). Closely related is the notion that water is the driver of everything. If you unpack the currently-fashionable issue of "water footprints", for example, you see that it implicitly

assumes that water is the only factor of production. Just as Karl Marx's labor theory of value led to silly conclusions, so too a water theory of value leads to silliness (why should a factory in a country with abundant water have the same "water footprint" as a factory in a country with scarce water?).

The overall challenge, I think, is to ensure that water policy is placed in the context of the much broader challenges facing society. Sometimes in some places water is right at the top of that agenda, but many places it's not at the top of that agenda. We have to step into the boots of how a place actually functions and see what can be derivative of needs of that place. We should look at the broader social challenges and then see how water does and/or does not help achieve these broader social objectives and therefore where and how we engage in different contexts.

**JDP:** Good advice when we're trying to figure out how water fits with other sectors. Thank you very much, John.