

WATER WISE: EDUCATION IS THE SOLUTION

AN INTERVIEW WITH RICHARD MEGANCK

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Professor Richard Meganck, director of the UNESCO Institute for Water Education in Delft, the Netherlands, has spent his life dedicated to water. A PhD graduate in Forest Hydrology, he has been working in the United Nations for thirty-three years. During this period he has travelled to 105 countries, and has lived in eight of them with his family, mainly in Asia and Latin America. Mr Meganck has therefore witnessed the different ways society relates to water management.

He has published more than eighty articles and has written five books, the latest one Dictionary and Introduction to Global Environmental Governance, is a project made in conjunction with Richard E. Saunier.

Mr Meganck is critical of some policies, but very hopeful about the future and defends education as the key to sustainability.

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“ For the benefit of the flowers we water the thorns, too (Egypt). ”

“ No one knows how much the water is worth until it runs out (Spain). ”

CLIMATE CHANGE, PARTICULARLY IN RELATION to water has made news headlines lately. Do you consider this a fashion of the moment, or are people finally taking the matter seriously?

RM.: I believe that until recently it was one of two things: either a scientific argument or a fashionable trend. Most notably in the last couple of years, it has become apparent it is no longer a fashionable trend and that science is correct. We are indeed impacting the planet in ways that will affect its climate. And climate and all of its ramifications have become an absolute fundamental economic development issue. Climate is linked with the poverty discussion. If you notice, most of the climate change takes place near the Equator. Those places will become drier and places in the north that can more easily afford it, will become a little warmer. However, these have the range and the money to adapt, whereas in the area around the Equator, when you add a couple of degrees the impact will be much more direct. It will affect the economy and therefore the

progress of those countries. So I think science is quite clear in establishing that climate change is having an impact, that it is caused by humans and that we have to take action because of the potential consequences. I think that the fashionable trend has passed and citizens are finally starting to get the message in large enough numbers that climate change will become a political issue, and a drive for investment and such. It takes an awfully long time to realise that.

Why has it taken all this time?

RM.: It is like steering a super tanker. To turn 180 degrees in a super tanker you have to think miles and miles ahead. It is not as easy as turning your bicycle around. It is the same with climate change, we knew it was cyclical, but there are a couple of reasons why we were not able to bring this to coalesce our opinions more rapidly.

First of all, we have an increasing amount of scientific and technological tools now. All these space explorations efforts have brought a whole new range of technical tools, including computers. The Internet has evolved through all kinds of research and development in science, a lot of it related to space programmes. And finally, we had the opportunity to not only collect, but also analyse vast amounts of data. It used to be very difficult to compare this vast amount of data

with other data from another part of the world. But we can now import all this material into computers, we can compute very complex equations, and these computers can analyse and process a lot of data that we simply did not have the means to do before.

Also space exploration has greatly increased our photographic ability to look down on the planet Earth. The telescopes and satellites allow us to look at the Earth and measure things from space that we could not do before.

Once the scientists began to understand climate change, then it was a whole different game to try to convince the politicians of what was going on. Science is obviously fundamental. It is the foundation upon which development occurs, or should occur. However, unless you bring politicians along, the money will not follow, because priorities are not compatible.

Eventually the preponderance of scientific data and information became so important that groups such as the European Union took it very seriously. Finally climate change became politically important. Then there are other catalysts of political

and economical development. Poverty became so overwhelming that it was unacceptable to sit in comfort in developing countries watching people starve on TV screens.

So it is a combination of factors – social factors, economical factors, and technological factors – that had to come together. And that takes a long time. It is the super tanker again. When you want to change public opinion (to turn that super tanker around to force different investments), it takes a lot of time and energy. Because political systems prefer the *status quo*, they do not like change. It is much more complex than just the science.

Could that long period of inactivity have held back solutions that could have prevented the current situation?

RM.: Without a doubt! In hindsight we should have invested in this area much earlier. Selling an idea that is proven is much simpler than selling an idea that still has risks associated with it. Politicians were not willing to take the risk, economists were not sure if it was going to pay off. Bankers do not like to hear the word 'default'; they like to hear the word 'payment'. There are all kinds of reasons for these problems.

Certainly, we have missed opportunities. If we could have seen the future, we could have avoided wars and millions of deaths in genocides, in Rwanda, for example, or in Darfur: we could see them murdered before our eyes, yet look how long the political machinery has taken to realise what is happening there.

It is only the rare individual who can look into the future and say he is willing to take the risk. And sometimes they are ridiculed. Leonardo Da Vinci and many great minds were laughed at during their lifetimes. It was only afterwards we realised these people were brilliant! And the same thing happens in science. Science is an incremental process of trial and error. And only by giving it time to evolve can you eventually come to the point where you can say 'let's move'.

Water sanitation is part of the Millennium Development Goals set for 2015. Yet, there are a billion people who do not have access to water, and more than two billion people who do not have access to sewage and sanitation. Taking into account the current numbers and the fact that world population is growing, how can we reach the point at which people can actually drink water without having to walk many kilometres?

RM.: There are several aspects to that question. First of all, money alone will not achieve the Millennium Development Goals. It takes citizen participation and commitment of all sectors of society. That in itself is complex. It also takes investment in education. And I say, underline that. Put it in a bigger font, because education is the key to the sustainability of things. I do not care how much you invest in water treatment plants, sewage treatment plants, water distribution facilities, dams, or irrigation systems. Unless you have people who are knowledgeable at all levels – from the technician to the minister – and unless you educate them to manage those systems for the long term, they are going to fail. Whether it is five months or five decades, those investments will fail if they are not maintained, nor operated within an ever-changing context.

That brings me to another issue. Jan Eliasson, former president of the UN General Assembly, made a comment once that struck me as one of the most important ones in the recent years. He said that if he would be king for a day and could make a single decision to improve productivity and the state of humans in the world, he would choose to remove the need of young girls and women to haul fuel, wood and water. Because we lose forty billion working days per year with this necessity. So he said, if instead you could have a standpipe a hundred metres from each home, or functional latrine system in each household, and whatever it would take to address the Millennium Development Goals and the educated people to manage it, then what would happen? Young girls could go to school and learn to read and write – literacy would go up. If they are literate they are taking responsibility for decisions that many cultures do not allow women because they are uneducated such as family planning. HIV-Aids rates will go down, community development will increase because you have women being more economically and

socially productive, and you will also have a higher education standard in the village to make more informed decisions. And this is important because this is when water becomes a cost-cutting issue. So water has touched all these sectors by that simple decision to achieve the Millennium Development Goals.

But has training been provided in those areas, specifically in Asia and Africa, where water scarcity is already a serious issue?

RM.: This is increasingly so. But of course, there is a tremendous gap between the need and the reality. If you look at this institute, we have around 1,500 applications a year from academically qualified people from all over the world to undertake their post graduate education here at Master and PhD level. We can only admit two hundred students. Even though we have educated and awarded over 13,600 degrees, this institute itself is only a drop of water in the

bucket of what is needed.

We did an informal survey a couple of years ago and we found out that if Africa is going to meet the Millennium Development Goals, they need a 300% increase in the number of trained professionals dealing with water. In Asia they need an increase of 200%. In Latin America and the Caribbean, a 50% increase in the number of trained people, from technicians to the most senior professionals or academics. We need thousands of trained people. And it is not only a developing country issue. I was recently sitting with a minister of one of the Scandinavian countries. They are going to lose 50% of their trained water professionals to retirement over the next ten years. They do not even know how they are going to meet this demand in parts of the developed world.

In Europe registrations for engineering and hard sciences are going down, whereas business registrations in universities are increasing greatly. The entrepreneur mentality has taken over in many parts of the world. By studying engineering or natural sciences, you will not necessarily become a multi-millionaire, but

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“ If you wish to drown, do not torture yourself with shallow water (Bulgaria). ”

“ To give counsel to a fool is throwing water on a goose (Denmark). ”

you will have an exciting and challenging career. However, it is still difficult to attract people to those hard disciplines, as opposed to other disciplines that can offer greater monetary rewards.

In Africa, there are also institutions training water scientists, water engineers, water policy specialists, and other experts. But they are not meeting the demand, nor will they, even with the help of institutions like this in the north serving the developing world.

Although it may be a worldwide issue, this demand may face particular difficulties in areas such as the African continent, where the Food and Agriculture Organization has declared twenty-five countries in state of emergency due to climate change and water scarcity. Some of these countries even have governmental debts. So how can they provide training, when they lack even basic needs and the means to sustain the country?

RM.: The simple answer is the development banks: World Bank, Asian Development Bank, African Development Bank. The banks and the donor countries – the OECD countries – have to support this. It is in their interest. I call it enlightened self-interest. In other words, wealthy countries investing in education are going to benefit directly or indirectly.

If the economic state is improved in the poorest countries, then the people from those countries can buy manufactured goods made in Europe, in North America, or in Japan. If their living standards are improved, if they have electricity in their villages, basic healthcare, if they can eliminate polio or if they tackle the Aids problem, or there are no longer parasites in the children's bellies, people begin to think about other things. So if you can meet these basic needs in the poorest of the poor countries, and then in the next level you improve the situation of other countries a little bit, over time you are going to help yourself, by selling your products. That is a direct benefit.

Indirectly, there are numerous ways we benefit from this, and several forms of helping these countries: low interest loans from the banks, debt relief from these big banks, subsidised loans from commercial banks because they have a corporate social responsibility to fulfil, and Official Development Assistance (ODA) from the OECD countries.

Another possibility is the concept of virtual water. That is part of the solution. A tomato in sub-Saharan Africa costs more than it does in Europe. You need water to grow a tomato, but there is so much demand and so little water. If you grow the tomato in Europe and export it to Africa, then you have got transportation cost plus European labour costs. And there is a direct relationship: the most water-poor countries have the poorest health, because they do not have good diets. They lack fruit and vegetables and all that variety we need to be healthy individuals.

Water rich countries in the north can grow vegetables and fruits and I predict that in the future they will get credit from their ODA for either giving those tomatoes away, or selling them at subsidised rates to the poor countries. And that is virtual water, because if you are eating a tomato in sub-Saharan Africa, you are consuming water, because it takes a lot of water to produce a tomato or any other vegetable or fruit. It

is virtual, as it is not water from Sudan, but from some place else. And you are benefiting from that. So it is a win-win situation in that sense.

You have mentioned the need to invest in education.

RM.: Fundamental.

It is fundamental, but already in Europe less and less investment is going to this sector. How can we expect a change of policies, which will regard education as key for sustainable development and for access to water? How can we change the mindset of society?

RM.: In Europe there are some positive signs in terms of percentage of Gross Domestic Product (GDP) that is going to the ODA. Several countries have said that they are going to go even above the 0,7% of their GDP to up 1%. That money has got to go to some place. That is a room full of money.

I do not know how you move a society forward without educating people. If you want to keep people ignorant, you do not allow them to learn to read and write; if you want to keep people illiterate then, either through force or just because they are not able to discern, to argue or to debate, they will all accept what is fed to them. And that is precisely the way to keep a society underdeveloped and how to keep a few in power.

On the other hand, if you empower people through education, then people begin to question, they begin to say, 'my situation is not exactly like my neighbour's situation', and they begin to debate. Education is the fundamental mover; it is the catalyst for a chain reaction of things that will affect all sectors of development. If we do not invest in education, then we are really short-circuiting the developing world. We will keep them dependent on our aid, on our policies, on our lending mechanisms, and on our payback and interest rates.

But isn't that what is happening?

RM.: Yes and no. There are some encouraging signs. Although it can be abused, micro lending is an encouraging development by which people are being empowered. But there is also an increase of ODA and loan forgiveness. The World Bank, the International Monetary Fund and some donors, like the USA and the EU, have forgiven a lot of debts to the heavily indebted countries. Those signs give me at least some degree of hope.

Also, I say that one of the brightest things that has happened in the development scenario is that NGOs have assumed more power and responsibility. In fact, they can do things that governments can never do: they can touch politically sensitive issues that governments cannot really get involved with, and go where no government wants to go, where it is too dangerous. I think that although they have their detractors, organizations such as Greenpeace and other extreme groups have done some positive things for the world. And they have changed the direction of the super tanker of development in the last twenty-five years. But look at what is happening in certain parts of the world where there are attempts to restrict the work of the NGOs' communities. Why would anyone want to restrict them? Because they are trying to control larger segments of society. Once people are empowered to read and write and debate on the power, they congregate and governments will



obviously have to be more participatory. So that is a threat to a few and a benefit to the others.

My hope is that this opposition, if it is fully true, will be short lived and we will see the benefit and value of investing in education, and that the NGOs may push us in that direction. More money will have to go to education for the other parts of the machine to work. After all, if you have an automobile and it is running and you remove a spark plug, it is going to stop. All the pieces need to be there.

How can we empower the populations themselves? How can we teach illiterate people about water and what in particular can we teach them?

RM.: The NGOs, the Church groups and volunteers, they all have a vital role to help extend peoples' horizons. Think about the change that has occurred, from one generation to the next in simple things like littering. Younger children today take that much more seriously than my generation did when I was growing up. The usage of the seat belt: when I was growing up there was no such a thing as a seat belt. Today, most children will not get in the car until they fasten their seatbelt. So those are important changes in other sectors, and I think there are some educators out there for the water sector.

Most rural communities are heavily dependent on agriculture, and farmers have a very important role to play and can teach us a great deal about water, and about the relationship between the air, the soil and the water. Without those three resources we would not have civilization. And the truth of the matter is that whether you are a shoemaker, a heart surgeon, or a farmer, your dependency on water is identical. Without it, your profession, your life, your daily situation totally changes or is even destroyed.

Also the Internet is doing a tremendous amount in educating people about the importance of water. Even more so once the hundred-dollar computer becomes available, which Bill Gates claims to be in the near future. Aid agencies will be able to purchase millions of computers for one hundred dollars each and can distribute them all over the world.

And so, there are both technological aids and human factors to some of these problems. The NGOs, the farmers, the local community leaders can move vast numbers of people in the direction of education, leading them to understand the importance of it. Then the investments will be needed. But remember that even when the poorest and least powerful country sits down with the World Bank and says 'Look, our people really need water, and education', it is their decision how and in what form these loans come.

Is there a will on the part of international organizations to promote this education?

RM.: Yes, I think there is a will. I think there is also an awful lot of waste, to be honest. There is unnecessary competition even among international organizations to grab headlines. And sometimes it is difficult to do all the years of work needed to get the platform in place from where you can really start affecting societies.

The World Health Organization and Rotary International have been labouring for thirty-five years trying to fight polio. Nobody even knew it. Nobody got any credit. Now we are finally at the point where polio is only present in a few countries, with a few cases a year. We can even dream about completely eliminating that disease from the world. Look at how many years Aids was not only forgotten but not even recognised. How Aids patients were treated as pariahs. But now we are finally getting to the point where the disease or the syndrome can be understood, it can be managed, and investment is finally starting to come. A couple of world leaders have helped, like Bill Clinton who contributed with a tremendous amount by putting Aids on the top of his foundation's agenda. There are some enlightened leaders in Europe who have taken Aids or climate change issues to the frontlines. Look at what Tony Blair has done in the EU to help bring climate change to the discussion board. There has got to be a combination to help these things move forward. I always use the

term 'the pope'. 'The pope' would be somebody who can address the international community and get leading decision-makers to listen.

And then there has to be a movement concerning education. How many years was water a forgotten issue? Finally, in the last few years it is at the top of the international agenda. For a lot of years we thought of water as a means to carry our waste away and it was something that was just there. Water is a renewable resource, but it is not an inexhaustible one. Because the cost of treating water will become so high, it will become inaccessible to people if we continue to contaminate it.

Will it become the new petroleum?

RM.: In my opinion, it already is the new petroleum, particularly if you look a few years into the future. Look at Yemen's capital city of Sanaa. Their water level sinks in metres per year. Sanaa's water system was built for fifty thousand people and now there are a million people in Sanaa. In ten to fifteen years they will run out of water. They have to do something today to have water then. Again, that's far-sighted thinking.

In the West we can spend between two hundred and six hundred litres of water daily. Simply by flushing, we can use fifty litres in one day. In some countries twenty to fifty litres of water daily is something that is difficult to attain. How have we reached this unbalanced world?

RM.: In the case of water, we thought it was always renewable; we did not really talk about the inexhaustible part of the equation. It is a circle. My dad used to tell me, because we come from a farming background, 'they don't make much soil these days'. What he was trying to say is either you treat your soil well or you will have to pay for cleaning it in the future, or you would have to sell your farm and move to another place. It is the same with water. We used to think water would always keep coming, and it would always be clean water, and little by little we became aware that we had to clean it and we invested in it. That's part of it.

Then in the OECD countries we really never made a distinction between potable water and grey waters, which are other

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“ Words are bubbles of water, deeds are drops of gold (Tibet). ”

waters that can be used for irrigation and other things. We are finally starting to recognise that we do not have to use potable water to flush our waste away, or to irrigate the garden, or to wash an automobile, or to do certain industrial tasks. But we have always used potable water. Grey water is slightly treated water and you can use that for irrigating. In certain parts of the world they are bringing grey water into the house. The water in your toilet would be treated in a primitive fashion: all solids and some bacteria would be removed. You would use that water to flush your waste away, instead of using drinkable water. Again, our society is complex, and to provide all that infrastructure costs billions of dollars. In the developing world

think they are a little bit out of time in teaching how valuable water is and how we should treat water and re-use our water. Scientists now have the means to clean salt water, sewage water and water out of the river and make it potable water. If you give people those three choices, the first they are going to drink is the water out of the river, second is the desalinated water, and the last they are going to drink is the old sewage water. Somehow people do not mentally accept the fact that rivers are also full of bacteria and sewage. Furthermore, they do not accept the fact that we can chemically clean sewage water, which we do all the time because rivers have all kinds of 'goodies' in it. But somehow the term sewage affects them:



we must first get people water and sanitation. They are not really thinking about its re-use, although there are some interesting experiences going on where less than pure water – because it is very expensive to treat clean water – is being used for irrigation and other things. But that is not by virtue of wanting to save, that is due to the fact that the resource itself is contaminated and they do not have money to clean it.

The West has been giving tips to people on how to save water countless times, but we seem to have failed. So how can we reach people in the West?

RM.: I don't know. Maybe advertising. I mean, the only reason why people wear Adidas and Nike tennis shoes is because we are bombarded with their ads. I think we have to make water like litter: it is bad to litter. We have to make water like the seat belt: you have to fasten your seat belt. And now we have to realise it is bad to waste water. So eventually, over time, through advertising, through public campaigns, through education in our primary and secondary schools, people will become more aware. I

'it came through my toilet, now you expect me to drink it?' Yet, I have been in a plant in North America where the former sewage water coming out is chemically and beyond any shadow of a doubt cleaner than what potable standards are. People won't drink it. So we have got to break down some mental barriers. It has got to be 'cool' to drink recycled water. And we really are going to get there, because advertisement and knowledge will tell people 'this is ridiculous, of course we can drink this'. Or eventually without any other water to drink, I guess we are going to drink this clean sewage water. We will do it to avoid death.

There is no reason why you cannot use your dishwater or your bath water to irrigate. Why don't we collect that water in a cistern under your house and pump it out into your garden? As long as you are using a degradable soap, plants do not know the difference. It is absolutely clean. It is a very simple system to skim off oils, fats and greases, and as long as you do not have heavy metals or contaminants that are very toxic, we can do that. But it takes education. □