

Thank you Mdm Tho, Chairperson,  
 The Honourable Senator Pia Cayetano,  
 Mr Ishigaki, Senior Vice President and Executive Officer of Hitachi,  
 My fellow speakers,  
 Our young leaders,  
 Distinguished guests,  
 Ladies and Gentlemen,

A very good morning, chao buoi sang. I am honoured to be before such a distinguished group of people, and I am grateful to Hitachi for giving me this opportunity to share some of my thoughts on water with our young leaders. There might be some repetition because we (speakers for the session) didn't have an opportunity to coordinate our presentations but, as they say, practice makes perfect and three heads are better than one. It is now 11.21 am, so for the next 20 minutes, I will take you through a journey on water.

What is this thing called water? In school we learned that water is two atoms of hydrogen bonded with one atom of oxygen. In fact when you look at our earth from space, it is blue in colour, and this is because water is one of the most common substance on the earth, covering some 70% of the earth's surface. Interestingly, when we look at the composition of our own bodies, 70% is made up of water. Water is important for our survival, not just for people but also for animals, and in fact it is the key to our future survival. Water is therefore one of the most essential things on earth, indispensable for our life, and for sustaining our eco system.

Water is also a major factor in determining our socio-economic development. If we look at this example from Zimbabwe, it shows that whenever there has been rain, the GDP has risen. And when there was a drought, the GDP went down.

Water is a finite and vulnerable resource, but it is also a renewable resource. Water has many functions. It functions to support our health; it also supports our environment, it supports us with our food production and in our industries. Water also plays an important role in our culture and religion. Hence we can see that overall water is the common link between society, economy and environment. From society, what we want determines what our economy will produce; what we do in our economy has an impact on the environment. What the state of environment becomes then has an impact back on us, as a society.

So this morning, I will talk about what water is; how much water we have; what water-related problems we have; what challenges lie ahead; and how we can manage this. I have spoken about what water is, and now I would like to talk to you about how much water we have in the world. Well, we have these huge figures. The total volume of water available in the world is approximately 1,386 million cubic kilometers of which 1,338 (or 96.5 %) are in the oceans and seas. Of the balance some 24 million cubic kilometers (1.7 %) are locked up in the polar ice and a similar quantity in groundwater. Hence essentially, what we can use is very, very little; it's only 0.2 million cubic kilometers or 0.007% of all the water on earth. [This is a very easy number to remember because you just need to think of James Bond]. Unfortunately water is not evenly distributed among the different countries, or even within one country, and hence we have many

## CHALLENGES FOR ASIA IN WATER MANAGEMENT AND SUSTAINABILITY

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by

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problems related with water. When we talk about problems with water, we essentially refer to the two Qs: one is Quantity, the other one is Quality.

Let me talk about quantity first. In quantity, we talk about having either too little or too much water. So let us look at too little water. Almost all countries have suffered from periods when we do not have enough rainfall, and sometimes our rivers dry up, and our lands become dry and parched. And having to cope with this becomes a problem. In some countries, during such water crises, water rationing has to be imposed. As an example, in Malaysia, during the last major El Nino year (1997-98), there was such a big drought that we had to impose water rationing for almost two million people in our capital city. A shortage of water affects farmers as well, and in many countries, farmers become very aggressive, very upset and very unhappy if you cut the water supply to their fields. In Singapore, to deal with the shortage of water, they are turning sewage into water and calling it NeWater. So we can see that in terms of too little water, we have pressures on our water and the amount that we have is decreasing.

Now about the second part, which is too much water. When we have too little water, we pray hard for rain. And sometimes, God gives us more rain and then we get the problem of too much water. We get problems with floods which cause havoc, and it is especially in the humid tropics, from Vietnam to the Philippines, China, Bangladesh and even Japan; in a country which is so developed, we get the problems of floods. When we get floods, our highways become waterways. This creates a lot of havoc, people have to be evacuated, and even making a phone call is very difficult. At the same time the flood water is very destructive and causes a lot of losses, damage to infrastructure, damage to properties and in many areas, loss of lives. Floods are made worse by the fact that in many countries in Asia, we throw all kinds of things into rivers. Also from uncontrolled land clearing, sediment goes into the river systems. In ASEAN, floods and droughts represent the biggest losses from natural disasters with respect to people who die and to economic losses.

When we are looking at water quantity, we can sometimes have the problem of too much water, occurring at the same time as too little water. Here is an example of a water pipe that has burst and flooding too much water on the road, but because it has burst there is no water going to the houses. In China, there was a time when Southern China was flooded while there was a drought in Northern China.

Let us now look at quality. In terms of quality, we have the problem of over-polluted water. We saw some of these slides when the Honourable Senator was talking about the Philippines. So these are common things that we see in ASEAN countries, where rivers have literally become rubbish dumps and all kinds of things are thrown into the river from industries, and we use a lot of plastics which are non-biodegradable. In many countries, we do not have sanitation systems and from agriculture, a lot of effluent goes straight into the rivers. So we do have problems with water, and water pollution can be a problem especially in countries where there are still people who depend on water from the drains and the rivers. The WHO (World Health Organisation) estimates that millions of people die every year from water pollution.

We have problems with loss of topsoil, and with deforestation. We clear our hills for agriculture to produce food, and also to build our towns. This creates erosion which goes into the rivers and creates problems – making the rivers too silted. What then are the challenges ahead for us?

The first challenge that faces us is the problem of population growth. The United Nations says that the world's population is booming at an unsustainable rate. It is estimated that in forty years time there will be a 50% increase in the population of the world. And most of this increase is going to be in developing countries like in ASEAN or in Asia. When we look into the future, we find that because of the increase of population, we will need to have more water for people, and as people need jobs so we need water for industries. People need to eat, and we need water to grow our food, and we sometimes forget we need to leave a little aside for the environment. Population growth figures showed that in the last century, the population of the earth increased by two times but people were using more water per capita, so the water consumption increased by six times. One million people are added to the world's population every week, and when we have towns, it makes the situation worse, exerting pressure not just on rivers but also on ground water.

Secondly, our water resources are limited. Amongst all the continents, Asia is the continent with the most water

– quantitatively. However the population density of Asia is also among the highest. Asia, which covers 29% of the world's land area has 60% of the world's population. Because of this, the amount of water that is available per person in Asia on average is less than half of what is available for the world as a whole. To make things worse, every year as more people are born, the amount of water available per person becomes ever less, and more and more countries will be facing shortages of water as a result. When we talk about drinking water, we think of water coming from a tap. Unfortunately in many countries in Asia, many people get their drinking water untreated from drains and rivers.

Presently 20% of the world's population do not have access to clean drinking water and usually it is in the developing countries, and it is among the poor. The MDG's, which stands for the Millennium Development Goals, aim to reduce this figure by half by 2015. To meet the MDG for drinking water, we need to provide facilities to cover 100 million people a year. In terms of sanitation, we are very poorly covered and, as a result, many people lack access to sanitation. Most waste goes straight into rivers, untreated. Again the MDG goal is to reduce this by half, and to do this, we have to provide sanitation services to 125 million people a year.

More and more, we are dealing with climate change. Climate change is becoming a fact of life; it impacts on us, and has caused the deaths of many people. The IPCC, the Inter-Governmental Panel on Climate Change, has made an assessment that the temperature of the world will increase by between 1.5 to 6 degrees centigrade and this will cause sea levels to rise. It will have an effect on the hydrological cycle; it will cause more extreme events like floods and droughts to occur.

How then do we manage our water resources? There is a growing recognition that we have to manage it well, and one way to do so is through integrated water resources management (IWRM). Under the IWRM approach, we have to coordinate the development and the management of water so that we are able to maximise our returns without compromising the eco-system. The objective is to turn our degraded rivers and the poor environment, and to rehabilitate them into a better condition. We know that whatever we do will have an impact on water and therefore we need a long-term plan so that we can make sure that we do not run short of the resource in the future. We do this through developing water resource master plans whereby we have zones for nature, zones for development, zones for residents, and so on.

In managing water, we look at how efficiently we can manage it, how equitably, how fair and how sustainable we can be. And at the end of the day, it is a balance. We are trying to balance how to provide water for people, for our development and yet at the same time how to preserve, to make sure that we conserve water so that in our haste to develop we do not end up polluting the water as a result. And in managing water, we have to integrate it across different levels, from the national level going down to the local level. We have to integrate the different sectors. People need water for fisheries and for energy, and we have to be working together. At the same time we have to do this with the involvement of all the stakeholders. So we have to look at the water needed for people, the water needed for our industries, the water to grow our food and the water for our environment. And we must do this by discussing and compromising, bringing every stakeholder into the process.

We have to respect that water follows its own boundaries. We might have our political boundaries, but water does not know this and can only follow the hydrological boundaries. For example, the water in the Mekong River does not know that it is leaving China and coming into Myanmar, and from Myanmar going into Vietnam and Laos, Thailand and then back again to Vietnam. So to implement this management, we have to rethink and look back at our policies, look back at how we can integrate nature together with our human systems. There will be challenges such as how to integrate them and what should be integrated. It will not be cheap so we will have to debate on how much it will be and who will bear the cost. And at the end of the day, we will need more people who understand the issues and involve all stakeholders, as essentially we are all stakeholders in the process. We cannot say "leave it to government to solve the problem" because we are part of the problem and we will have to be part of the solution.

I am very grateful that we have before us a group of very talented and very dedicated young leaders. We are now putting our future, the issue of how to better manage our water, in your hands. We also need to work with the mass media because we need to spread this message, so it is good we have reporters with us today. Ultimately, we have to catch

people now, when they are young, because as we age, it becomes more difficult to change our way of thinking. We have to have people who are young, and you are the young leaders who will be taking us into the future.

In conclusion, as we develop in Vietnam, ASEAN and Asia, the problems relating to water in terms of how much we use and in terms of quality will become worse. If we want to manage it properly, we have to look at it in integrated way, and we have to look at in a holistic manner. We are also going to need support from all stakeholders, from the politicians to the industrial leaders, right down to the young leaders and to all elements of society. And with that, I thank you, ladies and gentlemen.



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