

The Nineteenth Asian Parliamentarians' Meeting on Population and Development

-Water and Population In Asia-
Conclusion of past three years APDA meeting

Ho Chi Minh City, Vietnam
December 14-15, 2003

THE ASIAN POPULATION AND DEVELOPMENT ASSOCIATION
(APDA)

CONTENTS

Opening Ceremony	5
Opening Address: Ms. Kayoko Shimizu, MP, Vice Chairperson, APDA	7
Address: Mr. Truong Quang Duoc, MP, Vice President of the Vietnamese National Assembly	9
Address: Mr. Yoshio Yatsu, MP, Chairman, AFPPD	10
Address: Mr. Shu-Yun Xu, Director of Asia and the Pacific Division, UNFPA	11
Address: Dr. Raj Karim,	15
Regional Director of East and South East Asia and Oceania Region, IPPF	
Keynote Address “Water and Population: Role of Parliamentarians”	17
Speaker: Mr. Yoshio Yatsu, MP, Chairman, AFPPD	
Session I Rural and Agricultural Use of Water Resources	23
Chairperson: Mr. Lakshaman Singh, MP, Vice Chairperson, AFPPD (India)	
Speaker: Dr. Vo Tong Xuan, Rector, Angiang University	
Session II Water and Living Environment	37
Chairperson: Dr. Malinee Sukavejworakit, Senator, Secretary General, AFPPD (Thailand)	
Speaker: Dr. Pak Sum Low, UN-ESCAP Regional Advisor on Environment and Sustainable Development	
Session III Water, Global Environment and Population	59
- Report of the Third World Water Forum -	
Chairperson: Mr. Epeli Nailatikau, MP. Vice Chairperson, AFPPD (Fiji)	
Speaker: Dr. Norio Ishida, Former Professor, Kyoto University	

Session IV	Water and Public Health	71
	Chairperson: Dr. Guowei Sang, MP	
	Vice Chairperson, AFPPD (China)	
	Speaker: Dr. Pham Song,	
	Former Minister of Health, Vietnam	
	President of Vietnam Association of Family Planning	
Session V	Discussion and Adoption of Statement on Population and Water	81
	Chairperson: Ms. Dato' Napsiah Omar, MP	
	Treasure, AFPPD (Malaysia)	
Closing Ceremony		87
	Closing Address: Ms. Nguyen Thi Hoai Thu, MP	
	Chairperson of Social Affairs Committee National Assembly of Vietnam	
	89
	Closing Address: Ms. Kayoko Shimizu, MP, Vice Chairperson, APDA.....	90
Adoption of Statement:		93
	"Water and Population in Asia: Environment, Food Security,	
	Public Health and Population" - Ho Chi Minh Statement -	
List of Participants		97

PROGRAMME

The 19th Asian parliamentarians Meeting on Population and Development

Water and Population In Asia
Conclusion of past three years APDA meeting

14th December 2003

Opening Ceremony

- 10:00 – 10:30 Opening Address Ms. Kayoko Shimizu, Vice-Chairperson, APDA
Address: Mr. Truong Quang Duoc
 Vice President of Vietnam National Assembly
Address: Mr. Yoshio Yatsu, Chairman, AFPPD
Address: Mr. Shu-Yun Xu, Director APD, UNFPA
Address: Dr. Raj Karim, Director, ESEAOR, IPPF
- 10:30 – 11:00 Collective Photograph / Tea Break

Keynote Address: Water and Population

- 11:00 – 11:30 Yoshio Yatsu Chairman, AFPPD
 =Water and Population: Role of Parliamentarians=
12:00 – 13:30 Lunch Hosted by APDA

Session I: Rural and Agricultural Use of Water Resources

- 14:00 – 14:30 Resource Person: Dr. Vo Tong Xuan, Rector, Angiang University
14:30 – 15:30 Followed by Discussion
15:30 – 15:45 Tea Break

Session II: Water and Living Environment

- 15:45 – 16:15 Resource Person: Dr. Pak Sum Low,
 UN-ESCAP regional advisor.
 on Environment and Sustainable Development
16:15 – 17:15 Followed by Discussion
18:30 – Dinner Hosted by Mr. Yoshio Yatsu, Chairma, AFPPD

15th December 2003

**Session III: Water, Global Environment and Population
-Report of The Third World Water Forum-**

09:00 – 09:30 Resource Person: Dr. Norio Ishida,
Former Professor, Kyoto University

09:30 – 10:30 Followed by Discussion

10:30 – 10:50 Tea Break

Session IV: Water and Public Health

10:50 – 11:20 Resource Person: Dr. Pham Song,
Former Minister of Health, Vietnam
President of Vietnam Association of Family Planning.

11:20 – 12:00 Followed by Discussion

12:30 – 14:00 Lunch Hosted by VAPPD

Session V: Discussion and Adoption of Statement on Population and Water

14:00 – 16:00 Discussion and Adoption

16:00 – 16:15 Tea Break

Closing Ceremony

16:15 – 16:45 Closing Address: Ms. Nguyen Thi Hoai Thu,
Chairperson of Social Affairs Committee
National Assembly of Vietnam

Closing Address: Ms. Kayoko Shimizu, Vice- Chairman, APDA

18:00 Farewell Reception at ship in Saigon River
Hosted by Ms. Kayoko Shimizu, Vice- Chairman, APDA

Opening Ceremony

Opening Address

Ms. Kayoko Shimizu
Vice-Chairperson, APDA

Mr. Truong Quang Duoc, Vice President of National Assembly of Vietnam,
Ms. Nuyen Thi Hoai Thu, Chairperson of Social Affairs Committee National Assembly of Vietnam,
Mr. Yoshio Yatsu, MP, Chairman of Asian Forum of Parliamentarians on Population and Development,
Honourable parliamentarian colleagues,
Mr. Shu Yun Xu, Director of Asia and the Pacific Division, UNFPA,
Dr. Raj Karim, Regional Director of East and South East Asia and Oceania Region, IPPF
Distinguished lecturers,

I would like to begin by expressing my sincere gratitude to all of you who have gathered here today to participate in the 19th Asian Parliamentarians' Meeting on Population and Development. Although Chairman Nakayama was initially scheduled to participate in this meeting, he is unable to do so as he was appointed as the special envoy of the Japanese Government to meet with the Secretary General of United Nations on the Iraq issue. Chairman Nakayama sends his best regards to all of you.

We are surrounded by numerous challenges on this earth, including the Iraq War and the spread of HIV/AIDS. The world is faced with the choice on how to go about developing the principle of cooperation and prosperity by overcoming the differences between civilizations in this world where various values coexist. Owing to the outbreak of SARS, we were not able to convene the APDA Meeting as initially scheduled in May and were compelled to postpone it until today. We have caused great inconvenience and trouble to the participants, particularly to the Social Affairs Committee that hosted the meeting. I would like to thank everyone for their cooperation and effort.

Asian Population and Development Association (APDA) celebrated its 20th anniversary last year, a memorable turning point for the organization. We are taking this opportunity to vigorously promote our programs with a new sense of commitment. The situation in Asia has changed dramatically over the past 20 years. In East Asia, the pace of population growth has levelled off, and as a result we are seeing falling birth rate and rapid aging of the population. Also in Southeast Asia, particularly in Thailand and Vietnam, we have seen a dramatic decline of fertility rate during these past 10 years. Total fertility rate (TFR) in Thailand has already fallen below the replacement level and the rapid decline of fertility rate in Vietnam in the past decade occurred at a pace hardly seen in other parts of the world. I have been told that the Social Affairs Committee of the National Assembly of Vietnam and the Vietnamese Association of Parliamentarians on Population and Development (VAPPD) made enormous contributions in addressing the population problem in Vietnam.

Prioritized allocation of the national budget towards social development programs was realized

as a result of tireless efforts made towards the enactment of legislature in Vietnam for addressing the population issues by Mme. Nguyen Thi Than, the former and current chairperson of VAPPD, and Mme. Nguyen Thi Hoai Thu, the current chairpersons of VAPPD. The activities of VAPPD over the past 10 years offer one of the most successful examples in the world of the significant results being obtained by parliamentary activities.

We at APDA have strong sense of affinity and take pride in these results obtained by Vietnam. APDA's relationship with Vietnam dates back to 1992 when we invited the Vietnamese Parliamentarian Delegation led by Mme. Nguyen Thi Than as part of our parliamentary acceptance program to participate in conference and observe Japan's experience of post-World War II demographic transition. I have been told that this visit to Japan provided the impetus for the establishment of VAPPD. APDA takes pride in its involvement in the activities of VAPPD and what little contribution it was able to make towards alleviation of the population problem in Vietnam. We feel much pleasure in holding the 19th Asian Parliamentarians' Meeting on Population and Development here in Ho Chi Minh City, the mercantile city of Vietnam.

The theme of this year's conference is "Water and Population". The Third World Water Forum was held in Osaka, Kyoto and Shiga in March of this year. It was a large event with a ministerial conference participated by representatives from 101 countries and total attendance in excess of 24,000. The convening of this World Water Forum itself is an indication of the increasing interest in water issue in the world today. APDA has taken a head start over the World Water Forum by discussing various aspects of water and population over the past 3 years at the 16th, the 17th and the 18th APDA Meetings. At this conference in Ho Chi Minh City, we are planning to wrap up the content of our discussions over the past 3 years and adopt the Ho Chi Minh City Statement of the Asian Parliamentarians' Meeting on Population and Development on Water and Population.

Unfortunately, the most important viewpoint of "water and population" was completely missing at the World Water Forum in March. We are planning to offer a comprehensive recommendation on the issue of water and population in the Ho Chi Minh City Statement that we will discuss in this meeting. We are convinced that it will have a great impact in the future.

In closing, I look forward to your active participation in this conference. Thank you very much.

Address

Mr. Truong Quang Duoc
Vice President of National Assembly of Vietnam

I would like to begin by expressing my gratitude to Hon. Kayoko Shimizu, Vice-Chairman of APDA and the participants of the 19th Asian Parliamentarians' Meeting on Population and Development. Although your stay is short, I hope that we will be able to spend a meaningful time.

Water resource represents the basis for population and humanity. Aside from being discussed at the United Nations, it has been the agenda of international conferences in the last 10 years including the conferences of APDA and AFPPD. Today, Asian parliamentarians have demonstrated a clear stance to address the problem affecting the entire world. Saltwater accounts for 97.5% of water on earth, which means that only the remaining 2.5% is freshwater. The amount of water we can consume is limited. However, we cannot do without this water for even a day.

People cannot live without water. The volume of water consumption increased tenfold between 1950 and 2000. Many people in the world are compelled to rely on unhygienic water and 30% are facing water shortage. Some predict that up to 60% of global population will be experiencing water shortage in the future. Volume of water discharge per capita in Vietnam is 10,160m³. Although we appear to have some allowance if we look at the availability for the world as a whole, water is unevenly distributed in terms of season and has led to situations where some regions are hit by flood while others suffer from drought. At present, only 40% of the population have access to clean water. Some predict that demand for water will continue to increase and water consumption will quadruple in the future. Vietnam is a country with high population density—the 13th highest in the world. However, the country has attained great results over the past 20 years through the efforts of the people. The results in the area of population are remarkable in particular, winning the United Nations Population Award in the year 2000.

Vietnam is in the process of making her transition from planned economy to market economy. Maintaining good relationship between population and water has become an important economic task for this transitional economy. Up to now, the National Assembly of Vietnam has enacted laws on population policy and health care and intends to make efforts to maintain these laws. We are looking forward to sharing information with our parliamentary colleagues from Asia so that we can attain better results. I think it is important to build on our experience in solving the problems of each country and work together towards sustainable development of each country based on peace and solidarity.

Address

Mr. Yoshio Yatsu
Chairman, AFPPD

Ms. Kayoko Shimizu, Vice-Chairman of APDA
Ms. Nuyen Thi Hoai Thu, Chairperson of VAPPD
Mr. Xu Shuyun, Director of Asia and the Pacific Division, UNFPA,
Dr. Raj Karim, Regional Director of East and South East Asia and Oceania Region, IPPF
Honourable parliamentarians from respective countries,
Distinguished lecturers,

Thank you very much for your participation in the 19th Asian Parliamentarians' Meeting on Population and Development. I would like to deeply thank everyone at APDA, namely Chairman Dr. Taro Nakayama, who unfortunately could not attend this meeting due to official duty, Vice Chairman Ms. Shimizu and Executive Director Mr. Hirose for their support towards AFPPD.

I have been told that we will adopt the Ho Chi Minh City Statement during this APDA Meeting based on our discussions over the past 3 years in the form of comprehensive recommendation.

In March of this year, the Third World Water Forum was held in Osaka, Kyoto and Shiga, and was attended by more than 20,000 persons. I served as the Chairperson of the Parliamentarians Meeting and compiled the Parliamentarian Water Declaration as a recommendation on the water issue to the international community.

The World Water Forum consisted of a general meeting and 351 sectional meetings. Unfortunately, no section was devoted the most important issue of water and population.

It goes without saying that increase of population is aggravating the current water problem and that our lifestyle is responsible for consumption of water. In this sense, water and population are inseparable, although the relationship between the two is not fully recognized. In the APDA Meeting, we have been discussing the issue of water and population over the past 3 years from various angles and I think it is very significant that the Ho Chi Minh City Statement will be adopted to summarize the discussions that have taken place during this period.

We parliamentarians are working day and night to create a society in which people can live with hope, and the greatest requirement for creating such society lies in solving the population problem. And solving the water problem is extremely important in solving the population problem. Let us make a step-by-step effort in creating a society in which people can have hope. Unfortunately, my official duties do not permit me to participate in this meeting until the end, I am convinced that a wonderful and viable statement for the international community will result from enthusiastic discussions at this meeting.

Thank you very much for your kind attention.

Address

**Mr. Shu-Yun Xu,
Director of Asia and the Pacific Division, UNFPA**

Mr. Tsuguo Hirose, Executive Director of APDA,
Mr. Truong Quang Duoc, Vice President of National Assembly of Vietnam,
Ms. Kayoko Shimizu, Vice-Chairman of APDA, and
Dr. Raj Karim, Regional Director of IPPF,
Distinguished representatives from 19 countries,

First of all, let me convey to you warmest greetings from Ms. Thoraya Obaid, Executive Director of UNFPA her warmest greetings to the meeting and all the participants.

It is a pleasure for me to represent UNFPA in this meeting. First of all I would like to extend our thanks and appreciation to the Asian Population and Development Association (APDA) for organizing this important gathering. I also would like to thank the Vietnamese Association of Parliamentarians on Population and Development for hosting this auspicious event. This gathering is a follow up to the 17th and 18th meetings of APDA where the issues related to "Population, Food and Water" as well as "Water and Health" were discussed. The theme chosen for our discussion in this meeting is of vital importance as it will give us the opportunity to exchange ideas about one of the most pressing and crucial issues which will face the human community in the years to come, i.e. shortage of water. The role of water in all aspect of life is central. Water is the most life-sustaining requirements, which is essential to our survival. It has no substitute, and its shortage and scarcity will dramatically and adversely affect the quality of the life of people.

In the new Millennium, one of the most critical issues for humankind will be availability of fresh water. Escalating shortage of water supplies is going to pose a formidable threat to the human efforts directed towards achievement of sustainable development and improving the quality of life. Presently, some 40 percent of the world's population lives in areas with moderate to high water stress. Out of the 48 countries that are projected to face severe water stress by the 2025, 40 are in West and South Asia, North Africa or Sub-Saharan Africa.

Food production is dependent on irrigation with fresh water and therefore lack of fresh water severely affects availability of food and hence puts food security at peril. Globally, about 70 percent of the fresh water resources are being utilized for agricultural activities. However, 82 percent of fresh water resources in developing counties are used for agricultural activities. Thus the dilemma for the developing world is to manage water resources in a way to ensure responding to the needs of agriculture sector while avoiding over consumption of water and degradation of the fresh water resources.

Fresh water recourses are threatened due to contamination. Each year 300-500 million tons of heavy metals, solvents, toxic sludge and other industrial and human wastes are accumulated in the developing countries out of which 70 percent will be dumped into the water without being treated. Thus in many parts of the world water pollution are one of the main causes of water

scarcity.

A review of the present pattern of water consumption indicates that every twenty years the level of consumption will be doubled. Thus, in 2025, over 5 billion out of 7.9 billion population of the world will be facing with acute water shortage for meeting their basic needs for drinking, cooking and sanitation.

The role of water in ensuring and promoting the health of the people is central and irrefutable. Usage of unsanitary and contaminated water would expose people to the high risk of contracting water borne diseases.

The issue of promoting access to safe drinking water was highlighted and endorsed by International Conference on Population and Development (ICPD), Millennium Development Goals (MDGs) and the World Summit on Sustainable Development (WSSD). The ICPD Programme of Action (POA) has emphasized that all countries should give priority to measures that improve the quality of life and health by ensuring inter alia access to clean water. At the Millennium Summit the leaders of the world pledged that by the year 2015 the proportion of the people who are unable to reach or to afford safe drinking water should be reduced to half. The WSSD endorsed the millennium goal of enhancing access to clean water.

The total population of the world, which was 6.1 billion in 2000, is currently increasing by a net increment of 77 million people per year. With the present growth rate by the year 2025 the world population is projected to be approximately 7.9 billion. The share of the developing countries out of the population increment is the largest. These countries are already under the population pressure and have no additional capacity what so ever to absorb and accommodate additional number of people. Even though that the number of people with access to clean and fresh water has increased in the 1990s, due to population growth the number of those who have no access to fresh water has continued to remain the same.

Population dynamic is a key factor in sustainability and pattern of consumption of water. The studies undertaken have indicated that, in most developing countries access to water in urban areas is more than the rural regions. Accelerated population growth in rural areas coupled with dwindling water supplies, fuel, rural-urban migration. The rapid urbanization and rural urban migration will be a major obstacle for the governments to build up and develop the necessary infrastructure including providing for adequate supplies of fresh water.

Sixty percent of the world population is living in Asia whereas only 29 percent of the water resources are available in this region of the world. The accessibility of potable water is a major problem for Asian countries. Approximately 75 million or almost 60 percent of the Asian population do not have access to potable water. Nine million or 75 percent of those who do not have access to water and sanitation are extremely poor. Eighty percent of the people also lack improved sanitation. The water scarcity has been threatening the livelihood and environment in this continent. It has also affected economic growth and undermined the efforts of the governments for development. The world's two most populous countries, China and India, are in Asia, and at current fertility rates, water-stressed regions of the Near East and parts of South Asia would double in another 20 to 40 years.

If water availability calculations were made nationally rather than regionally, large parts of

China and India would be considered to face water stress and even water scarcity* .

The other factor, which is adversely affecting the fresh water resources in Asia, is rapid urbanization. Asia will face a tremendous challenge in the years to come in order to be able to respond to the growing needs of the people for water in urban areas. It is projected that by 2025 over 50 percent of the population of the Asia will live in urban areas. It will not be an easy task for the poor Asian countries to arrange for complex management of the water supplies as well as pollution and waste management. Increased consumption of water in urban areas will divert the water from rural regions, thus exacerbating the rural poverty. This also may lead to mass rural-urban migration adding more pressure on the capacity of the governments to respond to the basic needs of the people for food, water as well as sanitation.

In almost all developing countries women traditionally shoulder the responsibility of collecting water for the internal family use. Though this is rather a heavy task, in many developing countries in particular in poor communities the children also contribute to this job. In poor remote rural areas where there is no fresh water near the place they live the women must spend hours every day to collect water. This is also the case in poor urban dwellings and slums around the big cities where again the women and children have to wait for a long time in long lines to collect and carry water. Fulfilling this unavoidable task is a heavy tax to women and children's time, energy and health. Effort therefore needs to be made to ensure easy access to water, so that the women and children are released from this very heavy responsibility and could devote their time and energies to more productive activities.

Distinguished representatives. A number of international conventions have explicitly recognized right to access to water as a basic human right. Through ratification of these conventions and international instruments the governments have committed themselves to ensure availability of minimum clean water to the people. To fulfil this commitment the governments should adopt laws and regulations as well as strategies and plans of action so that all people will have access to water. It is in this respect that you as parliamentarians can play a crucial role. Through adopting of laws and legislative measures you are the ones who can translate the commitments of your respective governments into concrete action. You can lobby with your governments to follow an integrated approach to managing water, land and ecosystem. This approach should take into account the environmental consideration and at the same time it should pay due attention to population and gender perspectives.

Management of water supply and demand requires adoption of regulatory mechanism for conservation of water. In this respect again your role is crucial, through adopting of relevant laws and regulations. As discussed earlier in order to avoid an imminent water crisis, there is a need to bring a balance between the population and the available water resources. Therefore slowing down the accelerated population growth and stabilization of the population size is indeed inevitable. In this regard your strong support and intervention would be of great value to pave the way for promoting reproductive health and family planning programmes which are the means for reaching to the goal of fertility regulation. This is specially an urgent task in Asia where the population size, growth and fertility are at a very high level.

* An area is said to experience water stress when annual water supplies drop below 1,700 m³ per person and water scarcity when supplies drop below 1000 m³ per person.

As it was referred to earlier water pollution is a huge problem especially in Asia, hence there is a need for legislations mandating implementation of measures for waste treatment, to avoid polluting and contaminating of water resources. It is through your good offices that these legislations could be adopted.

Last but not least the women are the ones who suffer most due to the scarcity and unavailability of water. Therefore it is essential for the governments to adopt measures to ensure women participation and involvement in water management efforts at all levels. In this respect educating women on health sanitation, hygiene and reproductive health including family planning could be very instrumental. You can play a very important role in this respect through adopting laws and lobbying with your government.

To conclude, I would like to emphasize that measures to slow population growth, empower women, reduce poverty and resource-shortages and conserving the environment are mutually reinforcing and equally necessary to achieve sustainability. Thus, unless the goals of the ICPD Programme of Action are met, particularly regarding universal access to gender sensitive and quality reproductive health services, the challenge of balancing people's demands with limited environmental resources, especially water, will be overwhelming. In this respect also it is through your intervention and support that the goals of the ICPD Programme of Action could be materialized. Thus in all respect your role is quite crucial, indispensable and central.

Next year, 2004, will be the year to celebrate ICPD Programme of Action 10th Anniversary. Considering the theme of ICPD+10, this gathering will have a special significance.

I thank you all for your kind attention and wish this important meeting every success.

Address

**Dr. Raj Karim,
Regional Director of East and South East Asia and Oceania Region, IPPF**

Good morning all of you.

Mr. Chairperson,
Hon. Truong Quang Duoc, Vice President of National Assembly of Vietnam,
Ms. Shimizu, Vice Chairperson of APDA
Mr. Yatsu, Chairman of AFPPD,
Mme. Nuyen, Vice Chairperson of AFPPD,
Mr. Xu, Director of APD, UNFPA,
Distinguished parliamentarians,
Ladies and gentlemen

I send you all warm greetings from Director General of IPPF, Dr. Steven Sinding who is right now in India and is not able to be with us. On behalf of IPPF, I'm very happy to be here this morning and, over the course of the next two days, to discuss the very important and critical issue of population and development in Asia. I would like to congratulate APDA for taking this issue at the forefront of your work over the last 3 years and look forward to the contributions of the eminent scientists who will be addressing this forum, and look forward also to the discussions and recommendations that would result from this meeting. I now hear that the Ho Chi Minh Declaration will be the result of this meeting and look forward to it.

I would also like to express our gratitude to our hosts in Vietnam for the organization of this meeting and for the warm hospitality and reception that they have given us. IPPF is fully committed to supporting and taking up your recommendation in the course of our own work in advocacy for issues on population and development, of which water and environmental sustainability is an integral part. Also now that IPPF has stated that it would give priority to working within the broad mandate of population and development and corporate responsibility.

To keep you updated, under the leadership of the new director Steven Sinding who has joined us a year ago, IPPF has formulated a new strategic framework which has been approved by the governing counsel 2 weeks ago. This strategic framework was presented to the donor's meeting that was held in London on 3rd of December, just 10 days ago, and was well received by the donors.

The strategic framework outlines the direction IPPF will take within its region and member associations to work on the priority areas. We call it the "5 A's". First, we will be working with "Adolescents" because they are increasing in number and represent the most precious resource that we have. The second area is "AIDS". We will be working with HIV/AIDS which is an issue threatening all of us in this region and beyond. The third area is "Abortion". We will be working on prevention of unsafe abortion and promote safe abortion in countries where it is legal. The fourth area is "Access", where we will attempt to increase reproductive and sexual health-related facilities. "Advocacy" is the fifth area in which "water and population" is designated as one of the issues. We will work with gender and rights as the crosscutting issue

within the framework of these 5 A's.

IPPF will now take this international strategic framework to also support the achievement and development of the Millennium Development Goals and especially to support poverty reduction and alleviation, and environmental preservation and sustainability on issues such as water, food and sanitation. Our regional and national associations are now formulating their own plan of action and we are very pleased that this meeting is very timely so that take up your recommendation and advice into our work plan, so that we can work together and put your advocacy roles and the work that you do in promoting legislation in your countries into reality and into action on the ground level so that it would make a difference in the daily life of our people.

In this respect, I am very happy to see that Professor Pham Song, who is the Vice President of our national association, Vietnam Family Planning Association (VINAFFPA) will be addressing this distinguished group on the topic of Water and Public Health which is directly related to the work that our member organizations do. And we will look forward to Vietnam in leading the way for us in the region in this direction. We also look forward to the support of the government and people of Japan through APDA, through AFPPD, through JOICFP and through JFPF to promote our work together in this area and in the issues of reproductive and sexual health.

We thank you for your commitment and cooperation in the support that Japan has given us as the largest donor country for IPPF. Through your cooperation, IPPF is beginning to regain its position as the strong grassroots NGO organization, working primarily for the poor, the disadvantaged and the marginalized population group and in the more difficult and sensitive areas of reproductive and sexual health.

May I also express IPPF's gratitude and thanks to all parliamentarians, primarily to AFPPD, who have supported us in the countries to advocate for many issues in reproductive and sexual health. We specifically thank you for your strong support and solid voice at the 5th ESCAP Conference in Bangkok in December of last year, 2002. Your strong statement at the ministerial segments of the ESCAP meeting was instrumental in getting the report and the recommendation of the Bangkok Plan of Action for Population and Poverty through. Let us work together in this region, especially in 2004, when our countries and regions will be convening meetings to review the progress 10 years after Cairo.

IPPF will be convening a technical meeting in London in the first week of September. For your information, it is on the website and everyone is invited to participate so you can register on-line. We will be having this meeting with many partners. In Asia and the Pacific, we are planning a review meeting somewhere in July and we would also like to invite you to join us so that we can continue to speak with the solid and common voice for the region.

IPPF values its partnership with UNFPA and will continue to look forward to the advice and support of UNFPA and parliamentarians in our efforts in promoting reproductive and sexual health and rights of the people of this region.

On behalf of IPPF, I wish this conference every success and assure you of IPPF's support for the Ho Chi Minh Declaration. Thank you very much.

Keynote Address:
Water and Population: Role of Parliamentarians
Mr. Yoshio Yatsu
Chairman, AFPPD

Mr. Truong Quang Duoc, Vice President of National Assembly of Vietnam,
Ms. Kayoko Shimizu, Vice-Chairman of APDA
Ms. Nuyen Thi Hoai Thu, Chairperson of Social Affairs Committee National Assembly of Vietnam,
Honourable parliamentarians attending the 19th Asian Parliamentarians' Meeting on Population and Development

Asian Parliamentarians' Meeting on Population and Development, which is held every year in various countries of Asia under the sponsorship of Asian Population and Development Association, took up the issue of water and population about 10 years ago, intensively discussing this subject particularly over the past 3 years. The 16th Meeting was held in Bangkok, Thailand in 2000 under the theme of "Population and Sustainable Development: Environment, Food Security and Water Resources". The 17th Meeting in Auckland, New Zealand in 2001 discussed the theme of "Food Security in Asia: Water Resources and Population". The 18th Meeting was held in Tokyo, Japan in 2002 to deliberate on the theme of "Water and Sanitation, Regional Development and Population".

In this meeting, I am told that we will be wrapping up what we have discussed over the past 3 years in the 16th, the 17th and the 18th meetings to prepare the Ho Chi Minh Statement of the Asian Parliamentarians' Meeting on Population and Development on Water and Population in Asia: Environment, Food Security and Public Health and Population. Needless to say, water is indispensable for all living beings. In particular, hardly any food production is possible without freshwater resources. The Earth is said to be a planet of water; however, this water is mostly saltwater and cannot be used for agricultural production. Moreover, vast majority of freshwater resources existing on the Earth is locked in as ice in the Polar Regions.

Concern exists over melting of this ice as a result of global warming. There are island nations in the Pacific whose very existence is jeopardized by the rise in sea level which would occur when this polar ice starts to melt. Efforts are being made towards adoption of COP III (The Third Conference of Parties on International Framework Convention on Climate Change) Protocol to prevent global warming. As melting of polar ice due to global warming is believed to cause serious disasters in terms of global environment, it is not possible to utilize freshwater in the Polar Regions in reality.

From these viewpoints, the amount of freshwater resource we can use is extremely limited. The only water resource available to us on a permanent basis is that which repeatedly goes through the process of evapo-transpiration from solar heat and precipitation, and is insignificantly small in terms of quantity.

According to estimates made by prominent hydrologists such as Malin Falkenmark and Sandra Postel, this recyclable freshwater resource accounts for merely an eight one-billionth of all

water existing on the Earth. Furthermore, we cannot increase the amount of water in response to population increase.

For instance, world population around the time when Christ was born is estimated at around 100 to 300 million. However, the amount of water available to the present world population, which is estimated to have exceeded 6.2 billion, is same as the amount of water available to people at that time.

Recognition about the indispensability of water for our survival is spreading throughout the world. The Third World Water Forum was convened in Osaka, Kyoto and Shiga in Japan from March 16 to 23 of this year by reflecting the growing awareness about the water issue in the world.

I assume some of you here today also attended this event. At this forum, active discussions took place regarding concrete actions that need to be taken by governments and international organizations as well as actions expected from people and NGOs towards the solution of the world water problem in addition to the division of roles and partnership between the two. Among more than 300 sectional meetings that were held during the Forum was a special program entitled "Water and Parliamentarians" that was held on March 21 and was attended by some 40 parliamentarians from home and abroad. I was appointed as the chairperson for this meeting because I serve as the Secretary General of GLOBE (Global Legislators Organization for a Balanced Environment) Japan in addition to being the Chairperson of AFPPD and was given an important task of expediting the proceedings.

Today, I would like to talk about the role we must play as legislators with regard to water. I say this because the fundamental mission for the politician of building a sustainable society for future generations exists at the backdrop of our involvement with the environmental issues from the viewpoint of legislators. Water is attracting international attention as a problem that is jeopardizing sustainable development in various parts of the world, particularly in developing regions that are experiencing rapid population increase.

Behind all of this is the fact that water is essential for sustaining our lives and for our socioeconomic activities such as agriculture and industry and that it is complexly intertwined with other biological, geographical, economic, social and cultural elements. In addition, we are witnessing emergence of problems that cannot be solved from conventional viewpoint of flood control and water utilization, such as maintenance and control of quality and quantity of water used by humanity, uneven regional distribution and conflict over international river basins. As legislators, we must foster a global perspective and take the initiative in solving the water problem.

In this special program "Water and Parliamentarians" of the Third World Water Forum, we focused on "Water as a Global Public Goods" and "water security" by acknowledging the importance of firmly consolidating the fundamental principle of "water" and promoting establishment of water security to eliminate frictions and conflicts over rivers. Our goal was to identify actions that need to be taken by parliamentarians in realizing equitable management and allocation of water resources in all counties, regions and all other places based on this viewpoint in an effort to develop a system that would allow humanity to equally enjoy the benefits of water resources. Eminent speakers that delivered their speech at this meeting included

Former Prime Minister of Japan Mr. Ryutaro Hashimoto, who is also the President of GLOBE Japan and the Chairman of the National Steering Committee of the Third World Water Forum, UNEP Executive Director Dr. Klaus Toepfer, UNDP Administrator Mr. Mark Malloch Brown and GLOBE International President Mr. James Greenwood.

Following the speech by these guest speakers was a discussion of the five main themes consisting of "Developing Regions and Water", "Water Security", "Mechanism for Preventing and Solving Water Disputes Over International Rivers", "Water, Life and Health", and "Role of Legislators in Water". The Water Declaration was unanimously adopted based on the results of this discussion as the consensus of all the parliamentarians that attended the meeting.

Today, I would like to bring up four points in the Water Declaration that the legislators participating in the meeting felt were particularly relevant with regard to the roles to be played by legislators and to the relationship between population and water.

The first point is that we legislators are among the most important and responsible actors who are in a position to solve water problems and who also work directly with governments towards that end. For this reason, we can "help our respective governments recognize the importance of having water and stable water resources as well as the importance of sustainable development based on water and stable water resources". In reality, however, governments and people are not fully aware of the importance of water.

To begin with, "water" has two characteristics; "collective consumption good" which is a natural common property on a global scale consumed by everyone, and "non-exclusiveness" which is inability to hinder consumption of an item that has to be consumed by specific person. Public good such as this triggered serious problems such as water contamination and deterioration of water resources by being combined with rapid economic development and population increase in the 20th Century by giving rise to the "free ride" phenomenon where individual interest is given priority over public interest. The problem of water quality is also closely related to poverty in the developing regions. For instance, poverty is one of the factors behind lowering of groundwater level and ground subsidence caused by undeveloped sanitation facilities such as sewage system and excessive pumping of groundwater.

Water contamination and deterioration of water resources greatly disturb the balance of coexistence with ecosystem and nature, reducing biodiversity and inducing increase in number of endangered species in many waterfronts all over the world. Eighty percent of diseases in the developing countries are allegedly caused by contaminated water. Presenting a solution for this "water crisis" is an urgent task for us legislators. Making our governments recognize such intrinsic value of water and understand the importance of sustainable development based on stable procurement of water are matters of top priority for us. Efforts for building a social system for fair allocation of resources to the people and realizing the environment that allows its people equitable access to safe and good-tasting water can only be made after the importance of water is recognized.

The second point is the importance of "urging dialogue with other basin countries for solving the problem of cross-border water resources and proposing establishment of a mechanism for solving conflicts by utilizing international organizations, integrated water resources management systems and other means". As you may all know, disputes between regions

within a country and between countries over water resources have been repeated since ancient times. Disputes over use and allocation of water resources are deeply connected with "security" of that country or region. "Water security" is commonly used in the recent years as a concept referring to avoidance and solution of conflicts arising from securing of water resources and their shortage. Allocation of water resources between countries has important meaning in terms of securing political stability in a region as it is an aspect of "water security" that is deeply involved with security in that region.

Recognition by politicians about the importance of water problem and their involvement will play an extremely important role in realizing "water security" all over the world including regions where shortage of water resources has become apparent. Its solution requires concerted efforts among international organizations such as U.N. as well as those involved in water resource use such as local residents, companies, NGOs, municipalities, agencies, ministries and other countries along the river to address the issue. In concrete terms, Integrated Water Resources Management is an effective system for discussing, deciding and implementing water resource management. Dialogue between upstream country and downstream country is also important when managing international rivers that run through more than one country. International organizations play an important intermediary role in such cases.

The third point we agreed was to propose to our respective governments to adopt what we may call a "United Nations Water Charter" to reaffirm the importance of water resources and to secure its sustainability. As I mentioned earlier, international organizations, U.N. in particular, play an important role in resolving international conflicts involving water resources. For this purpose, it is important to adopt such "Water Charter" including action agenda so that all U.N. member states can take action based on shared recognition about the importance of water resources and the need to secure safe water. Although the credibility of U.N. is currently in question, we believe that U.N. has played an important role and that its importance will increase further in the future.

The fourth point refers to Japan's potential in contributing to other countries by utilizing her abundance of knowledge from the viewpoint of official development assistance. Needless to say, Japan is already making contributions to many developing countries in the area of environmental conservation including water. In the future, we need to have discussions in various occasions at home and abroad to obtain further consensus about water-related assistance.

Thus "Water and Parliamentarians" was a very meaningful program in the Third World Water Forum in the sense that it clarified the action we legislators need to take in the area of water. As a result of our discussions, we were able to have a common goal based on firm perception of "water". In other words, we were able to share our understanding about the need to reflect the outcome of this program in the parliamentary debate of our respective countries while stepping up our legislative efforts for eliminating the elements that threaten the water of life and our approach towards our governments.

Based on this shared recognition, we are determined to develop this into action by legislators concerned about the environment. I have reaffirmed my determination to strive towards conservation of water and resolution of water-related conflicts by utilizing the knowledge I

obtained from this program to secure the limited water and water resources on a stable basis for many years to come. Although population was discussed to some extent at this parliamentary meeting, no session was devoted to the population problem in the World Water Forum itself.

I understand that APDA, the organization hosting this conference, strongly encouraged the Ministry of Foreign Affairs that organized the World Water Forum to include a session for population and water during the preparation phase of the Forum. However, their efforts were unsuccessful. Needless to say, the fundamental concepts in discussing the water issue such as "water stress" and "water scarcity" are born out of their relationship with population. They are concepts obtained by dividing a country's runoff, which is the amount water that flows in the form of rivers, creeks and groundwater after being lost directly from the earth surface through evaporation and being absorbed by plants thorough transpiration, by the number of population in that country. "Water stress" and "water scarcity" occur when per capita runoff volume drops below 1,700 m³/year and 1,000 m³/year, respectively. Population and water are therefore inseparable. Increase in number of people simply leads to decrease in amount of water available to each person while demand for water rapidly increases to produce food for greater number of people.

Grain is our basic food item. For instance, it is said that 1,000 tons of water is needed to produce 1 ton of wheat. Meanwhile, increase in meat consumption originating from economic growth leads to exponential increase in water demand. Producing a kilogram of beef requires 7 kilograms of grain, which, in turn, requires 7 tons of water to produce. In other words, importing a kilogram of beef means importing 7 tons of water.

Unfortunately, discussion on this very important issue of water resource and population did not take place at the World Water Forum. However, the need to discuss the water issue comprehensively from the viewpoint of population is growing more than ever.

As parliamentarians, we have the responsibility of formulating policies and building the environment that would allow humanity to coexist on the Earth. I think there is great significance in thoroughly discussing this issue on the basis of discussions that have taken place at the Asian Parliamentarians' Meeting on Population and Development up to now in order to present anew the issue of water and population to the international community. I am looking forward to active discussions that will take place during this meeting.

I would like to close my keynote speech by expressing my sincere gratitude to Asian Population and Development Association for raising this subject as the theme of this conference.

Session I

Rural and Agricultural Use of Water Resources

Chairperson
Mr. Lakshaman Singh
Vice chairperson, AFPPD (India)

Rural and Agricultural Use of Water Resources

Dr. Vo Tong Xuan
Rector, Angiang University

Honourable representatives from the Asian countries. Once again I have the great pleasure to be with you to sum up the discussion on water and population that we have been discussing in the last three meetings. This afternoon, the organizers assigned to me a presentation. The title is Rural and Agricultural Use of Water Resources. In this paper, I would like to review with you in a short time just why water matters and how agricultural water is used. Secondly, the domestic use of water in rural areas—how it is used. And then I will discuss about the long-term prospects of water equation. Lastly, I would like to make a suggestion to you and to the member of AFPPD.

The last time I showed them to you at the AFPPD Food Security Conference in Bangkok and at the Second World Water Forum which was held in the year 2000 in the Hague, Netherlands. We had ministers from 120 countries that came to attend and over 5,000 stakeholders to present their views. Water professionals also attended along with over 600 journalists. In that meeting, they indicated very early in the game as we entered into the new millennium by saying that the most limiting natural resource in the new millennium would be water. This is one resource that cannot be renewed. It is also the major issue for food security and also for health of the society. In that meeting we concluded, and I quote, "On the one hand, the fundamental fear of food shortages encourages ever greater use of water for agriculture. On the other, there is a need to divert water from irrigated food production to other users and to protect the resource and the ecosystem. Many believe this conflict is one of the most critical problems to be tackled in the early 21st Century".

Two years later, in the year 2002, Mr. Kofi Annan, the Secretary General of the U.N., also stated, "First is water and sanitation. More than 1 billion people are without safe drinking water. Twice that number lack adequate sanitation. And more than 3 million people die every year from diseases caused by unsafe water". Our speaker this morning also indicated that very clearly. "Unless we take swift and decisive action, by 2025 as much as two thirds of the world's population may be living in countries that face serious water shortage. We need to improve access".

Mr. Annan concluded that we need to improve the efficiency of water use. That is why I am pushing this and I respect very much your honourable representatives for being involved in this effort even earlier than the World Summit. You have made very clear our position.

He concluded that, "We need to improve the efficiency of water use, for example by getting more 'crop per drop". He was talking to the scientists how to produce more food with less water. "Agriculture is the largest consumer of water and we need better watershed management and reduce leakage especially in many cities where water losses are an astonishing

40 percent or more of total water supply". So you can see that that is why AFPPD has been involved in this water discussion for many years because you know very well that it is the number one limiting resource.

In agricultural use of water, there was Green Revolution that started in 1966 that came up with new variety of rice ever since. Governments of different countries tried to provide irrigation for these rice varieties. Wherever there was irrigation, new variety of rice would go there. Green Revolution brought about food security for Asia and elsewhere. But you can also look at another side of the coin. Most of the old varieties of rice disappeared. Wherever new varieties of rice arrived, old varieties of rice disappeared. In other words, biodiversity was greatly reduced by the new varieties of rice. But we recognize that new varieties of rice brought food security, more food for the people at the expense of billions of dollars of water resources and irrigation systems.

When World Bank considers a development project for a country, very likely they go first to support irrigation because irrigation facilitates farmers to produce new varieties of rice. Therefore we must say that Green Revolution benefited many farmers and consumers, especially the poor farmers, but only those poor farmers who have the facility of irrigation. Mind you that now at this time, the poor farmers who live in far away places, in the uplands, do not have these facilities. They don't have irrigation. They have to rely on rainwater and therefore they are more vulnerable to damages by irregular water supply. So those poor farmers are left out by the Green Revolution.

But in Green Revolution, chemical fertilizers were applied in very large scale in many countries with new varieties of rice. Mind you but many of our farmers still think, but they are right, not the scientists. Scientists recommend fertilizing the soil with complete chemical fertilizers, nitrogen, phosphorous and potassium, but most farmers in Asia, when they put nitrogen in with urea, they see the plants become greener right away. This has brought an unbalanced situation in the soil. With extra nitrogen, rice plant attracts more insects and disease. Therefore the farmers have to use more insecticides and herbicides in order to cope with the situation. Therefore, they spend more money to buy the chemicals and for their labour, but they pollute the land and water. I believe that you have heard so many times many NGOs criticized the danger of Green Revolution, that Green Revolution made many farmers poorer, and they have the reason for it. This is not because of the Green Revolution itself, but because of less educated farmers do not follow strictly the technology that is offered to them by scientists.

So we spend a lot of money and do a lot of rice production in the world, yet the poor people still remain in the world. You read the new report from the FAO that was issued one week ago. We realize that at this time there are more than 1 billion people going to bed hungry in the evening because they do not have access to food. And as the population increases, you know very well that their income also increases a little bit and some try to industrialize. Once they have the organization to grow, economists look to the future of the year 2025, they see that most of the cities will be full of people and that many of them are poor because those living in rural areas will migrate to cities. Therefore, the way to cope with the water situation will have to change also. They have to think about water regulation, how to regulate water for urban and agricultural use. There will be a lot of problems with water supply and also with food production as it has to compete with domestic use of water. At the same time, we have to cope with erosion control because erosion will reach the part of the process where forests will be

denuded. Therefore the soil resources also have to change after they are degraded. As urbanization develops, waste treatment will also become a big problem for the urban areas. Habitat and cultural values of the different environment also have to change.

Let me now go back to the problem. Water resource is the theme of our meeting. We have rainwater, and we have lakes and rivers, wetlands and marine waters. On land we also have groundwater which is another resource that we cannot overlook. What is the problem with lakes and rivers? There is large-scale development of river. You know very well that many rivers in the world are tapped and have dams along with river banks. Our speaker this morning also referred to the disputes over water use at large rivers. Groundwater resources are also very susceptible to drying. These developments are also very costly and have become less effective compared to the 1960-1990 period when most of the world's 45,000 large dams were built. Dams built today cost much more than dams that were built earlier. And the water systems that have created by dams need to be improved in order to make full use of the system.

A parallel development is that the water infrastructure built in recent decades is becoming obsolete. We can see very well that even in Asian countries—you can see in Indonesia, Vietnam, the Philippines—that the irrigation system built many years ago require improvement and maintenance, and maintenance is very costly.

What about the reservoirs? Many reservoirs are silting up because of there are less forests. Eroded soil will find its way to the reservoir and raises the bottom of the reservoir. Irrigation networks are also crumbling especially in areas where we do not have a complete line on the canal. So the system gets much degraded. Particularly in countries where we do not have a good management system, where the government still wants to manage the system instead of leaving it to cooperatives and farmers. Farmers near the source try to take what they can and those at the end cannot get enough water. This has been a problem in many countries.

Groundwater levels are also falling particularly in the Asian countries. We can see that when urbanization takes place, urban people would like to have more water. We take bath instead of shower. We also use more water by using flush toilet. Many countries are experiencing sinking of land as aquifers get nearly empty.

Who will suffer the most when we have such degradation? Of course the ones that suffer the most are the poor and the vulnerable in the society, particularly women in the rural areas.

Like in my country Vietnam, we have had very irregular water supply in the last ten years. This is very alarming. We had droughts many times that killed the crops quite easily especially in the dry season. In other seasons we had floods. In the Mekong Delta for example, consecutively from the year 1992 to last year, almost every other year we had high floods. In the old days, high flood would come every 8 years. But now it comes almost every other year. It costs lot of lives and properties. So with that kind of system, first we have to satisfy the urban sector, with their improved lifestyle they would use much more water than when they were poorer. At the same time we also need a lot of water for the industrial sector. In the agricultural sector, we look back how they have been treated. As I told you earlier, agricultural sector uses water mainly for food production. The farmers in Vietnam see water as something that comes from the sky. It should be free and no one can ask them to pay for it. Therefore it is very difficult to collect water fee from the farmers. At the same time, they are using water

lavishly because it's free. I must say that this is one of the difficulties in many countries. Situation is different in Australia. If a farmer is going to use water, the water has to be measured and they have to pay for the amount of water they use. But in many countries like Vietnam, we cannot measure that water and we cannot force the farmers to pay.

Until now we have about 25% of agricultural production that still depends on rainwater for rain-fed production. About 55% of agriculture in Asia is irrigated but this irrigation taps all the sources of water which is now running drier. We can say that our farmers have been using water inefficiently, engaging in extravagant use of water in most of these countries, particularly in countries where we want to produce in natural condition. In the Northern Vietnam, in the Red River Delta, we want to make 3 rice crops. When water is full, we pump the water out in order to sow the seeds. After sowing, they bring the water in again. The water used for rice production is very costly. And when this rice is exported, I must say that we also export water.

As the population increases, we will need more rice, especially when the economic situation is not very high yet, still depending on rice for everyday intake. The amount of rice consumed in Vietnam is about 35kg per year compared to 25kg per year in Japan. That means we still depend on rice because of the poor situation and we cannot diversify our food. As the population grows, we will need more rice in order to satisfy these people.

I would like to take this opportunity to review with you briefly some very basic figures because we say why we need so much water for rice. You see rice with leaves, and you see the soil, another time you see rice planted on the soil. So first water you need is for the leaves. The second one is what we call evaporation. Evaporation takes place from the surface of water and we have to take that into calculation. The third need for water is seepage through dikes. We lose some water there. And the fourth need is the water that is going down. We call it percolation. So there are four elements in water requirements; evaporation, transpiration, seepage and percolation. Water scientists have been making a lot of calculations using different types of soil and different types of situations but for a short duration of 100 days for high-yield rice varieties. That rice needs about 1,000 to 2,000mm of water. In Vietnam, rainfall is about 1,800mm per year. So that means we have to pump in a lot of water to grow rice. Therefore, we say that existing technology in growing rice is the most expensive and most detrimental to the water situation.

Scientists are also talking about water productivity. There are two kinds of water productivity. One is what we call "WPET" which means "grain yield per unit of evapo-transpiration". The other is "WPIP" which means "grain yield per unit of seepage and percolation". If we can reduce evaporation, or can create a variety of rice that can give more grain with the same amount of evaporation, then we can improve the situation. We will have more food with less water. Or if we can make the field condition with the same seepage, we can still get more yield. The scientists have the design to increase the efficiency of evaporation and transpiration by selecting new rice crop variety that has better photosynthesis and better grain yield with the same amount of water. So that is one way.

Also if they want to reduce seepage and percolation losses, then they have to design to cut the amount of water that is lost through dikes. The International Rice Research Institute (IRRI) in the Philippines is now trying to propagate a technology they call "maintaining soil saturation". That means when they grow rice they don't keep a layer of water to less than 5 to 10cm. They

will make the soil just saturated. This kind of saturation is called "alternate wetting and drying". They have proven that by using this technique, the yield can be maintained while cutting down the cost of water to one-fourth or one-fifth. There are also other international agencies like International Water Management Institute (IWMI) in Sri Lanka which is specializing in integrated water management for agriculture.

There is also competition for water resource between many sources such as agriculture and domestic use especially in the rural areas. And the urban and rural domestic use, we say that there is competition as shown in some of my examples here. First one is a water tower in the mountains of Kenya. If agriculture exploits too much water to grow crops, then the people in urban areas downstream would not have enough water to survive. There is another example from Cauvery Delta in India where three states compete over water for domestic consumption and irrigation. These states are Tamil Nadu, Karnataka and Kerala. We hear about many similar examples, especially in China. Yangtze River is now drying up for several months every year because of extraction of water upstream.

For the rural health and environment, we also see that polluted water from agricultural system would also affect women and children in rural areas. This is a part of damage from the Green Revolution. Polluted water from industry is also discharged into rural areas. Especially in my country, farmers are suffering from this.

In the rural areas of Vietnam, most of the market is in the rural areas. Market should be next to the river where the farmers are using boats to transfer their product and to do the bartering, exchange and selling to brokers who bring them to bigger cities. In spite of this situation, you can see that this water means everything for the farmer. In the rural areas, river water is the sole resource for domestic water. They would fetch the water and try to settle it to make it clear. Some of them boil the water but others do not. There is a girl cleaning dishes with the same water. This woman is washing the clothes in the water and she also fetches the same water for domestic use. In the evening, she would take bath in the same water. We are trying to have sanitized water in the house. In Vietnam we have this program Clean Water Supply to Rural Areas. This is a big program but many farmers still think that they have to pay something to use this water and that it's cheaper to go into the river so that they don't have to pay anything. They don't see any disease or sickness, and when someone gets sick, they don't blame it on water and they blame it on some other things. That is the life along the Mekong.

As I mentioned before, growing rice with the existing technique is one thing. We waste a lot of water because we have to use water to wet the land, and plowing makes the soil very soft and we lose a lot of water in there. So how do we meet the challenge? Mr. Kofi Anan has talked about how to grow more food with less water. Here I have some of his suggestions. "Decreasing water use in agriculture to meet other needs and environmental goals and other human needs, yet growing enough food, and improving livelihoods of the poor." So that is the aim. "Substantial increases in productivity of water in agriculture. We need a Blue Revolution in agriculture". This Blue Revolution is a revolution that uses water more efficiently.

At the field or farm scale, we have to increase the water productivity to have more crop output per unit of water. And at the river basin scale, we must increase the water productivity including crop, livestock and fishery yields, wide ecosystem services and social impacts such as

health, together with the systems of resource governance that ensure equitable distribution of these benefits.

So my suggestion regarding sustainable water use is that first we must harvest rainwater. We should recognize that this is a very precious resource and we should have some way to catch this rainwater. Rain water harvesting means making a pond to contain flood and rain water during the wet season, and this water is used for upland crops in the dry season or for raising fishes. In some area, inhabitants make a pond in a wide field and try to tap the water there. After the rainy season they still have the water. Or in the estuary areas, fish will gather into this pond, and in the dry season they can use the water and raise fish at the same time. Or we use the dry seeding rice technique in which dry rice seed is sown onto dry soil. In this way, we don't waste one month of water. This is the dry seeding technique used in southern part of Vietnam.

And there is alternative use of irrigation water. Here they have "zero tillage rice". This is the technique we designed in Vietnam also. "Zero tillage" means after we harvest the first crop in the dry season, we leave the soil completely dry. We sow the seeds in there and irrigate immediately and the soil crumbles into small granules. So this "zero tillage" technique is widely used in the Mekong Delta, especially in areas with acidic soil.

Wetting and drying scheme, as I told you earlier, is also used with the dry seed and there is no need of flooding the soil, just keeping it saturated. So there are two alternative ways of irrigation. Also the intelligent use of groundwater, especially in orchards, such as coffee plantation and mango plantation and so on. In these two pictures, water containing fertilizer is distributed into this sprinkler. Water is taken from the deep well and mixed with the fertilizer and they have scheduled irrigation just to wet and deposit enough fertilizer for each tree. This is a way of using water in a very satisfactory manner.

This is what I call "dry seeding". You see rice is growing very well on this rice field. This field is prepared under the dry condition. That way we won't waste water. They plow it dry and sow the seeds. You can see the seeds of rice there and they will grow and fall down as its rains. So this is dry seeding in rainfed condition. It has been proven to be a very successful way of water conservation in Vietnam.

Finally, I put this challenge for you. The AFPPD and its members bring together a pool of top legislators who can create appropriate policies to mobilize resources, knowledge and technology, capable of producing breakthroughs in the Blue Revolution, which means to produce water used for agricultural and rural development, to cope with the growing population. And the outcome of the policies you may come up with would be to: ensure that advances in increased water productivity are directed at foodstuffs and agriculture, livestock and fisheries systems that are relevant to the poor; and at the same time to contribute to reducing malnourishment and rural poverty, increase levels of human health and maintain or improve environmental quality and biodiversity.

So I hope that after the Ho Chi Minh City Declaration, parliamentarians go back to their respective countries and through legislation you can help create policy for the Blue Revolution. I hope all of you will have good insight and success in the endeavour to call attention to the government and the people of our respective countries that water is the number one limiting

resource and we should know how to use it efficiently. With that I would like to end my presentation. Thank you.

Discussion

CHAIRPERSON:

Thank you Professor Xuan for the excellent presentation. I'm sure we will all think about the Blue Revolution and contribute a bit. Now I would like to open the floor to members to ask any questions.

MS. CHANDRA KALA PANDEY, MP (INDIA):

I would like to thank Professor Xuan for a very good presentation and also suggest some points and ask one or two questions. Every one of the countries is facing this problem—the water problem. Even in our country, if regular water supply is disturbed by drought or flood, then it presents a danger for our country. I would like to ask whether we could offer water harvesting courses in colleges so that our younger generation can think about saving water, and also to train our village girls to collect and save rain water.

One question I would like to ask whether it is possible to train the villagers to change their food habits if they only eat rice, maybe they can opt for another food grain which require less water. As in West Bengal, all Bengali people are eating only rice. I belong to a communist party, which has been there for the last 26 years, and we have village people opt for another food grain once a day. And now, we are not suffering from this problem in Bengal because people are taking feed grains and maize which require less water than rice. So whether we could suggest this for our children they could opt for one breakfast meal at least. Not rice, maize or anything. Thank you.

DR. XUAN:

Thank you. We have the same problem in Vietnam, especially in changing the eating habits of the people. We have the policy of changing the eating habits of our children because it is very difficult to work with the adults. They have old habits and stick to it more. With for rice, as the economic situation of a country changes, income of the family also changes. Very likely they will also change their eating habits. They want to eat more red meat and other foods than just rice. When you go to Japan, you can see that Japanese meal consists of many other things than rice. Finally when you are finishing, they serve you a small bowl of rice. That's why rice consumption in Japan is not so large. However, energy that goes into producing other foods is also great and there will be less water. In India, maize and wheat program has not been very successful but rice and wheat program has been successful. During the dry season you grow wheat and during the wet season you grow rice. Indian people eat chapati so you are much better off than us Vietnamese because we just eat rice.

If we grow white potato, we can get at least 16 tons per hectare. Good farmers get about 30 tons of potato. If we grow rice, we have to use a lot of water and effort, and keep it warm so it won't get killed by cold temperature. Very difficult, and yet we only get 3 to 4 tons per hectare. But people still like to grow rice because potato is not part of our diet.

I was suggesting that we would test this with our children but our parliament members told me

that we eat rice, not potato. Baked potato is for western people. So I surrendered. But we cannot make North Vietnamese farmers rich if their products do not have customers. If they grow potato, they will get very high yield at less cost. So the problem is how to change the habit of the people and we have to change from the children.

DR. MALINEE SUKAVEJWORAKIT, SENATOR (THAILAND):

First of all, I would like to thank Professor Xuan for his presentation and sharing his experience. I have some questions. First, when you compare the work method with tillage rice to regular one, how is the output? Second question is that do you have to prepare a special variety of rice for this type of technique?

DR. XUAN:

Thank you very much, Dr. Malinee. First of the results we reviewed from ordinary transplanting and dry seeding were almost the same. But ordinary transplanting requires a lot of water and about one month to do land preparation. And they need to prepare the seed bed for the seedling and they need to transplant. Meanwhile, dry seeding does not initially require water and only grow in dry season and sow dry seeds. The only big problem is the additional labour required for weeding because the land is dry and gets more weed compared to wet land. But if they do the weeding well, they get almost the same yield.

And we use the same seed variety as the wet technique. That is why this is expanding quite well in the Mekong Delta, especially in areas where they have acidic sulphate soil. With this kind of soil, acid will come up to the surface when it dries and when the rain falls it will wash the acid and pollute the river. If the farmer waits until the rain comes to grow rice, they will get that acidity. But if they do it earlier, they will avoid that acidity. So this is one very clever way of planting.

We scientists did not discover this method. We only improve it. The method was accidentally discovered by some farmer during the war period when bombing by American forces was taking place. The farmer went to his field and harvested very quickly and waited until the rain came down, trying to grow rice again. But when he went back, he saw someone had already sown the seeds. But they were actually seeds that fell when they harvested in a hurry. So next year, they dropped the seeds intentionally and got good crop from it. Now we improve it by prescribing the kind of soil and technique to be used for improving the yield.

MS. DATO' NAPSIAH OMAR, MP (MALAYSIA):

Thank you for your presentation. I was wondering if you have dry paddy, if you grow rice with less water, will there be enough time for farmers to cultivate fish, because this is also a source of protein for the villagers? When you do that you might deprive them of protein but they will have lots of rice but less protein. Unless there is other method where you also give time for the fisherman to also have their fish at the same time in the field.

DR. XUAN:

That is a very good question. We are also facing that problem, especially when we have so

much rice, we don't know what to do with the rice. Actually, diversification to other crops after rice is something that is very much needed. This is now a national policy that stated in the year 2000 when the Prime Minister made the decision for different farming communities to diversify. They do need to grow just rice like before. So it depends so much on the farmer to make the selection of which beans, corn or sweet potato to grow after their first rice crop.

But very likely the farmers in Central Vietnam, for example, they will have a crop of sweet potato right after rice. This sweet potato will be used first to feed the family and use the vine to feed the pigs. They raise the kind of pigs we call the "local pigs" which are not like the modern pigs. With that I mean local pigs produce equal amount of manure as meat, so want to have more manure to make the compost to fertilize their soil to improve their rice field for the next crop. So it depends on the farmers to grow other crops and they are willing to do so. If they grow rice, they have the choice of using the dry seed method.

DR. GUNASAGARAN GOUNDER, MP (FIJI):

You mentioned something about herbicides and pesticides and the need to use more, but farmers do not take the right advice and misuse nitrogen and all that. I'm not sure to what extent herbicides and pesticides are used in rice farming. Are they used very extensively? Can you elaborate on that?

DR. XUAN:

It depends on the area. We have some high yielding areas in the Mekong Delta which is about 30% higher than the average. And these farmers are the ones that want to invest in large input. They have used for each hectare of rice, they may use more than 400kg of urea. But our recommendation is about 200kg. And because they use more nitrogen, they have to use more pesticides. I made one survey, not only in Vietnam, but in south of China, the Philippines and Indonesia. In my group, there were people that went to Bangladesh and India, and we all came to the same conclusion that farmers tend to use more urea, more nitrogen, than the complete fertilizer recommendation. That is where they lead to many of their problems such as pests, disease, rice falling early before ripening and difficulty of translocation of nutrients of starch into rice seeds. After harvesting, grains are not filled very well and there are cracks in the grain, resulting in low quality rice. One other reason many farmer cannot have high quality rice because of that. Of course we have the majority of farmers that follow our recommendations and are having good results. When they don't follow, they have problems.

DR. MEREDITH BURGMANN, MP (AUSTRALIA):

Recently in New South Wales which is the most populous state in Australia, there has been the worst drought for many years. And we now have water restriction which may be in effect forever. One of the issues that were raised was loss of water by evaporation in the water channels in irrigated crops like rice and cotton. There is now a law that required the channels to be covered to stop the evaporation into the air, so that is one of the measures that we are using to address that.

DR. XUAN:

I think among the countries in Asia, Australia is the most advanced in terms of water use. When I visited Australia, I saw that all farmers had to pay the exact amount of water they use because all water is measured. Now you have come up with that legislation to cover the canal, that is very good. I think it will take a long time for us to follow that. In northern Vietnam, our government has a campaign to put concrete into the irrigation system and many provinces are following this.

QUESTION FROM THE FLOOR:

We heard just now that about 70% of water is used in agricultural sector. If we need to maintain our water resources, we have to improve the efficiency of water use in agriculture. So my question is how to improve your farmer's knowledge in agricultural technology in order to get efficiency of water use, because we know most farmers in Asia still don't have enough knowledge. So the point is how to improve the quality of the farmer.

DR. XUAN:

That is a question we in Vietnam are also trying to solve, especially in facing this globalization. You know Vietnam is now trying to be accepted by WTO and the agricultural sector will face more challenge in terms of competition with other countries. The only way, as you said very correctly, is to improve the knowledge of the farmers. Most Vietnamese farmers don't need any degree or schooling in order to get a license of agriculture unlike in the West. I remember one time I visited a cooperative in Denmark. We sat down in a house with a family, and an old lady introduced her husband who was also very old. She said her family was very fortunate to have a son-in-law as a farmer. It was a cultural shock for me because in Vietnam we say we are very proud to have a son-in-law who is an engineer or a doctor, but not a farmer. Afterwards, we heard that if her family did not have a farmer, the license for production will not be renewed and they cannot produce.

Back to Vietnam and to your country. I believe that in the 21st Century, our farmers should not do what they have been doing in the 20th Century. In the 21st Century, they must have better knowledge. We cannot put them in school because they have no background. The only way is to organize a cooperative. When we have a cooperative, that cooperative can be linked with an enterprise which has the market for certain product. And that enterprise can go back to contact with each cooperative to produce the raw materials that they need. And then the cooperative or the government can send people to train the farmers precisely how to grow raw materials using the best of the technology. We train the farmers with a clear direction, so we won't waste training them with many things they may not use. Just to make them experts in sugar cane for example. How to use which variety and when to grow it. When to apply what type of fertilizer, so on and so forth. We can train them precisely for sugar cane, not pineapple. By doing so, we can improve the knowledge of the farmers. And their skills in applying fertilizers and pesticides will also come along. They will come out as a very good farmer that produces the best quality raw materials for that company to process in order to meet the quality demand of the customers.

QUESTION FROM THE FLOOR:

I have two comments. First, thank you very much for your important and comprehensive lecture. I think it was quite helpful. The next one is a very simple comment as a member of parliament, in order to meet the challenge of water resources, I think technical response alone cannot reach the aim successfully. We need to think about promoting technical and legal response in trying to solve the problem. For example, we will need to promote the government to strengthen their prevention and control of pollution. We have to promote the governments in protection of water resources. We also try to widely use canal irrigation or spray irrigation or some special technique to use very very small amount of water in growing rice etc. We also think about raising water prices in cities. As the professor mentioned, cities are using more and more water. We also try to use modern technology to get rice varieties. I think we need to do much more to set up more laws concerning water. Then we can get the base to think about it.

DR. XUAN:

You are absolutely right. That's why I advocate very much to you parliamentarians to appreciate this water problem so that you can reflect it into the legislation in your respective countries. But what you've said, I absolutely agree with you. We have to prepare legislation on water use. Otherwise, our farmers will continue to waste this very precious resource.

CHAIRPERSON:

I would like to thank Professor Xuan and some of my observations. Professor, you said that we have to produce more food with less water. I think the keyword of your presentation was "crop for drop". Bringing about Blue Revolution is extremely essential and we should all work for it. You mentioned about Mekong Delta having floods and droughts because of deforestation. I think indeed this is a very serious problem to the developing countries.

In India, we have a place called Cherrapunji in the state of Meghalaya. It has the highest mean rainfall in the world. And because of deforestation, we have droughts in this place which has highest mean rainfall in the world. Now we have taken some help from the World Bank and we are trying to re-harvest water. I think that's what is needed in most countries.

You said, "Water is free, coming from the sky". I think we have to deviate from this thought. In India, we have a program called "Swajaldhara". It is community participation in water supply schemes. Ten percent of the cost has to be borne by the community and 90% is borne by the government. So there is some public stake in the program and I think it would do great for conserving water.

I also again thank you all. And I thank Professor Xuan once again for his very exhilarating presentation. Thank you.

Session II

Water and Living Environment

Chairperson
Dr. Malinee Sukavejworakit
Secretary General, AFPPD (Thailand)

Water and Living Environment

Dr. Pak Sum Low Un-Escap Regional Advisor On Environment And Sustainable Development

I am going to talk about water issues from a slightly different perspective. In fact, I checked with colleagues whether in the last two meetings anyone has talked about the linkage between water resources, climate change and sustainable development.

So much has been talked about the limited amount of freshwater resources which amounts to 2.5% of all. I think this picture is very clear in illustrating that 97.5% of water we have is seawater. They are salty so they cannot be used. Only 2.5% can be used as freshwater. Of this 2.5%, 30.8% is underground, including soil moisture among others, and 69% is locked into glaciers and permanent snow cover like in the Antarctic, for example. To give you the idea how limited the freshwater we have, in fact we have 2.5% of availability of freshwater, because some of the water resources are in very remote areas, we only have less than 0.08% that we can currently use. As mentioned by earlier speakers, already one out of every six persons lives without regular access to safe drinking water, and twice that number—2.4 billion—lack access to adequate sanitation.

This year, 2003, in June on Environment Day, UNEP has produced this slogan, "Water—Two Billion People are Dying for It!" This is the theme of the World Environment Day this year, 2003. In fact, to more than two billion people, pure water is more valuable than gold. Yet over the next two decades, our use of fresh water is estimated to increase by about 40%. The average supply of fresh water supply per person across the planet is predicted to plunge by a third over the next 20 years. And that 7 billion people across 60 countries will face water shortage within 50 years. The impact will be worse for developing countries because in many of these countries clean water is already in critically short supply.

In 1999, the United Nations Environment Programme (UNEP) conducted a survey with 200 scientists in 50 countries in which they identified water shortage to be one of the two most worrying problems for the new millennium. Another one was global warming.

In fact, as mentioned by the earlier speaker also, about 70% of water is used in agriculture. I think Professor Xuan gave an excellent presentation and I was very much impressed by that. According to the World Water Council, it is estimated by 2020, we shall need 17% more water than is available if we are to feed the world.

So these are some of the very basic statistics to give you some idea. We are really facing a water crisis at the moment. Today, and every day, more than 30,000 children die before reaching their fifth birthdays, killed either by hunger or by easily preventable diseases. And adequate safe water is the key to good health and proper diet. It takes 1,000 tons of water to produce 1 ton of wheat. This gives you the linkage between food production and water

consumption.

Factors contributing to the water crisis in Asia-Pacific, as have been identified by many speakers earlier, include;

- Population growth
- Unsustainable use and development of water resources
- Pollution of freshwater from land and atmosphere—pollution comes not only from land but could come from atmosphere as well; Asian rivers are badly polluted and hence renewable freshwater resources are dwindling
- Overuse or contamination of groundwater
- Climate change, which I will talk about later

For example, acid deposition is a very common pollution in many countries, particularly in industrialized countries or in developing countries. Basically you have the emissions, containing sulphur dioxide and nitrogen oxide, go the atmosphere and mix with rain water and turn into acid rain. This acid rain could destroy vegetation when it falls on the ground, so this is pollution from the atmosphere.

Those living in Central Asia know about the problem in Aral Sea. The shrinking of Aral Sea is a real problem as shown by this figure. The Aral Sea has shrunk by a considerable amount. By the year November 2000 you could see that more than half is gone due to land degradation and diversion of flows from the rivers. I think people from Kazakhstan would know this problem so well.

Of course, water crisis leads to water conflicts. As shown by this diagram, water conflict can arise from political conflicts, or arise from economic conflicts over use of freshwater, or arise from water ecosystem problem. There are many factors that affect freshwater conflict. You can have natural factors and you can have human factors, including climate change, which is one of the factors that might affect distribution of rainfall in the future and lead to water conflict in some areas. In some places, people are already fighting over water. In Iraq people are fighting over oil, but in the future you may see countries fighting over water. We have this water cycle. Water evaporates from the sea, from the land, goes to the atmosphere, goes inside the cloud, turns into rain and fall down again. Everything is very much balanced. But if we use more freshwater than we can renew, that means the consumption is not sustainable. So to meet the consumption of water, we must not use more than the amount of water that is renewed.

One factor related to distribution of rainfall which I am going to talk about, is climate change. Not many people think about it. You may all think that rainfall is natural, but you may not realize that human activities have in fact put in a very significant signature on the climate change events. Last week, there was a meeting in Milan to talk about this very issue. As I mentioned earlier, to make the water resources sustainable, we should not use more than the amount that is replenished.

Human activities can affect the distribution of rainfall and also the onset of extreme climate events such as flood and drought in two ways; air pollution, and the so-called global warming due to the emission of greenhouse gases such as carbon dioxide, methane and nitrous oxide. For example, scientists have found that sulphur, which is also produced from industrial emissions, could affect the distribution of rainfall, so to the extent that it could affect rainfall in

faraway places like Africa. Sulphate aerosols can also change the physics of cloud formation thousands of miles away, maybe from Europe to Africa, through a process called teleconnection, and reduce rainfall in Africa by as much as 50%. During the 1970 to 1985 period, there was a big famine in Africa in which 1.2 million people died. Was this famine caused by air pollution? If that were the case, would cleaner air in the future mean quicker rainfall in the region? These are the questions asked by the scientists; the link between spread of air pollution to rainfall distribution, drought and famine.

Another element I talked about is the so-called global warming. Global warming is caused by the greenhouse effect. Studies have shown that since the 19th Century, the Earth has warmed by 0.4 to 0.8C° with the last two decades being the warmest of the last century. At least in the Northern Hemisphere, the last century was the warmest in the last thousand years. Climate models project that the Earth will warm 1.4 to 5.8C° within this century. These are scientific facts.

Carbon dioxide, methane and nitrous oxide, are the so-called greenhouse gases that retain heat from the sun so that lower atmosphere becomes warmer and warmer to the extent of changing the rainfall pattern, seasonally at different latitudes. So we talked about methane. Rice paddy is one of the major sources of methane. We talked about whether we should eat rice or not. I would say that another factor in rice planting is the contribution of very strong greenhouse gas methane to our atmosphere. There is another good case for us to at least plant different rice species that consume less water to reduce the production of methane apart from what has been discussed earlier.

As you could see from these diagrams, many of these gases are very reactive. For example, methane, when it is released to the atmosphere, it doesn't stay there forever. It will react with some other reactive species such as ozone and transform to a different chemical species. So atmospheric chemistry is very complex, even though you cannot see it. Formation of ozone in this lower level is different from the ozone layer in the upper level. This is at the top of troposphere, about 10 kilometres where aircraft normally flies. It is the atmosphere we call troposphere. Anything above 15 kilometres we call stratosphere where you have this ozone layer. You need to protect the ozone layer, but in the troposphere, ozone is also a greenhouse gas and it is a toxic gas. Don't go to high mountains to enjoy ozone because it could be toxic for your body. Other sources of greenhouse gases include CFC(Chlorofluorocarbon), manmade chemicals, carbon dioxide from car exhaust, nitrous oxide from fertilizers and land conversions, butane from animals and rice paddy cultivation. These are the sources of the so-called greenhouse gases.

Indeed, when you look at a temperature record, carbon dioxide, methane and nitrous oxide in the last 100 years or so, or even in the 1,000 years or so, you could see a sharp increase of the concentration. These are the so-called greenhouse gases that could trap the heat of the global atmosphere and make our world warmer. How do we know that? We could get this from the ice core records and tree ring records, and trace back for thousand years to show that concentration of all of these elements has been increasing. As you could see, this is a one thousand year plot. There are always natural variations of all of these temperature fluctuations. But over the last 100 years or so, as you could see, there is sharp increase of the temperature record. It is projected that the temperature will rise further within this century according to the computer model projection.

One degree may not seem much but it takes ecosystem maybe 10,000 years to adjust to 1C° warming of the temperature. You may switch on the air conditioner when temperature rises by 1C°, but ecosystem cannot do this. So this is a very significant increase.

You may say that some of these increases may be caused by natural factors. Scientists have researched that. If you only look at natural observations, look at model results alone, they don't seem to match. But if you combine the model results and observations together, at least for the last 50 years or so, you can say that warming is attributed to human activities. Only talking about natural factor, observation data and model data do not seem to match, as you can see from these two figures. But if you combine the two together, they match very well.

So due to global warming caused by greenhouse gas emissions, climate change seems to be increasingly evident, and climate change will affect the seasonal changes. Antarctic ice shelf has also been changing, bird migration patterns have changed, growing season in northern hemisphere has been lengthened by 1 to 4 days per decade during the last 40 years, and there has been a pole-ward and upward migration of plants and certain animals. In fact, two-thirds of the 35 species of European butterflies have shifted northward by 20 to 150 miles. Coral bleaching has occurred due to warmer ocean currents, as observed by our Australian scientist in the Great Barrier Reef. In California, some sea creatures are migrating further north because of their reaction to the rising ocean temperatures. These are the evidence. Fifteen years ago when I was doing the research, nobody said that climate change was here. They all said that there seemed to be some evidence. But as heat wave hit Europe, floods hit Europe, Russia and this region, more and more extreme climate events such as floods and drought are occurring. Now, there seems to be a consensus among the scientists that global warming and climate change are already occurring.

The rainfall patterns have in fact changed in the last 100 years. Yellow dots show a negative trend, in percentage per century, so you can see the changes in rainfall patterns for the world. It has already happened in the last 100 years. It is projected to change further, some areas will get drier and some will get wetter, depending on where you are located. So the red and yellow colours show regions that are projected to become drier. In African regions, some parts of Western Australia, and the Central Asia regions.

Because of climate change, incidents of extreme events such as high temperature, flood, drought, soil moisture deficits, fires and pest outbreak are expected to increase in some regions. Tropical storms, cyclones and tornados may shift from one place to the other, particularly to those most vulnerable to such events, especially the least-developed countries. This is according to the findings of IPCC, Intergovernmental Panel on Climate Change, Third Assessment Report, 2001. You will see more extreme events like this, in South Korea on August 10 of last year. Thailand October 4, 2002. A Filipino resident raises a cooking pot while crossing neck-deep floodwaters in one of the provinces in May of this year, 2003. In Vietnam, on June 5, on the World Environment Day, they had lots of water.

On the other hand, lack of water leads to drought. This is a drought in Central Java in August of last year 2002, and a drought in India in May of this year 2003, praying for rain. This is a drought in Gujarat in June that occurred at the same time. I was in New Delhi at the time and they had heat of more than 40C° during the highest temperature record on earth and people were

looking for water. So it was really a big issue.

Is it natural or human-induced disaster? If you believe that greenhouse gases caused this kind of change, then it has something to do with human activities, not entirely natural. So often we come across floods and droughts. But then we say that it is an act of god. We can't do anything about it. Yet, it may not be entirely the case. In our Asia-Pacific region, the top 10 most disaster-prone countries; Australia, Bangladesh, China, India, Indonesia, Iran, Japan, New Zealand, the Philippines and Vietnam, are in our region. There were a total of 1,312 disasters during the 25 years from 1966 to 1990, which killed 1.7 million people and affected more than 2 billion people. For example, in Samoa, cyclones of 1990 and 1991 caused a total estimated loss of US\$416 million, about 4 times the GDP of the country. So this will affect the country's development. No question about it. You must plan for this and try to adapt to situation like this. When disaster comes you must react to them.

It sends a very clear message. We must prepare for our human-induced disasters and some purely natural disasters such as earthquakes. Even earthquakes can be human-induced. If you set off a nuclear bomb underground, it will send a very strong shockwave to some parts of the world comparable to earthquake.

Another interesting aspect is the linkage between climate change and El Niño – Southern Oscillation. I'm sure you've heard much about El Niño in this part of the region, causing drought particularly in the Asian countries in 1997. Basically, El Niño is a Spanish term for "little boy". It is a warm event compared to a normal ocean situation. So often El Niño is followed by a cold event called La Niña; that is a girl also in Spanish. So after El Niño, La Niña would also follow. Not necessarily every time but it is often the case. El Niño is characterized by the warming of the eastern Pacific Ocean and formation of rain over the warm water. On the other hand, La Niña is characterized by extreme cooling of the central and eastern equatorial Pacific Ocean. That's why it is called the cold episode. El Niño episodes occur roughly every 4 to 5 years and can last up to 12 to 18 months. If you look at the temperature, it is departure from the normal. This pool of warm water produces a lot of rain around the Peru region because it is a warm current. On the other hand, on the western Pacific side, because of the cold current, it will lead to lack of rainfall and you'll have drought, like the one you had in 1997 and 1998 around the Indonesia region.

Climate change may increase the frequency of El Niño. So this is another linkage we may take note of. El Niño will cause floods and droughts depending on where you are located, and climate change may increase the frequency of El Niño. In fact, many climate models project that recent trends in the increased frequency and magnitude of ENSO events will continue. Western Pacific and even India was affected. because of the local micrometeorology, in this part there seems to be some rain but in this part of southern Africa you have some drought. That's why during an El Niño year, you always have drought in southern Africa. On the other hand, some of the smaller islands like Seychelles, you could have rain. So it is a very unique phenomenon. So El Niño can bring drought or flood depending on where you are located. El Niño-induced drought, which may lead to forest fires, is another impact for climate change. This is a bush fire in Australia. You can see that they often experience drought. This year and last year, two years in a row. Bush fire was prominent.

Let me speak about haze by slash-and burn farming. When the haze covered West Kalimantan,

I was there. The Indonesian government asked me to advise them on how to solve this problem. So they flew me from Jakarta to West Kalimantan. So this is also in West Kalimantan in August 20 last year, 2002. Haze caused by slash and burn during very dry conditions. These children are suffering from haze and have to wear a mask to prevent the haze. You can see the haze becoming a transboundary problem from Indonesia to as far as northern part of Australia. This is in 1997, caused by Indonesian forest fires. Prolonged drought contributes to land degradation and desertification.

And in Northeast Asia, in particular, because of that, dust and sand storms have become a very serious problem. They call it "Sandstorm tempest", "shachenbao" in Chinese for sandstorms occurring in that part of the world. "Severe Dust Storm Chokes Beijing". That was March 20 of last year, 2002. Two days later, it moved to Korea. "Sandstorms Close Korea Schools, Disrupts Flights". You can trace the movement of the sand storm in this particular slide. It took about a week or so for the sandstorm to move from Mongolia to cross all the way to the Atlantic Ocean and hit California. In fact, it is called the largest export to U.S. from Asia. Based on the ice core samples, you can trace the Gobi Desert dust in one of the mountains in Canada. You take ice core samples, 10,000 years old, analyze the elements like the heavy metals and trace them back to the Gobi Desert. So the dust from Gobi Desert has gone very far.

Global Warming impacts on mountain glaciers. This may be of more interest to you because it is linked with water, because of the melting of the glacier due to warmer temperature. You may expect that many small glaciers may disappear within the next 50 years. Glaciers will provide extra runoff when they melt. We will have a lot of water in the beginning but when the glaciers disappear, we'll have no more water, no more runoff, and we'll have very severe water shortages. In Central Asia, it was discovered that from 1959 to 1992, 804km² of water has decreased, representing a 15% increase in glacier runoff. In Tajikistan, for example, there are more than a thousand glaciers, accounting for 60% of ice in Central Asia. They could be facing a very serious problem there in the next 50 to 100 years.

In most mountain regions, this increase in runoff will last for a few decades, then decrease as the glaciers disappear—creating larger areas of arid, interior deserts in low- and mid-lying parts of Central Asia. For countries with very large glaciers, the extra runoff may persist for a century or more and substantially increase regional water resources for the particular period.

Tajikistan needs hydropower to produce electricity and hydropower comes from water. If there is a changing of runoff pattern in the future, that means they may face shortages from hydropower. On the other hand, higher temperature means that there will be higher crop evaporative demand. This means that there will be an increase in irrigation water demands because of warmer temperature. That means you would need more water for irrigation. So it leads to another major consumption of water. A greater proportion of winter precipitation may fall as rain rather than snow. It was snow before but, because of the warmer temperature, it turns into rain. As a result of this rain, now you have peak stream flow which would move from spring to winter. So this is another impact of climate change. It would change rainfall and snowfall patterns in some countries.

Arctic and Antarctic ice shelves are shrinking, as I mentioned earlier. This particular slide shows the yellow colour. An ice shelf in Antarctica has shattered on March 7. This ice shelf

has existed for the last 12,000 years and it collapsed. The loss of this surface area is larger than the size of Rhode Island. So because of melting glaciers, sea level will rise as mentioned by our chairman this morning, and will have significant implications for small island states and low-lying coastal areas such as Bangladesh. It has been projected, for example, that 1 meter sea level rise would take away 80% of land from Marshall Islands. Many of the small island states around the Pacific Region have some agreement to migrate to New Zealand. People are taking measures to cope with this rise in sea level. So for many island states, it is a matter of survival.

In Bangladesh, for example, you can see the low-lying areas. It has been projected that 70% of land will be lost as a result of 1 meter rise in sea level. So it has a very serious impact for Bangladesh. A lot of floods all the time.

It is also linked to health. As chairman also mentioned this morning, heat waves, spread of vector-borne and insect-borne diseases like malaria, diarrhoea and dengue fever. Decline and increase of water will also affect the ecosystem. Any of the impact will seriously threaten sustainable development and hence aggravating poverty in many developing countries and least-developed countries because it threatens food security and agricultural productivity. In fact, it has been found that there will be significant increase of malnutrition in Bangladesh, Myanmar and Vietnam which are heavily dependent on monsoon for rice growing. According to a WHO study, when a monsoon is disrupted by climate change, then you will have a problem there for rice growing which leads to malnutrition in some parts of those countries.

Social impact will be inequitable. Rich countries can adapt more easily than poor countries who will be under greater pressure to migrate and become the so-called "environmental refugees".

Finally, we will talk about Millennium Development Goals. There are eight goals altogether. The target is to achieve these goals by the year 2015. There are many targets but I will talk about just one of them. "Eradicate extreme poverty and hunger". Target 1 is "Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar per day". Target 2 is "Halve, between 1990 and 2015, the proportion of people who suffer from hunger". These are the countries based on data from the World Bank, some countries are ready to achieve this goal and some are not.

According to WSSD Plan of Implementation, "To halve, by the year 2015, the proportion of people who are unable to reach or afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation".

My question is, have these Millennium Development Goals taken into consideration the climate change? Maybe they have, and maybe they have not. If they have not, most likely that because of increase in human-induced disasters, most of these targets are not going to be met, especially in poor developing countries. Climate change, in fact, is a development issue. Human activities affect our climate system, causing a lot of impact on our water resources, agriculture, forestry, ecological system and others, human health, as I already discussed. It is also linked with the socioeconomic development impacts as well as sustainable development goals.

My final message is that it is important to facilitate and promote a national policy that takes climate change into consideration for socioeconomic or sustainable development planning to reduce the risk of climate change impacts. Thank you for your kind attention.

Discussion

QUESTION FROM THE FLOOR:

I would like to ask Dr. Low, you mentioned that presence of aerosols alter the physics of cloud formation and reduce rainfall. Has there been any research conducted on reducing the quantity of aerosols in the climate to prevent droughts?

DR. LOW:

Yes. Some experiments are being done, especially in the Indian Ocean, there's an experiment called INDOEX, I'm sure you've heard about it; it's a big controversy also. There is also Asian Brown Cloud or Asian Brown Haze, a delivery of measures because of the political sensitivity of that particular issue. Scientists have been conducting experiments, not only on the field experiment but also based on the field experiment data they are doing some computer simulation. All of these are based on scientific findings.

My talk here today is mostly based on science, based on the consensus of the scientific community. Of course you will find some few minority still question about the climate change issue. President Bush is one of them. That's why they don't want to ratify the Kyoto Protocol. But it is an issue in which scientists have come up with some consensus results and that's what I presented to you. Thank you.

QUESTION FROM THE FLOOR:

Actually the question is what is the ideal warmth for the world, because it's possible that through history of the world there have been drastic climate changes over eons or many thousands of years. So there is another theory that says global warming might be good for some species and that it would expand the land available for agricultural production because of the warming of certain colder regions.

DR. LOW:

A very good question. Yes, some areas like Russia may benefit a bit more from climate change because of climate change. But you must remember that we are not living in an isolated world. If you produce less grain in Africa or Asia, it would affect Russia because of grain export. Also the overall impact is negative according to the scientific assessment. There may be partial benefits for some countries as things move northward. They are even saying that you'll be able to have an English garden in Russia in the future. But whether it will occur in the next 100 years or so is still very much under debate. But overall impact, because of the linkages between all the countries in this world, poverty in Africa will definitely affect other parts of the world. Poverty in Asia and Pacific will definitely affect other parts of the world. We are not living in an isolated world. So I want you to keep this in mind. And recently, for those of you living in Europe must have noticed how much mountain snow cover has decreased. At certain altitudes, you could still see the snow but this summer, you couldn't see the snow anymore. So it has a lot of implications for skiing activities in the Alps. It has become a major issue.

MR. BEKSULTAN TUTKUSHEV, SENATOR (KAZAKHSTAN):

I thank you very much for very good presentation about water, causes of climate change and sustainable development. I would like to know about the situation of water and environment in Southeast Asian countries. What is your opinion about underground water, and how you feel about the matters of artificial nourishment of underground water?

DR. LOW:

Thank you for a very good question. I'm not sure if I can answer them in complete. As far as I know, groundwater has been very much contaminated in many parts of the world. You must have read a lot about arsenic in Bangladesh. I was in Afghanistan in July and saw medical waste being thrown away. Afghanistan experience very serious drought in the last 4 years. If you go to Kabul, basically you see no vegetation around the mountains. All have become barren. So people use underground water. It was in my slides but I could not show it because it was one of the copies I could not read from my laptop. They were slides of children carrying water pan to bring water from long distance. I think underground pollution is an issue and also excessive withdrawal of underground water leads to subsidence, as mentioned by Professor Xuan this morning. In Thailand, some areas are subsiding due to excessive withdrawal of underground water. This is a real issue. Those countries that are not fortunate enough to be blessed with a lot of rainfall, like Malaysia, and have to use a lot of groundwater have to be very cautious about groundwater and check it regularly. Some of the pollution is not necessarily due to industrial activity and may be attributable to natural causes such as geological composition. For example, some rocks contain more arsenic than others. Water is contaminated by these heavy metals when passing through them. So, one has to be very careful. I don't have any particular study in my mind, but I know about those countries that I visited like Bangladesh and Afghanistan. Every time you go to Afghanistan, people are very hospitable and offer you tea immediately. Sometimes I'm not sure if it was from brown water and not sure about drinking it sometimes. But to be polite, I take one or two sips but I'm not sure how safe they are.

MS. CHANDRA KALA PANDEY, MP (INDIA):

First, I would like to thank Dr. Low and I would like to ask one question. In your presentation, you mentioned the "Other Impacts of Climate Change," that threats to ecosystems (forestry and biodiversity) and tourism. So I would like to ask you, in the modern era, all the countries are likely to develop tourism in their country, and it is the primary notion, that it will extend the economy of the country. If tourism is going to create danger, and it is going to create climatic change... What do you suggest? All countries will stop tourism?

DR. LOW:

Not really at all. Let me cite one example. In the Seychelles, one of the small tropical islands near Madagascar, Africa, they have a lot of floods during El Niño. During La Niña, they have drought. When they have no water, it affects tourism because no one wants to go to a place with no drinking water. No one wants to visit Seychelles when it's raining either. Seychelles depends heavily on tourism. All the hotels are geared towards tourists. Even Prime Minister Tony Blair went there for a holiday. So this affects tourism but it doesn't mean that you would not have tourism anymore. It's a matter of how to adapt to droughts. Before

droughts come, find more containers and build more reservoirs. These are the adaptive measures. Hotels are not built close to the coast to avoid floods. The government has a regulation to prevent any building from being built inside a 1 kilometre or so buffer zone. So please don't get me wrong. I do not advocate anything at all but to prepare for it. Preparation and adaptation are the key words.

DR. GUOWEI SANG, MP (CHINA):

Can I ask you a very naive question? What can U.N. do or plan to do regarding the climate change and its worldwide disaster outcome? It's really a big problem for us but each country is too small to tackle it.

DR. LOW:

It is an excellent question. There is a climate change convention called the United Nations Framework of United Nations on Climate Change. In the last week in Milan, they were holding the COP 9, the 9th session of Conference of Parties. In 1997, after the Climate Change Convention, they adopted the so-called Kyoto Protocol. I was in Kyoto at the time and I was one of the participants. Kyoto Protocol is intended to set some targets for developed countries to reduce their collective emissions of greenhouse gases on average 5.2% below the 1990 level. You also need 55% of the parties or the countries that ratified the Kyoto Protocol. Now they have more than 55%, as many of the developed countries ratified. On the other hand, large emitters like the U.S., which emits about 37%, and Russia, which emits about 17%, are still hesitant, claiming it would affect their economy. I read a news recently about the native people called Inuit in North America. In their meeting, they wanted sue the American government. They say that by not ratifying the Kyoto Protocol, the American government has violated their human rights. These Inuit people used to hunt on thick snow cover, but people are falling into the ice because it is getting thinner. Some sea creatures no longer live there because of the warmer temperature. So they say their human rights have been violated. It's a very interesting case. It's very interesting because it gets a lot of publicity. United Nations has initiated this kind of convention in 1992 at the Rio Convention, and then in 1997 when they adopted the Kyoto Protocol. I do not say the Kyoto Protocol is flawless. There are many loopholes. Many countries of different circumstances have to meet the same emission limit, which shouldn't be the case. Australia is allowed to increase its emission instead of decreasing it. But I say it is a right step in the right direction. That's why Kofi Anan said, "first step in the right direction". In the case of ozone, they set a certain target, a few years later they set a stricter target. It doesn't mean that the targets are there forever. Depending on the circumstances, depending on the wishes of countries that come together, they could further control the targets. So Kyoto Protocol is the first step. So we need Russia's 17%. Forty-four to 45% have been ratified. If we have Russia's 17%, then it will qualify the 55% criteria for putting Kyoto Protocol into force.

DR. LOW:

I would not say that climate change is the only factor that would affect water resources or flooding. It is one of the contributing factors. Let me cite one example which I read from the news last year, 2002. In China, there is a very big lake called Dongting Lake. When I was a school boy I read a lot of stories about this lake. Last year, there was flood. Do you know

what happened? It was because of the deforestation. The entire basin of the Dongting Lake became increasingly shallow, to the extent that it could contain less than half the amount of water it used to contain in the past. It occurred as a result of siltation and soil erosion. So in a way, deforestation and soil erosion were also contributing to the flooding. But because of climate change, that part of China can receive more rainfall in the future and the problem will be even worse unless they start taking out the silt from Dongting Lake to rectify the situation. So I say that climate change is not the only factor but could well be a contributing factor. Thank you.

MR. SHIV KHARE, EXECUTIVE DIRECTOR OF AFPPD:

As you mentioned, we have droughts and floods sometimes in India. India has come up with an idea to link the rivers. What do you think about the linking of the rivers? Do you think it is good thing or bad thing?

DR. LOW:

I think it really depends on the situation. You'll need to study the natural circumstances of that particular event. Sometimes it is good and sometimes it is bad depending on the geology, geography and how you deal with the problems. That's why you need an environmental assessment for such schemes. If there is siltation from one river to the other, it's not a good thing. But on the other hand, if you link the water and there is no siltation, it will make the water flow faster and larger, then it will cause less floods and it is a good thing. It really depends on the specific condition.

MS. DATO' NAPSIAH OMAR, MP (MALAYSIA):

I have a nagging question in my head and I hope you can help me. The formula for water that I learned in school, H₂O, indicates that oxygen is needed in the formation of water. All around the world today, you see a lot of guns and bombs exploding. I went to an exhibition at the Museum of War in Vietnam and there was this huge bomb that when it explodes it sucks in oxygen within its 3 kilometre radius. There are a lot of bombs exploding around the world. Doesn't that also change the climate? Maybe that one can go to United Nations. My second question is how much time—we're living on borrowed time, actually, on this planet—how much time do humans have on this planet before they run out of water?

DR. LOW:

A very good question. I would think that bombs, particularly those big bombs, could degrade the land. I think bombs and wars all contribute to land degradation. If there is drought or lack of rainfall at places that have been bombed, then it could lead to desertification. It could lead to sandstorm. Afghanistan—good place for sandstorm. Kuwait—good place for sandstorm. So much that movement of American army are affected by it. So I would say the answer is yes. Recently, some scientists have discovered that volcanic eruptions emit a lot of sulphate aerosol. This sulphate aerosol could well have a link to El Niño event. They discovered that every time there is sulphate volcanic eruption, it is soon followed by El Niño. When you have dust or particle in the atmosphere, it would upset the climate system and cause more radiation bounce off and affect the climate.

Secondly, all the money spent on armaments and bombs, so many billions of dollars, if we could use all that for the environment, if they could be used for water, population and development, I think the world would be a wonderful place. I for one do not believe in armament. I do not believe in fighting each other. We should find a consensus, and we should try to find a solution in a peaceful way. That's what United Nations are for. For the people to go to the United Nations, they could argue at the Security Council, but there should be a consensus at the end.

MR. IRWAN PRAYITNO, MP (INDONESIA):

Thank you Madam Chairperson, and thank you Dr. Low. I think protecting forests is one of the solutions for maintaining water resources. Protecting forests can also prevent flood and drought. In my opinion, if you don't protect forests, forest fires can affect climate change. So please provide more information about protection of forest and environment in order to secure sustainable water resources.

DR. LOW:

Thank you so much for an excellent question. Yes, forestry is important in many ways; to retain the water, as you have just mentioned, also to absorb carbon dioxide. In fact, under the Kyoto Protocol, there is a scheme called Clean Development Mechanism in which a developed country can invest money in the developing countries to plant forest for reforestation or afforestation. If you get money to plant the forest, the forest can absorb so much carbon dioxide, and this country that invests money can get some carbon credits. This carbon credit can be used to offset their emission target. Forests are likened to the Earth's lung. So without our lung how can we survive?

Secondly, to answer the question from our Malaysian colleague about how long we can last to go without water. It is a very interesting question. I would say it depends on where you are. If you already live in an area that is already experiencing shortage of water resources, then you wouldn't last very long. Even if you have abundant water resources like I mentioned in Tajikistan. According to our prediction, if the world is going to get warmer and warmer, our climate system will reach a certain point, a point of no return. You'll have melting of glaciers, and like in Nepal, glacier lakes could burst at any time. Glacier lakes will not be able to hold the water any more and will exert much damage to people and property. So according to our prediction, in 50 to 100 years, we will start to see the seriousness of shortage of water resources in many countries. So we'll have to adapt. We'll have to use less water for the same purpose. Using less water to grow the same amount of rice. That will be our challenge. And human beings can always face those challenges. We can always find new technology; find new ways to do things. If we need to eat something else, we'll eat something else.

MS. CIELO KRISSEL LAGMAN-LUISTRO, MP (PHILIPPINES):

Thank you. It was really quite interesting. Both speakers based their presentation on scientific data and recent development. This is perhaps a very basic question. We know that 2.5% of available water is freshwater, and we're now talking about ways to prevent further degradation of our environment and protect the available freshwater. Is there a technology that would convert the 97.5% saltwater into fresh water? And if that technology is available,

would we know the cost of that technology. Thank you.

DR. LOW:

Thank you for a good question. Yes, in many parts of the world, like in Saudi Arabia, and even in Singapore, they have built their desalination plants to process seawater into freshwater. Cost is always the factor. How many countries can be like Singapore or Saudi Arabia to build those plants? So cost could very much be a prohibiting factor. Therefore I always say that with human technology, you can always find new ways of doing things. This is one of them. A good example to show that human innovation can overcome the problem.

DR. KAI YUEN WANG, MP (SINGAPORE):

I wasn't intending to speak on this topic because global warming is actually a very distressing and depressing topic and we are a gathering of parliamentarians and politicians interested in development program, and global warming is a by-product of progress and development. Just the fact that we are alive, we are breathing, going from point A to point B, we generate carbon dioxide. And therefore all of us contribute to global warming in one way or another. Of course, we are looking at major countries like America and Europe being major global warming gas producing countries. But every Chinese in China wants to live comfortable and have good standard of living as Americans. Very soon, they will be producing the same level of global warming gases. I don't think gathering of politicians can solve this problem because we all have to look after the interests and economic well-being of our country as well.

Talking about desalination, technology exists, but all of us know that desalination requires boiling of saltwater into steam which is also a very energy-intensive activity that produces enormous amount of carbon dioxide. So solving your drinking water problem on one hand will actually create greater environmental impact on the other hand. So I think money can solve problems but in some of these areas, it is depressing to think about it. If the goal is to maintain the status quo in terms of climate change, in terms of the environment, I don't think it is very forward-looking. On the other hand, as you have pointed out, human beings being what they are, we must adapt, we must continue to innovate, to create new technology. In Singapore, we are re-using our water. Singapore has 100% sewerage coverage. That means all of our sewers are now funnelling into our sewerage system and we have now built an underground deep tunnel sewer system that would channel all sewage into one single processing point. We are now using filtration plant with the goal to recycle close to 100% of sewage into drinking water. Today we are recycling about less than 2% of our sewage into drinking water, pumping it back to our system. We have a motto, "Make every drop count." Not "More crop per drop" but every drop counts. Our motto shows that if we use every drop of water, more than once but twice, we in Singapore will ultimately be sufficient in drinking water. Thank you.

DR. LOW:

Thank you for the excellent comment. Actually, under the United Nations Climate Change Convention, developing countries are the so-called non-tally countries. Tally applies to developed countries but not on developing countries. Developing countries have no commitment to cut down their emission. Emission target does not apply to developing country

tally. Not to China or India. That's why there is a lot of political argument from the U.S. exclusion of China and India. My point is that there are two aspects of climate change. One is mitigation, like can we do things better. Can we use renewable energy where we can? Can we do things differently? Can we lead a lifestyle that is still comfortable without being so extravagant? I come from Malaysia. I know that in Malaysia, many families have two or three cars. They are better off than many people in Europe or U.K. that only have one car. Can we afford not to have two or three cars in the family, for example? These are changing of lifestyle or education or development. Yes, we need development, no question about it, but we need development in a sustainable way. Sustainable way means we don't consume everything we have now. We have to think about our future generations as well. Another aspect of climate change adaptation... As I said, there is not much we can do about it. Climate change is here to come. It may take several hundred years. Sea level rise may come after several hundreds or thousand of years. In the past we have already put out so much carbon dioxide or greenhouse gases, the change cannot be stopped. So how to adapt to climate change? Singapore is lacking in water resources. "Make every drop count" is one of very good adaptation strategies. I know Singapore buys a lot of water from Malaysia as well. So there are many innovative ways to conserve water and conserve energy. These are good things to do. These are the so-called win-win situation. We should look for win-win situation. I think that is my message.

MR. EPELI NAILATIKAU, MP (FIJI):

Thank you Madam Chairman. Mine is just an observation. We have been talking about production, more production, and more this and more that... The thing that we lost count of is that all of this is due to world population. If are going to try to solve this, we've got to manage the world population. And if you look at countries all around the world, there is no country that has not increased its population dramatically over the years. The only countries that have diminished their population are countries that have found that their population is too much for the resources and migration has taken place. It's just a food for thought. If men are to survive, and women are to survive, and our children are to survive in the future, we've got to manage the population. Manage the population and we might manage and find the resources to feed the people we are trying to look after. Thank you.

DR. LOW:

Thank you for the comment.

DR. KAI YUEN WANG, MP (SINGAPORE):

Chairman, can I make an observation. The speaker from Fiji had mentioned that population has declined rapidly in the past as a result of having reached its limit. I'd like to refer that, in modern society, population declines because of development and also because of education. In fact, during lunch time we spoke with the delegate from Australia, who claimed that one way to control population is to educate the women. Educated women will definitely lead to lower birth rate. And in Singapore we have this well-known phenomenon that 40% of university graduates remain single for the rest of their lives. So in Singapore we have a very severe aging population. In Europe, Europe as a whole community is being depopulated, partly because women are educated and they have very few children. I surmise that perhaps one way to

control world population is for all countries, developing countries and developed countries, to ensure that women are educated and ensure that women will bring up their children in a proper way to ensure that they will survive in the early childhood. That way I think human race will have a future. In countries like Afghanistan and Iraq where population growth is high, we have to ensure that those women get educated.

COMMENT FROM THE FLOOR:

Madam Chair. I just thought I would like to add a little spice to that issue. Why should it just be women who will have to bear the burden of it? Can you educate men as well? So they will take their responsibility as well. I expect that APDA will take this problem as another theme in next meeting.

MS. KAYOKO SHIMIZU, SENATOR (JAPAN):

We have been discussing about global warming. Japan ratified the Kyoto Protocol in June of last year. Japan is supposed to cut down her carbon dioxide emission by 6% from the 1990 level. However, Japan was already making a lot of effort in the area of energy conservation in 1990, which made it very difficult to reduce the emission any further. Kyoto Protocol has not gone into force because it has not been ratified by Russia. Be that as it may, Japan is making enormous effort to realize this 6% reduction. For instance, while it may be difficult to give up our luxurious lifestyle, energy conservation technology is introduced in automobiles to use the cleanest form of energy possible and cars running on fuel cells will be available very soon. I think it is important to create a framework in which we minimize our impact on the environment while trying to maintain our way of life. It is also important to pass laws on environmental education so that we can teach our children about problems of the global environment. Hon. Mr. Yatsu is also taking leadership in drafting a law on nature revitalization. Having served as the Director-General of the Environment Agency, I feel that the greatest problem in Japan is the massive quantity of waste. Japan imports huge amount of resources from overseas and produces so much waste. We enacted a law called Basic Law for Establishing a Recycling-Based Society to reduce waste and make efficient use of resources. Such nationwide effort is needed. Companies are making a lot of effort, but the problem lies in people's livelihood. Effort must be made in the lives of each and every person, and this is the area in which politicians must focus.

When thinking about this problem of global warming, although the U.S. is looking in the other direction, we need to consider the problems related to economy and the developing nations. It is not just the problem of developed countries. I think it is very important that we cooperate and tackle the problem together. I hope that politicians will set a good example by actively addressing this problem.

DR. LOW:

I fully agree with what Hon. Ms. Shimizu had said. I was in Japan last year, visiting one of the recycling centres. I was very impressed to see how they were making a suit from plastic materials. It was a very good example of using waste material to produce something very useful. I think Japan has done a lot in those fronts. I fully admire their innovation and the initiative they have taken in those directions. Thank you.

DR. KAI YUEN WANG, MP (SINGAPORE):

I appreciate the comment from our Japanese colleague, talking about maintaining luxurious lifestyle without causing environmental impact. I am trained as an engineer and all engineers know that you can't get something from nothing. There is a cycle of mechanical engineering called studying cycle, which means that you can do some work, you must funnel more energy to get some work done. So no matter what process we improve, even using modern technology like fuel cell, in order to get some work done, waste heat will be produced. So even if you have a fuel cell motor vehicle, bringing someone from point A to point B, there will be at least 34% waste heat that you must produce. Therefore, no matter what we do, we can reduce waste heat, we can improve the proficiency, but cannot eliminate the necessity of generating the so-called global warming gas in our human activities. So as a result, as long as all humans aspire to have a good standard of living, I believe we cannot solve the global warming issue. We can only solve it if we go back to being farmers in the developing countries.

MR. BEKSULTAN TUTKUSHEV, SENATOR (KAZAKHSTAN):

It is not all up to humans. There are natural crises at force also. A thousand years ago in Central Asia there were droughts and there were no cars then. Humans can't necessarily change everything.

DR. LOW:

As I said before, there is always a natural variability about climate change. If someone tells you there is no climate change, it is nonsense. Climate change process has always been there, due to natural process, due to natural variation of nature. But what we are talking about here is human-induced additional impact; additional frequency of extreme events caused by human activity. How are we going to cope with such situation?

What we are asking here are two elements; one is to reduce emission to the extent possible, find better ways to do things, instead of using fossil fuel we can use renewable energy like solar. One is to adapt, not react, when struck by a disaster. We have a Chinese proverb that says, "Before it rains, bring an umbrella". So before a drought comes, try to build a reservoir. Adaptation is an important element particularly for developing countries and least developed countries. Madam Chair. With your indulgence, I know that my colleagues in ESCAP will not be happy if I do not spend another 3 minutes of your time to present the activities of ESCAP.

ESCAP is an organization which I am working. It works towards reducing poverty and managing globalization. Currently, it is headed by Dr. Kim Hak-Su from the Republic of Korea. It is a regional arm of the United Nations, founded in Shanghai, China in 1947. It is the only U.N. intergovernmental forum dealing with socioeconomic development of countries in the Asia Pacific region. There are 64 members. It represents, approximately 60% of the world population, or 3.8 billion people. We are the largest regional commission of all the five under the U.N. We have regional commissions in Europe, Latin America, Western Asia and also Africa, but Asia Pacific is the largest one and is based in Bangkok. It provides support to its members in 3 key areas; poverty reduction, managing globalization and addressing emergence of issues such as HIV. We also assist the members to achieve the Millennium Development Goals. For the division which I am working with—it's called Environment and

Sustainable Development Division—there are 3 sections; Energy Resources, Environment and Water Resources. Lately, we are particularly focusing on the Water Resources Section. We do a lot of work on strategic planning and management of water resources, public-private partnership for access to safe water, water conservation, water quality, and regional cooperation for self-sustenance and mitigation. To highlight what I have said earlier, this is the last summary.

For example, we are also dealing with the environment and public health issues, contamination of soil, crops, water from urban effluence, industrial and natural sources, in the Southeast Asia region, dealing with arsenic, fluoride, cadmium issues.

ESCAP also provides free regional extensive advice service. On the request from a government, we provide free service at the expense of ESCAP, to provide advisory service on environmental issues and sustainable development issues. I visited Indonesia, for example, and they asked me if they should ratify Kyoto Protocol. I went to Kazakhstan to conduct a workshop on environmental law, environmental policy and environmental monitoring and sustainable development, how to set up a sustainable development commission, for example. These are the things I have done for countries. Thank you so much and have a good evening.

Lastly, my division director has asked me to invite all of you, if possible, to attend as part of your country delegation, the 60th ESCAP Commission Session to be held in Shanghai in April next year, 2004. Thank you.

MR. SHIV KHARE, EXECUTIVE DIRECTOR OF AFPPD:

Thank you for coming and giving this very interesting talk. But one thing which I wanted to ask you; all of these poverty reduction and environmental issues and all, ESCAP tries to do it without focusing on population. As you have shown all of these slides, there was no mention of population as a factor. So my request is, when you go to countries to give advice, I don't know how ESCAP came to this idea, that without talking about population, you can't solve all the problems, especially poverty reduction. I can challenge the ESCAP experts, if they can give me a formula by which can solve the poverty of countries like India, Bangladesh, Pakistan and Indonesia by not reducing the population and continue increasing the population at the same time. Similarly, the environmental issues that you have just mentioned; I will again ask you because you are the expert, that can all of these be solved without solving the population problem. Thank you.

DR. LOW:

Very good comment. I will respond very quickly. Indeed we are dealing with the population issues under these emerging social issues. I think we are colleagues dealing with population issues.

MR. SHIV KHARE, EXECUTIVE DIRECTOR OF AFPPD:

That is sidetracking the issue my dear friend. The reason is that one small unit in population, means an isolation of the population issue. All the issues ESCAP is dealing, there should be some kind of interlinking, like you say "environmental." Whether environmental degradation

can be seen isolated without population... Similarly, poverty reduction cannot be seen without population. ESCAP is doing all of this without seeing population as a factor.

DR. LOW:

I agree entirely with you. I know that we have colleague that provide advisory service to countries dealing with poverty issue which links to population issue. Population is a major factor. This is what this meeting is about. Population and development. We talk about sustainable development under the MDGs, and ESCAP helps the countries in achieving MDGs. We do research as well. We do population research, we compile statistics from different countries on population and income. We provide those services as well under the U.N. MDG goals. Thank you for an excellent comment. I fully agree.

CHAIRPERSON:

I will say the final word. I have noticed that, for this session, all of you, all of the countries are all alert, and all countries contributed and asked questions. Even some countries, which never spoke out, but this time it did. I think that because Dr. Low is an excellent presenter. Thank you. I think that I don't have to make any conclusion, so you keep it in your mind and you know that this is on your shoulder. Anyway, you are entitled to be the leader in this issue. Thank you.

Session III

Water, Global Environment and Population - Report of the Third World Water Forum -

Chairperson
Mr. Epeli Nailatikau, MP
Vice Chairman, AFPPD (Fiji)

**Water, Global Environment and Population
- Report of The Third World Water Forum -**

Dr. Norio Ishida
Former Professor, Kyoto University

I spent the last 30 years studying the cases of water contamination by agricultural chemical and artificial chemicals at Lake Biwa, the largest lake in Japan near Kyoto, and Aral Sea in Central Asia. As you may know, Lake Biwa is the largest lake in Japan and is a place where environmental contamination is advancing. Japan is a country that has experienced serious contamination due to artificial chemicals. At this backdrop, safety of the water that we drink is being threatened. This is the problem has been the subject of my research.

Japan is a very rainy country. Although less in volume compared to Southeast Asia, Japan receives between 1,500 and 1,800mm of precipitation every year. Contamination advances even in such region with high precipitation. In contrast, Central Asian counties belong to a desert region that receives only 100 to 200mm of precipitation in a year. Contamination in regions with such low precipitation would take an entirely different aspect. Water would also be utilized in a different manner. I have been involved in the problem at the Aral Sea because I was interested in these matters. Kyoto, Shiga, and Osaka, where the 3rd World Water Forum was held, are the main areas of my research. I have also been working on water problems in arid and low-precipitation regions as a representative of Japan Research Association with Kazakhstan (JRAK) which has been researching the condition of the Aral Sea in Central Asia for 15 years.

It used to be the fourth largest lake in the world until 1960. This region receives little precipitation throughout the year, but a large-scale irrigation project was launched by the Soviet Union in the 1960s with the aim of turning desert into farmland. Water was taken from two rivers—Syr Darya and Amu Darya—using canals, opening up nearly 8 million hectares of farmland. Canals extending to the horizon were spread throughout the region to turn desert into farmland. With less water flowing into it, the Aral Sea has shrunk to less than one third of its original size in the mid-'60s and will disappear in a year or two. I have been researching the impact of unprecedented changes in environmental condition on residents and regional environment. Because of this background, I was involved in the Third World Water Forum, which was held in March 2003 in Kyoto and was participated by many NGOs, governments and international organizations, as an adviser of "Civil Network of the World Water Forum", and attended the sectional meeting of "Problem of the Aral Sea".

The Third World Water Forum was a huge conference, so it is not possible to talk to you about the entire conference. Today, I would like to give a presentation by focusing on two major issues based on topics that I have been dwelling and impressions that I have been fostering.

We all know that the problem of water will spread worldwide in the 21st Century. While the

20th Century can be defined as the century of struggle over petroleum, the 21st Century is predicted to become the century of struggle over water. The 20th Century was a century in which industrialization, modernization and urbanization advanced. I think you all agree that water contamination and water quality problems are becoming very serious in various parts of the world. Similar problems also occurred with regard to food and energy. It was also a period in which disparity of water use between north and south expanded. As a result of population explosion, the world population has now surpassed 6.2 billion and is predicted to reach 8 billion in another 20 years. We should predict that the use of water will increase and that water problem will become progressively serious in the course of time.

The changes in spatial and seasonal distribution of water are taking place on a global scale due to global warming, giving rise to damages caused by flood and drought. As a result, agriculture and forestry experienced dramatic changes amid the process of urbanization and modernization. Water-retaining capacity and water source recharging capacity of forests declined significantly. Circulation of water has changed not only in Japan but throughout the world, giving rise to regional and global changes in water circulation. It is no exaggeration to say that this is destroying the natural circulation which is supported by water. The problem of water resource is becoming serious every day, and we have to think about what we should do to maintain the integrity of the ecosystem including human beings. In doing so, we need to increasingly recognize that water is an urgent problem for the entire humanity.

At this backdrop, the Third World Water Forum was held from March 16 to 23 in Kyoto, Lake Biwa and the Yodo River Basin. I would like to briefly talk about the process that led to holding of the Third World Water Forum.

The first U.N.-sponsored international conference on water was held in 1977 at Mar del Plata, Argentina. Then the importance of freshwater resources was internationally recognized when a chapter on "Protection of the Quality and Supply of Freshwater Resources" was incorporated into Agenda 21 when it was announced at the Earth Summit held in Rio de Janeiro, Brazil in 1992. In response to this, the World Water Council was founded in 1996 by international organizations and water-related academic circles including the World Bank and the International Water Resources Association (IWIR) as a think tank for reviewing international policies related to water. Global Water Partnership was also founded in this year by the World Bank, United Nations Development Programme (UNDP) and Swedish International Development Agency (SIDA) with emphasis on preparation of action plan.

The World Water Forum was started under the proposal of the World Water Council and is held once every three years during the period including March 22 which is the U.N. World Day for Water. It is a forum started by international organizations including the U.N. Its important characteristic lies in the fact that it is a venue for experts, politicians, private companies and all parties interested in water including NGOs to talk about water. The World Water Forum began with the purpose of broadly appealing the importance of water based on the recognition that a wide range of people need to assemble in order to deepen the debate towards the solution of water problem in the international community in the 21st Century.

The First World Water Forum was held in March 1997 in Marrakech, Morocco, and was attended by about 500 persons from 63 countries. The Second World Water Forum was held in March 2000 in the Hague, Netherlands, and was attended by about 45,000 persons from 130

countries.

Being a large international conference with attendance of 24,000, it is very difficult to explain about the entire conference. At this conference, 351 sessions were held on 38 interlocking themes dealing with water including "Water and Poverty", "Water and Agriculture", and "Water and Energy". The Third World Water Forum was characterized by its "open discussion" that allowed all kinds of people to participate and discuss about the issue of water. It also proposed a shift from "participating in a conference to creating a conference" by inviting international organizations, governments, NGOs and all other participants to take part in the creation of the conference. So the participants included not only international organizations and governments but municipalities, research institutions including universities, academic circles, many industry associations and NGOs, and all of these entities held sessions and events on various themes including women, children, eco tourism etc. There were so many that there probably is no record that covered all of the events that took place during the conference.

In this conference, we were able to deepen the awareness among the people about the deep relationship between world's water and Japan. Although the appeals and declarations that originated from this conference are important, I think that increased interest in water among ordinary people was the most important outcome of this conference. Various discussions that took place during the plenary and other sessions were sent out to the world in the form of declarations and appeals. Water Declaration was compiled at the Water and Parliamentarians session at which Honourable Mr. Yatsu delivered the keynote speech. In addition, Ministerial Declaration – Message from the Lake Biwa and Yodo River Basin – was announced at the Ministerial Conference and was sent out to the world along with numerous other appeals. I trust that these messages have reached your country and that discussions on these subjects have taken place. These declarations and appeals showed that all participants were convinced about the urgency and importance of the water issue. I don't think there is any objection about these matters. However, many differences of opinion exist among governments, international organizations and NGOs with regard to solutions and measures, resulting in heated discussion. Water is the source of life. So there is no life that has no relation to water. Needless to say, no human being lives without any relation to water. Therefore, I would like to give full credit to the fact that instead of becoming a discussion limited to relevant institutions, the Third World Water Forum was held as a conference opened to all, and held discussions with participation of grassroots NGOs. I think we were able to break free to some extent from the closed nature of the first two conferences of the World Water Forum.

I would like to present several issues that came to my attention and offer them as themes for your discussion.

Let me first talk about the positioning of water. Water is unevenly distributed on the Earth depending on topography, distance from ocean and location. Its uneven distribution makes it a very important resource. Regardless of its availability, people have been depending on water to sustain life and maintain their livelihood. Needless to say, people lived and built their communities there because water was available to some degree. It is no exaggeration to say that their lives were determined by water. The amount of freshwater available to us is extremely limited. We must think about how to utilize this water for the ecosystem including us human beings.

As mentioned by Honourable Mr. Yatsu in his keynote speech, we must foster understanding about "Water as a Global Public Good". He also talked about equitable management and allocation of water resources in all counties, regions and all other places. Water is a public good for the earth and at the same time a public good for the community. A community is formed in a region because water is available there. We cannot build a community without water. Of course, we are sometimes overwhelmed by water when flood and other unfortunate disasters occur. However, we have been managing and utilizing water as a community. For this reason, community access to water shall be recognized as a basic human right.

Unfortunately, the viewpoint of regarding water as basic human right was completely missing from the Ministerial Declaration adopted at the Third World Water Forum, but I would like to report to you about the process of discussion on "privatization and liberalization of water" which became the subject of most active discussion in the Third World Water Forum.

Heated argument exists in World Water Forum with regard to privatization and liberalization of water and it became one of the main subjects of discussion at the Second World Water Forum held in March 2000 in the Hague. Improving the existing condition in which 1.2 billion people lack access to safe water and 2.5 billion people living in unhygienic living environment has become the challenge for the entire world along with the need to secure water for agriculture to support increased production in response to explosive population growth. It was amidst such circumstances that privatization and liberalization of water was proposed. There are two aspects to this privatization and liberalization; one is commercialization of water rights and the other is privatization of water supply.

Proponents of water rights commercialization argue that water shortage problem will be resolved after efficient use of water is promoted through free buying and selling of water rights. Number of countries and regions where water rights have been established is not by any means large. Frictions with conventional water rights have led to confusion in the process of water rights legislation in some places. We must also discuss in depth whether such liberalization would really have positive effect on the community as it would depend on the entity that purchases the water rights. In reality, a NGO from Nepal reported that commercialization of water rights hardly brings about good relationship between people and water. I hope that we will have an opportunity to discuss at this meeting today whether this liberalization of water rights would promote efficient use of water by reflecting the situation of countries represented at this meeting.

The other aspect is privatization of water supply. Proponents of this concept assert that privatization of public water supply will increase the efficiency of water supply system and makes it possible to supply safe water to a larger number of people. However, doubts were raised as to the credibility of this assertion. In one report from Bolivia where water supply has been privatized, water bill has been raised in many cities and people are saying that "water runs in the direction of money". Privatisation of water supply is also giving rise to a situation in which facilities being built only in regions where bills can be collected, making it difficult for low-income communities to obtain water which is crucial for their survival.

At the Third World Water Forum, partnership between public and private sectors was explored under the scheme of Public Private Partnership (PPP). An interlocking session was held to summarize the results of session held among the proponents of water supply privatization and

session held among NGOs. Although the interlocking session succeeded in generating shared recognition about the worsening water problem, proponents and opponents stood squarely against each other as to the solutions for the problem. As a result, two separate papers were prepared from the viewpoint of those promoting PPP and those opposing PPP. Both were presented as the conclusion of PPP session.

We need to think about what to make of this situation and keep our eyes on how things develop throughout the world in the future. We must also pay attention to the discussions taking place at international organizations such as the World Bank and Asia Development Bank.

As symbolized by the controversy over privatization and liberalization of water, discussion over the issue of water has advanced to the stage where the extreme difficulty of its aspects—such as "water and energy", "water and poverty", "water and agriculture", and "water and security"—have been revealed.

As an overall impression, I felt that the problem of water cannot be solved unless we discuss in more depth about who owns the right to water in the region. Another question we must ask is the method of integrated management for using the water of international rivers.

For instance, at a session on this topic at the World Water Forum I was involved, the main issue was how to coordinate the relationship of countries sharing the international rivers, Syr Darya and Amu Darya. We must come up with the wisdom for enabling the people of Central Asia to share the water so that they could all survive. The 21st Century can well be a century of strife over water if we cannot find a way to coexist peacefully with regard to utilization of these international rivers. I urge you to be involved in these problems and engage in extensive discussions. There is no future for the humanity, and the power will dominate the world unless we come up with some wisdom to solve this problem.

Let me sum up the main point, "Positioning of Water," as the conclusion of my presentation. We have to discuss water from 3 points of view, i.e. quantity of water, quality of water, and water surface. There have been many arguments about quantity and quality of water, but the same is not true with regard to water surface. Surface of water, such as that of lakes, marshes, and rivers, is the foundation of regional culture, community, and human society. Human beings have been searching for and lived in proximity of water in the process of creating various cultures and civilizations. Although water is unevenly distributed in the world, we should recognize that water belongs to the communities of each region. We shall not permit taking of water from a region by force. We have to learn from the wisdom of those living in each region because they have information and knowledge about the condition of water in their region. That is what I learned at the World Water Forum.

Discussion

MR. AKKAL BAHADUR BIST, MP (NEPAL):

In the era of globalization, what is your opinion about Nepal? What should Nepal do to conserve its water? What should Nepal do to conserve its environment?

DR. ISHIDA:

Unfortunately I have never been to Nepal, although I very much want to. It is therefore impossible for me to give you any accurate answer. However, I think we all have to recognize that people have the right to utilize the resources existing in their country. And I think that the people of Nepal should find for themselves which resource they should give priority to. In the past, Japan was regarded as a country with very limited resources. However, now I think Japan has abundance of resources because people started to realize that, with 1500mm of annual precipitation, Japan is a country with abundance of resources. By utilizing this water and her warm climate, I think Japan has the potential of becoming the most successful country in the world in terms of agriculture, more so than in being a successful industrial country. I am sorry if my response was irrelevant. I would very much like to visit Nepal some day.

DR. KAI YUEN WANG, MP (SINGAPORE):

My question for the professor is that the environmental disaster in the Aral Sea is very large in scale. It resulted from the central planning of centralized government of U.S.S.R.. The question I have is whether the damage to the environment could be fought or reversed, like the species living in the Aral Sea, like the fish that has been mentioned to have become extinct... And what are the political views of the government you have spoken to around the region to reverse the damage?

DR. ISHIDA:

I will tell you about the most recent situation of the Aral Sea. I have been working on this problem for nearly 15 years. When I first visited this area, I went there with the intention of recovering it to its original state. However, this could be very difficult. It is a way to preserve the Aral Sea as much as possible by preserving a small area of the Aral Sea called the Lesser Aral. The other part of the Aral Sea, the Greater Aral, will become a desert. I myself think that this is the best we could do in view of the present situation in Central Asia.

Astronauts are observing this phenomenon with great interest, because this is the only place in the world experiencing such extensive change on a yearly basis.

MR. GENDENJAV NYAMDAVAA, MP (MONGOLIA):

I would like to clarify some points regarding hydroelectricity. In Mongolia we need to build hydroelectric stations for power because hydroelectricity is good for the economy, especially for the developing countries to help addressing their large problems. What are the real effects of building hydroelectric stations in terms of water conservation and water management?

DR. ISHIDA:

Hydroelectric stations inevitably require construction of dams which naturally reduce the amount of water available downstream, bringing about considerable change in downstream biota. Another aspect is the change in riverbed caused by siltation that occurs at the dam. In this respect, it is clear that construction of dams will bring about significant changes in the environment, particularly in the downstream regions. However, I do not think we should refrain from building dams entirely. But at the same time, we should give second thoughts about building so many dams as we have done in Japan. So I think it must be considered in conjunction with the plan for creating a society that can live on only one dam. I think you will need to be prepared for all the risks, i.e. an array of impacts dam construction will have on the environment.

QUESTION FROM THE FLOOR:

I would like to know the goals the World Water Council, founded as a think tank in 1996, has set for the future.

DR. ISHIDA:

I assume that this is a question about the World Water Council. I admit that it is a large international organization. I cannot say for sure since I am not involved in it, I think it may have been quite effective in terms of releasing various data and offering a venue for policy discussion.

MS. DATO' NAPSIAH OMAR, MP (MALAYSIA):

Up to this day, government of the day would provide a decent living, such as good roads, transport, shelter and water for the people. But the concept of privatization comes in because inefficiency crept into our government services, and privatization was supposed to increase the efficiency etc. But there is a cost. We all know water is a scarce commodity, either induced by the people or by climatic changes. In the Water Forum, has it been discussed whether water should be made a commodity for sale, or who should decide for this? Did the Water Forum discuss who is the authority in the world today to look at the water problem and to see that it is probably managed and efficiently distributed, conserved and to be distributed to people within regions and within countries? Thank you.

DR. ISHIDA:

I think this is the biggest problem. The points you have raised about liberalization and privatization were completely missing from the discussion. My impression was that the logic used by the proponents was water as commodity and water as source of profit. I think we need to discuss the points you have just raised. By doing so, the conclusion we will reach is the concept of water as a basic human right. The very fact that it was missing in the declaration of the ministerial meeting is a problem. So I reported this as the most important point in the World Water Forum.

Another point I would like to add is that I question the justifications regarding privatization of tap water. For instance, we have this concept of "circulation of water". Water flows from

upstream to downstream. It is technically possible to take water at midstream and use it for tap water. However, when we think about tap water, we have to think about the environment of mountains upstream and the environment of sea downstream. In the case of public water supply, water is taken by looking at the entire picture, from replenishment of water supply upstream to flow of water downstream. However, in the case of privatized water supply, suppliers will only think about taking water from a certain point, purifying it and selling it. This is where the danger of privatizing water supply lies. We need to follow measures for supplying water to people by taking into consideration circulation of water and protection of forests. The greatest danger is whether privatized water supply is considered in view of upstream environment.

DR. MALINEE SUKAVEJWORAKIT, SENATOR (THAILAND):

In our country there is always an argument between the NGOs and government about building big dams. NGOs usually say that if you make a dam, you destroy big trees and the environment. Meanwhile, the government says that if you don't make a dam, you'll get floods every year. So I would like to ask what your opinion is on that.

DR. ISHIDA:

I think we should approach this matter with the intention of diversifying risk instead of trying to build large dams. We should decentralize them into small dams. Instead of concentrating everything in one place, we should manage dams in a small-scale, decentralized manner. This way we can keep our eye on the dam and be more alert about changes taking place in nature. In this sense, in cases where dams must be built, building small dams in a decentralized manner will reduce the risk, will be more long-lasting and will exert less impact on the environment. Basically, I think large dams will fail not only in Thailand but all over the world and we need to think about this as a problem of the future.

QUESTION FROM THE FLOOR:

From your biography, we learned that you were the president of a public academy, Japan Research Association with Kazakhstan (JRAK) in Japan on environment and water. Can you share your experience at your public academy about working with local community and end user of water resources?

And also, will you offer advice to developing countries in the Asia Pacific to organize the same kind of public academy for management and water and environment?

DR. ISHIDA:

The only advice I can give in response to your question is that, when I do a study on Lake Biwa, the largest lake in Japan, I do not rely on nationally or internationally renowned water quality scholars for information. I place highest importance on information I obtain from fishermen who work and live there. You can get huge amounts of information from them, although the information may not be organized in a scientific context. The role of a scientist is to gather such information and sort it from an academic and scientific perspective. Of course it is important to use large instruments and obtain various numbers. I also conduct water surveys. But the most important information about changes taking place in the region can be obtained

from fishermen and farmers living and working in the region. Municipality officers know less compared to these people. And people in the central government know even less because, in the case of Japan, for example, Lake Biwa is located 500 kilometres from Tokyo and they don't get to see the actual site very often. So our job is to scientifically sort out the information that we obtain from the local region. It contains past history as well as information for predicting the future. I urge you to obtain information about water from people living along the Mekong River and compile it scientifically so that it can be used for formulating new policies. I think this is an important process in pursuing sustainable development.

CHAIRPERSON:

Honourable members, Ladies and Gentlemen. I would like on your behalf to thank Dr. Norio Ishida for his very authoritative presentation this morning. So on behalf of all of us, we thank you warmly for your time and your presentation. To conclude, it is a biological fact that, up to 90% of the human body is made up of water. So all of us are eminently qualified to be here at this conference. Thank you very much for your attention.

Session IV

Water and Public Health

Chairperson
Dr. Guowei Sang, MP
Vice Chairperson, AFPPD (China)

Water and Public Health

Dr. Pham Song
Former Minister of Health, Vietnam
President of Vietnam Association of Family Planning

My speech consists of three parts. The first part is Water in the World. The second part is Water and Health in Vietnam. And the third part is Lessons About Certain Division on Health and Water.

Water is the root of life because 70% weight of animal and 90% weight of plant is water. Yesterday, there was discussion about imported price of water, that exporting rice is same as exporting water. It is said that 90% of our diseases originate from drinking water, and 3.3 million children under the age 5 and 5 million people of all ages die every year from water-related causes. Negative impacts related to water, such as flood, tsunami, and pollution, have direct bearing on our lives. At the same time, however, water is the most precious natural resource and a unique resource because of its renewability. "Water is more precious than gold". It certainly is. Fresh water in particular is a socio-economic property. Access to water is also a human right.

United Nations launched the Decade of Drinking Water in 1988. The principles on use of fresh water were formulated in Dublin in 1992.

Rio de Janeiro Summit on the Earth evaluated environment and development and laid out 3 concepts, vulnerability of natural resources, interdependence, and responsibility to preserve resources for the future generations.

Maurice Strong, General Secretary of the Earth Summit in 1992 declared that "Environmental situation is declining," and the point became commonly known.

We have 286 treaties on water linked to 61 out of 200 international river basins.

Although the Mekong River Committee is aiming for overall development in this region, water conflicts have occurred. As the fundamental point of view, we should understand that the water is a precious resource to be shared equitably.

Human beings do not respect and protect the water cycle that has been stable. As a result, 43 countries are seriously lacking water and 2 billion people are running out of water (Message at the World Environment Day in 2003).

As rivers flow into the sea, human's activities on the Earth will have negative impacts on safe water and closed gulfs (Message at the 7th International Workshop on Water from August 10th–15th 1997 in Stockholm).

Water resource in Vietnam is plentiful. However, water has very serious impact on human activities because of its seasonal and regional changes. For instance, flood and drought can cause big damage simultaneously within a country. In many cases, flood is the most serious natural disaster in Vietnam. Since the 90's, three biggest floods in the past 30 years occurred in 3 regions; and last year, 713 people were killed by flood in the Cuu Long River (Mekong River) Delta.

After a flood, shortage of safe water, wet and hot environment and residence reduction caused by long-lasting waterlogging (1-3 months) resulted in rapid spread of diarrhoea, typhoid, cholera, dysentery, dengue hemorrhagic fever, malaria.

The Government has the policy for Cuu Long River Delta living with flood by taking the following measures, population planning in high-level areas, policy granting loan to build stable houses, to recover production, and rapidly settle life and health, and reforestation policy to reduce damages of flood, to increase fresh water reserve and to preserve rich soil and forest ecosystem of biodiversity.

The policy of granting land and forest for people to look after and exploit has effectively begun. Forest fire alarming in weather forecast often finishing national news also contributes to raising the awareness of forest protection. Forest, soil, water, sea are closely associated with each other.

Soil lives on water; forest reserves of water in the monsoon and flood season is the tank storing the Earth's water and make the climate and weather. If the evaporating-liquefying-freezing constant process is well protected, it will contribute to sustainable development, especially to the safety of food, drinking and living water for people.

The second problem in Vietnam is pollution of water resource. The density of river network in Vietnam is quite high. There are 2,360 rivers that flow year-round for more than 10 kilometres in Vietnam. Pollution happens in almost all of rivers that flow through urban and industrial areas. About 1 billion cubic meters of untreated or ineffectively treated waste water is discharged annually into the environment, seriously polluting water resources. For instance, biochemical oxygen demand (BOD) for Hong River exceeds the Vietnamese emission standard. And the lakes, ponds, canals, ditches in internal districts of urban areas are also polluted.

Due to its lack of hygiene, excrement—water—mouth path is responsible for 7 out of 27 common diseases in Vietnam, and the situation of infectious diseases in poor regions has changed little according to the information on the disease statistics from the Ministry of Health from 1996 to 2000.

According to the ADB report, infection of communicable diseases exceed 36.4% in the poor rural area. Non-communicable diseases are also very serious and extremely prevalent, about 73.6% in the urban area and 55% in the rural area and 50% in the poor rural area.

Diseases caused by industrial, production, fertilizer, pesticide and hospital waste have not been investigated and their negative effect on health has not been evaluated. Solutions for water pollution from excrement and waste in the rural of Vietnam are include biogas pilot programme because it is a comprehensive measure linked with the benefits of environmental sanitation.

Biogas is providing gas for cooking and organic fertilizer from mixing peat (which Vietnam has a great reserve) while liquid gas from biogas cellar, coordinated with building latrines, is suitable for conditions of land.

And also, treating of industrial waste from on site is the lesson from Japan on treating polluted water by organic mercury in Minamata.

Vietnam set up a national committee for the Decade of Drinking Water. In 1994, Vietnam established national committee on safe water supply and environmental sanitation directly guided by the Prime Minister and established the National Program of Safe Water Supply and Rural Environmental Sanitation, which was ratified on December 3rd 1998.

Securing water safety begins with thinking about the principles of safe water and recognizing water as a national social resource. It is important for a government to supply safe water to rural areas first. Through such efforts, national program aims to supply 60% of households with safe water by 2005, and increase that rate to 100% by 2020.

A problem unique to Vietnam is that of dioxin endangering the health of the people. In 1965, American troops resorted to chemical warfare and used 40 million liters of toxic chemical orange (AO/D) in Vietnam. As a result, Vietnamese people, particularly women, suffered the serious effect of dioxin which they ingested from water and air such as miscarriage, still birth, congenital malformation for children, and skin diseases.

This destruction has also been confirmed by American scientists. Half-life of dioxin is long from 15 to 20 years, so recovering the forest ecosystem is very difficult. To overcome the problem, we need financial and technical help from the international community, especially the U.S.

As for construction of dams, 50,000 residents were relocated, 1600 ha rice, 152,000 ha forest, 700km transport road, and 83,000 schools were flooded.

Before we decide to use hydroelectricity, we have to pay attention on the changing of traditional lives of the people and the impact on ecological system of the forest. We always have to choose between benefits and impact on ecological system. We have to choose the best way.

Now let me move on to Contribution to Strategic Vision on Water and Health in Vietnam.

The Strategic Vision on water and health in Vietnam looks at the health problem in five effective factors, i.e. natural environment, economic, social, family, learning, working, entertainment and leisure environment, health training and protecting awareness of each people, and impact of medicine and health services.

These five factors are related to each other but belong to a more comprehensive complex consisting of population, environment and sustainable development. So I very much appreciate organization of a parliamentary seminar on population and water resources. Population problems is also a health problem, and it is necessary to pay attention to family planning, particularly reproductive health of adolescents.

Investing on health is the direct investment for economic development. That is diseases do not disappear by itself after economic growth. The importance of water resource is in the macroeconomic strategy and priority subject.

Priority strategy for health prevention care is absolute priority to community and district health care system, ensuring that Gini index is very small and community health care services are improved.

Health insurance for all people and implementation of the family doctor system will guarantee equality and most effective investment for health service.

There is a possibility that Vietnam will become a country with water shortage by 2040 even though Vietnam has great water resource. National Water Resource Committee and some Vietnamese experts gave the forecast that Vietnam will be one of 52 countries lacking water in some areas of the southeast, middle south and highland.

Water demand increases together with developing agriculture, industry, and population growth, and the population of Vietnam will increase by 1 million people per year until 2010 so all other demands will also increase. In other words, water distribution will be unequal.

In order not to lack water, there should be a strategic vision for sustainable development and food safety by controlling the entire water resource, updated inventorying, evaluating, using and regenerating water, managing water based on river basins like in Tennessee, Darling Muray in Australia, La Seine Normandy in France, actively reforesting, protecting forest burning to obtain the cover of 40-50% by 2020, granting people to manage under the control and support of preliminary capital, establishing the treaty of amity and mutual understanding on upstream water use, applying Dublin rule suited for socio-economic conditions of Vietnam, mobilizing community to take part in water resource protection and controllable use, strong commitment of the government on water resource protection, safe water supply should combine with using safe technology and developing waste treatment infrastructure.

In all cases, implementing comprehensive growth strategy goes together with poverty reductions is necessary.

Discussion

MR. EPELI NAILATIKAU, MP (FIJI):

It was an eye opener for some of us what has happened in a country with dioxin pollution and amount of diseases caused by water pollution. It is important to supply safely treated water to people. I think there could be some problem at water treating institutions when a disease caused by water occurs. So, if you take suitable measures, I believe that such disease will decrease. Could you tell your opinion?

DR. SONG:

Fresh water is more expensive than petrol. And talking about the water supply through treatment is very difficult because it costs a huge amount of money. For example, supplying water to one village with about 6,000 people with pipe would cost 400 million Vietnamese dong. And the price people can pay is about 1,000 dong per litre. If you use safe water, treatment will be a little difficult. If you use groundwater, investment is more expensive. So our policy is to first encourage people to use rain water. And second if you use all you have, to change the quality of water for using.

QUESTION FROM THE FLOOR:

I would like to ask you how to work the policy of forest land being given to people to preserve and exploit.

DR. SONG:

Very difficult to answer your question. But I think it's a very good policy. The forests belong to ethnic minorities. So if you give them the rules for using it, they will protect the forest. Ethnic minorities use for cooking and also practice very primitive agriculture. So they will destroy the forest. If you give them the rules, they will try to protect.

COMMENT FROM VIETNAMESE MP:

We talked about water and importance of water in public health. We also talked about the incidents of various waterborne diseases. Of course we always pay attention to importance of safe water. Perhaps I would like him to talk about the policy of the Vietnamese government on treatment of human waste water. What are the plans, what are the goals and what are the investments in terms of treating sewage water in Vietnam.

DR. SONG:

Thank you for your question but I honestly say that we are at its first step. The government has an inventory of 2,600 factories on waste treatment. Even in Ho Chi Minh City, we have about 300 factories. It is the first step in treating industrial waste. Regarding medical waste, I have requested the government to give funds to all such waste because it's not very difficult to treat compared to industrial waste.

DR. PAK SUM LOW:

I just would like to make a comment and also ask a question. A few months ago, I visited one of your coastal cities Nam Dinh where there are many French buildings and many French people living there. I was shown by one of your colleagues dealing in climate change issues. They showed me that 10 years ago, the church was near the coast. But now we can only see the remnants of the church. That means that the sea level has been rising. It is a very clear evidence, at least for the Vietnamese case, I witnessed the sea level has been rising. A new church had to be built further inside the coast. So my question is, has there been any evidence of tropical disease because of warmer temperature or more extreme events you have suffered such as floods and typhoons? Have these extreme events contributed to any increase in incidents of tropical diseases such as waterborne diseases?

DR. SONG:

If the sea level comes up 1 meter, I think rivers, such as the Red River Delta, could be eroded by about 20 km, so this is a serious problem incurring huge coast for Vietnam. So I share the idea of Malaysia. What happens after 30 years? If the climate gets warmer, it will truly be a problem for Vietnam. Talking about tropical disease, fortunately we can now control malaria. There is no epidemic of malaria. No deaths from malaria. Why so? First step is education of the people. The second is technology. We have introduced active immunization and used mosquito nets. We are very happy that Vietnam has eradicated malaria by the year 2000.

MR. AKHOM TOUNALOM, MP (LAOS):

I would like to know the land allocation policy of Vietnam in detail. We also have a land allocation policy but when land is allocated, people cut down the trees illegally. If that has happened in Vietnam, how to solve this problem.

DR. SONG:

Education and enough information for people to whom land has been allocated are important. Also, both the government and the people should recognize what the ownership should be.

QUESTION FROM THE FLOOR:

I think the relationship between using water and public health depends on education and culture of people themselves, especially the activities of the people in maintaining the environment. So from your experience as the Minister of Health, how to educate the people to using freshwater and increasing awareness of healthy water environment?

DR. SONG:

I have a program for cooperation between Minister of Health and youth union and women's union. One program like immunization, without the participation of women you cannot reach the goal because they must bring their children to the point of immunization. This is the second example. We cannot prevent diarrhoea unless we educate the people to use boiled water and to preserve the food. So I think it is very important. Leaders in government know exactly about the role of the people. So when I became the Minister of Health, it is in my

thinking and my blood that everything depends on the wishes of the people. If you educate the people you can solve a lot of problems.

MR. GENDENJAV NYAMDAAVA, MP (MONGOLIA):

Please tell us about the plan for offering health service to the people.

DR. SONG:

Land provision and transfer are carried out as part of our poverty eradication effort. Selection of eligible households as well as scale and location of land that is provided are decided by using income level as one of the criteria. Companies are prohibited from subleasing and logging the forest for commercial purposes.

MR. BEKSWULTAN TUTKUSHEV, SENATOR (KAZAKHSTAN):

Could you explain the way to provide safe water and primary health care for all citizens of Vietnam?

DR. SONG:

Public health and safe water are related with the primary health care in the Alma-Ata Declaration. Vietnamese government always followed the Alma-Ata Declaration on primary health care in a suitable way because it is for the poor in rural areas.

MR. EPELI NAILATIKAU, MP (FIJI):

My question is regarding dioxin poisoning. Has there been any exchange of information between your country and the U.S. regarding the treatment of the disease, either directly or through WHO and other U.N. bodies responsible for health?

DR. SONG:

Cooperation between governments has not happened but there are NGOs and humanitarian American experts coming to Vietnam to solve the problem.

CHAIRPERSON:

Thank you Dr. Song for your excellent lecture and valuable discussion. I also thank the audience for your active discussion.

Session V

**Discussion and Adoption of Statement
on Population and Water**

Chairperson
Ms. Dato' Napsiah Omar
Treasurer, AFPPD (Malaysia)

Discussion and Adoption of Statement on Population and Water

A drafting committee consisting of representatives from China, Fiji, Malaysia, New Zealand, Singapore, and Thailand, met prior to the deliberation of the Ho Chi Minh City Statement. The drafting committee prepared the draft for the official statement with Mr. Kusumoto, Senior Researcher APDA serving as the secretariat.

At the panel discussion, under the expediting by the chairperson, Ms. Dato' Napsiah Omar M.P. of Malaysia (Treasurer of AFPPD), the panelists who were also the members of the drafting committee responded and discussed with the participants, and explained the details of the draft of the Ho Chi Minh City Statement.

At the discussion, Dr. Low, an expert from ESCAP, pointed out the possibility of decrease in water availability due to environmental degradation and decline in quality of water. As a result, comments were added to the draft from this point of view. Regarding stability of population, a parliamentarian from Australia suggested that it would be better to add the line, "based on the human rights approach". to the section that said "stabilizing population is the most important conditions in achieving universal access to water and sustainable development" because it could be used as an instrument of racial discrimination based on eugenics. Moreover, they discussed and revised the details and grammar. In the end, "The Ho Chi Minh City Statement of the 19th Asian Parliamentarians Meeting on Population and Development –Water and Population in Asia–" was adopted unanimously.

CHAIRPERSON:

Ladies and Gentlemen. We now come to the last session of the conference, that is, Session V Discussion and Adoption of Statement on Population and Water. The drafting committee has sat down and looked at the draft and made some suggestions.

The Asian Parliamentarians Meeting on Population and Development (APMPD) has been discussing Population and Water for the past three years, at our 16th, 17th and 18th meetings. The 16th meeting was devoted to discussion of "Population and Sustainable Development: Environment, Food Security and Water Resources"; at the 17th meeting, we discussed "Food Security in Asia: Water Resources and Population"; and in the 18th meeting, the topic was "Water and Public Health: Regional Development and Population."

In March 2003, the Third World Water Forum was convened in Osaka, Kyoto and Shiga in Japan, and was attended by 23,955 registered participants. This forum consisted of a general assembly and 351 theme sessions. Unfortunately, there was no discussion on the relationship between Population and Water. We the participants of the 19th Asian Parliamentarians Meeting on Population and Development express our concern at the exclusion of the theme of Population and Water in the last Third World Water Forum.

Honourable delegates, if you do not have any objections, comments or additions on the preamble, we move on to the "Foreword".

FOREWORD:

Water is indispensable to all creatures living on earth and to the human population. Our planet is called the planet of water, almost all of our water is saline. Freshwater resources are minuscule and are becoming very scarce. Freshwater is a finite, vulnerable and renewable resource. About 2.5% of the world's water is fresh, two thirds of this is stored in icecaps and glaciers. Only 80 of one billionth of total world water are hydrologically renewable. This water cannot be increased. Population increase will lead to the decrease in the availability of fresh water resources per person while diminishing its quality. In addition, for promoting demographic transition, increase of accessibility of safe water is crucial.

All sectors are dependent on water for survival. The general public lacks awareness about the implication of this fact. Now, we, as Parliamentarians are in a position to make changes for our future society. We reiterate our commitment to addressing the interrelationship between Population and Water according to our past discussions.

CHAIRPERSON:

The second paper is yet to come. Any comments or any objections to that last paragraph?

DR. PAK SUM LOW:

Population increase and degradation of water quality will mostly lead to decrease in availability of fresh water resources per person. So I suggest you may wish to consider an insert "Population increase and water quality degradation will lead to the decrease in the availability of fresh water resources per person".

CHAIRPERSON:

Thank you Dr. Low. I think I agree with you. I have no objection to putting in two or three words. "Population increase and water quality degradation will lead to the decrease in the availability of fresh water resources per person".

FACTS :

1. Access to fresh water is a basic human right. Population increase is directly linked to depletion of freshwater resources.
2. Population increase and degradation of fresh water signify decline in quality and quantity of fresh water available to each person.
3. Economic development often increases water consumption.
4. Irrigation is essential for maintaining and increasing food production. Most existing irrigation methods are extremely inefficient in water use. Rational water use, good management and maintenance will be crucial for supporting irrigation in the future.
5. Diarrhoea, largely caused by unhygienic water, is one of the major causes of infant mortality. Provision of safe water is essential in reducing infant mortality.

STRATEGIES FOR GOVERNMENTS AND INTERNATIONAL ORGANIZATIONS:

1. Develop integrated strategy and action plans for solving the Population and Water issue.
2. Stimulate awareness among the public about serious scarcity of freshwater resources and make them understand the importance of integrated and efficient water resource management.
3. Ensure healthy water environment by considering factors such as pollution, climate change affecting freshwater.
4. Establish regional and inter-governmental organizations on international water management. International rivers basin areas need a coordination of concerned countries for the use of water efficiently, equitably and on a fair basis.
5. Implement an education plan from primary school onwards on safe water use and the relationship between water and health.

ACTIVITIES AS PARLIAMENTARIANS

1. We recognize that access to safe water is a basic human right. Supply of safe water should be promoted on a universal basis. We need to be careful about treating water for human consumption as a commodity.
2. Stabilizing population is the most important conditions in achieving universal access to water and sustainable development.
3. Each country will create a national population policy integrated with safe water supply and education to assure food security and poverty reduction.
4. Each country will review its water use for agriculture, industry and domestic consumption, and will create an effective national water strategy across all sectors.
5. To promote extensive dissemination of information on how to minimize water borne infectious diseases by practical means.
6. We must promote more research on efficient use of water in all countries.
7. We reaffirm our AFPPD Bangkok Statement on Food Security and Population, and include the concept of importing food to mean importing water for food security of respective countries.

DR. MEREDITH BURGMANN, MP (AUSTRALIA):

We would like to make a comment and suggest that after the words "Stabilizing population," we include the words "based on the human rights approach." That's because in Australia, racist group use population arguments and sustainable development arguments in order to propagate racist immigration policy and non-humane refugee policy. Some of the politicians use population and scarce water resources as an argument for inhuman treatment of refugees.

DR. KALIM, REGIONAL DIRECTOR OF EAST AND SOUTH EAST ASIA AND OCEANIA REGION, IPPF:

I think most countries have their population policy, and suggest to incorporate safe water, food security and poverty alleviation into that national population policy.

MR. VICTOR DE OCAMPO JR., MP (PHILIPPINES):

Some countries already have a national population policy, and I think it is necessary to change the policy into the one which includes "providing safe water to people".

DR. KALIM, REGIONAL DIRECTOR OF EAST AND SOUTH EAST ASIA AND OCEANIA REGION, IPPF:

I would suggest that a national population policy will have to include providing safe water and education. Through these efforts, a country could attain food security and poverty eradication.

CHAIRPERSON:

When we leave this hall, each and every one of you are going back to your respective constituencies and parliaments and do something about this problem of population and water.

I accept this Statement on Water and Population in Asia from all of us from 19 countries in the Asia Pacific region. So I take this opportunity also to thank our experts on the left hand side here and to all of you parliamentarian for your contribution in making my job much easier today. So thank you very much. With that I had this over to AFPPD and APDA. Thank you Ladies and Gentlemen.

Closing Ceremony

Closing Address

**Ms. Nguyen Thi Hoai Thu,
Chairperson of Social Affairs Committee National Assembly of Vietnam**

Ms. Kayoko Shimizu, Vice- Chairman of APDA,
Mr. Tsuguo Hirose, Executive Director of APDA,
Distinguished guests,
Ladies and Gentlemen,

This is the second time we are holding the APDA Meeting in Vietnam. Vietnam was going through a very difficult time 10 years ago when the last meeting was held, as the country had just launched her seven-year reform. We are now experiencing enormous changes with many investors visiting the country. A very important relationship exists between the issue of population and the issue of water. Demand for water is rapidly increasing in Vietnam today. I feel that we gained various information about matters related to water problem and were able to draw a comprehensive picture of this problem.

Natural disasters of various kinds are occurring. However, if humanity continues to destroy the environment, they will be killing not only the people that are alive today but those that will be born in the future. We must make efforts to protect our environment. We would also like to ask the people of developed countries to develop the technology for recovering water.

We parliamentarians are in a position to create a legal environment and decide how to implement the laws. We must promote cooperation among countries while playing this important role that has been given to us.

Our cooperative relationship has deepened through our activities to date. And we are collectively moving towards the same goal. I think this is a wonderful outcome of our parliamentary activities. And I think new progress has been made at the 19th Asian parliamentarians Meeting on Population and Development.

I hope that the parliamentarians that are present here today will continue to visit Vietnam in the future, and such reciprocal visits would result in even greater exchange between our countries.

I would like to take this opportunity to express my gratitude to APDA that has sponsored this meeting and to AFPPD, VAPPD, UNFPA and IPPF for their cooperation.

Closing Address

Ms. Kayoko Shimizu
Vice- Chairperson, APDA

Honourable parliamentarians.
Lecturers.

We were able to successfully complete the 19th Asian parliamentarians Meeting on Population and Development with your earnest cooperation. I would also like to thank the lecturers for their outstanding presentations. I would like to offer my heartfelt gratitude.

Following your enthusiastic discussion, we were able to adopt the Ho Chi Minh City Statement on Population and Water at this conference. For this I am most grateful.

Water problem is a problem that is directly and deeply related to people's lives. Life cannot survive without water. The fact that water hygiene has not been secured is a major cause of death and is hindering demographic transition.

In this sense, population problem and water problem are inseparable. Let us broadly appeal the Ho Chi Minh City Statement on Population and Water that has been adopted through your efforts to the international community.

In about 2 weeks, we will be entering the year 2004. It will mark the 10th year since the convening of the International Conference on Population and Development (ICPD) and International Conference of Parliamentarians on Population and Development (ICPPD) in Cairo, Egypt in 1994.

The outcome of ICPD will be reviewed at many occasions celebrating its anniversary next year with ICPD Cairo Program of Action (IPCI) already being scheduled in Brussels, Belgium.

Parliamentarian forums have been formed in all regions of the world during the 10 year period since ICPD and are working actively in their respective regions.

We take pride in this as the outcome of our activities in Asia.

As representatives of our people, and as policymakers that determine the future of their country, let us explore what we need to do in order to attain coexistence and prosperity on this limited earth and work towards realization of that goal.

APDA intends to offer assistance to the best of its capacity in this regard.

Your cooperation will be most appreciated.

Lastly, I would like to express my heartfelt gratitude to the members of VAPPD including

Chairperson Nuyen Thi Hoai Thu and Former Chairperson Nguyen Thi Than.

I must also thank the participants of this conference for the active cooperation.

Now is the time for action. Let us strive towards things that we can do.

I would like to conclude my speech by looking forward to the opportunity to see you all again at the next APDA Meeting.

Statement

The 19th
Asian Parliamentarians Meeting on Population and Development

Water and Population in Asia

-Ho Chi Minh City Statement-
-Environment, Food Security, Public Health and Population-

15th December 2003
Ho Chi Minh City Vietnam

The Asian Parliamentarians Meeting on Population and Development (APMPD) has been discussing Population and Water for the past three years, at our 16th, 17th and 18th meetings. We discussed the following themes. The 16th meeting was devoted to discussion of "Population and Sustainable Development: Environment, Food Security and Water Resources". In the 17th meeting, we discussed "Food Security in Asia: Water Resources and Population--" and in the 18th meeting, the topic was "Water and Public Health: Regional Development and Population--".

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FORWARD:

Water is indispensable for all life on earth. Our planet is called the planet of water. Almost all of our water is saline. Fresh water is a renewable resource although finite and vulnerable, accounting for 2.5% of the world's water, two thirds is stored icecaps and glaciers. Only 80 of one billionth of total world water are hydrologically renewable. This amount of water cannot be increased. Population increase and water quality degradation will lead to the decrease of fresh water per person. In addition, for promoting demographic transition, the increase of accessibility of safe water is crucial.

All sectors are dependent on water for survival. The general public lacks awareness about the implication of this fact. Now, we, as Parliamentarians are in a position to make changes for our future society. We reiterate our commitment to addressing the interrelationship between Population and Water according to our past discussion.

FACTS :

1. Access to fresh water is a basic human right.
2. Population increase and degradation of fresh water means a decrease in the availability and quality of fresh water per person.

3. Economic development often increases consumption of water.
4. Irrigation is essential for maintaining and increasing food production. Most irrigation today is highly inefficient in water use. Rational water use, good management and maintenance will be crucial to support irrigation in the future.
5. One of the major causes of infant mortality is diarrhea largely caused by unhygienic water. To reduce infant mortality, the provision of safe water is essential.

CALL FOR STRATEGIES FOR GOVERNMENTS AND INTERNATIONAL ORGANIZATIONS:

1. Develop an integrated strategy and action plans for solving the Population and Water issue.
2. Stimulate awareness among the public that the fresh water resources are very scarce and to make them understand the importance of integrated and efficient water resource management.
3. Ensure a healthy water environment by addressing pollution, climate change affecting fresh water and other factors through relevant policies and appropriate legislative measures.
4. Establish regional, sub-regional and inter-governmental organizations on international water management. International rivers basin areas need a coordination board of concerned countries for the use of water efficiently, equitably and on a fair basis.
5. Implement an education plan from primary school onwards on safe water use and the relationship between water and health.

ACTIVITIES AS PARLIAMENTARIANS:

1. We recognize that access to safe water is basic human rights. The supply of safe water should be promoted on a universal basis. We need to be careful about treating water for human consumption as a commodity.
2. We recognize stabilizing population based on the human rights approach and improving the quality of water is the most important condition to achieve universal access to water and sustainable development.
3. We urge each country to pursue national population policy to incorporate safe water supply and education to assure food security and poverty alleviation.
4. We urge each country to review its water use for Agriculture, Industry and Domestic consumption, and to create an effective national water strategy across all sectors.
5. We promote the dissemination of information on how to minimize water borne infectious diseases by practical means.
6. We must promote more research on efficient and sustainable use of water for all socio-economic sectors, especially agricultural and rural development in all countries.
7. We reaffirm our AFPPD Bangkok Statement on Food Security and Population, and include the concept of importing food to mean importing water for food security of respective countries.

List of Participants

Australia	Dr. Meredith Burgmann	Member of Parliament
China	Dr. Sang Guowei	Member of Parliament Vice Chairman, ESCPH Vice Chairman, AFPPD
	Mr. Li Honggui	Member of Parliament Member, ESCPH
Fiji	Mr. Epeli Nailatikau	Member of Parliament Speaker of Parliament, Vice Chairman, AFPPD
	Dr. Gunasagaran Gounder	Member of Parliament
India	Mr. Lakshaman Singh	Member of Parliament Vice Chairman, AFPPD Vice Chairman, IAPPD
	Ms. Chandra Kala Pandey	Member of Parliament Member of IAPPD
Indonesia	Mr. Irwan Prayitno	Member of Parliament
Japan	Mr. Yoshio Yatsu	Member of Parliament Chairman, AFPPD
	Ms. Shimizu Kayoko	Senator Vice Chairperson, APDA
	Mr. Nagahama Hiroyuki	Member of Parliament Member of JPFP
	Ms. Ohfuchi Kinuko	Senator Member of JPFP
Kazakhstan	Mr. Beksultan Tutkushev	Senator Vice Chairman, AFPPD
Korea	Mr. Lee Hae-Chan	Member of Parliament
	Mr. Hwang Woo Yea	Member of Parliament
Kyrgyzstan	Mr. Alymbay Sultanov	Member of Parliament
Laos	Mr. Akhom Tounalom	Member of Parliament
Malaysia	Ms. Dato' Napsiah Omar	Member of Parliament Treasurer, AFPPD
Mongol	Mr. Gendenjav Nyamdavaa	Member of Parliament

Nepal	Mr. Akkal Bahadur Bist	Member of Parliament
New Zealand	Ms. Judy Turner	Member of Parliament
Philippines	Ms. Josefina M. Josen	Member of Parliament
	Ms. Cielo Krisel Lagman-Luistro	Member of Parliament
	Mr. Victor De Ocampo Jr.	Member of Parliament Finance manager, PLCPD (Philippine Legislators' Committee on Population and Development)
Singapore	Dr. Kai Yuen Wang	Member of Parliament
Thailand	Dr. Malinee Sukavejworakit	Senator Secretary General, AFPPD Chair of Senate Committee of Public Health
	Mr. Sanchai Wongsunthorn	Senator
Vietnam	Mr. Truong Quang Duoc	Member of Parliament Vice President of the Vietnamese National Assembly
	Ms. Le Thi Thu	Minister on Population and Child, Family welfare
	Ms. Nguyen Thi Hoai Thu	Member of Parliament Chair of Social Affairs Committee The National Assembly and VAPPD and Vice Chairperson, AFPPD
	Ms. Nguyen Thi Hong Xinh	Member of Parliament, Member of VAPPD
	Ms. Ho Thi Hong Nhung	Member of Parliament, Member of VAPPD
	Mr. Luong Phan Cu	Member of Parliament, Member of VAPPD
	Dr. Le Van Dieu	Member of Parliament, Member of VAPPD
	Dr. Tran Dong A	Member of Parliament
	Dr. Nguyen The Hiep	Member of Parliament
	Ms. Nguyen Thi Ngoc Thinh	Member of Parliament
Ms. Nguyen Thi Than	Former Chair person, VAPPD	

Mr. Tran Quoc Thuan Vice chair of Parliament Office, Vietnam

Expert

Vietnam	Dr. Vo Tong Xuan	Rector, Angiang University
Vietnam	Dr. Pham Song	President of the Vietnam Association of Family Planning and Former Minister of Health and Welfare
Japan	Dr. Norio Ishida	Former Professor, Kyoto University
ESCAP	Dr. Pak Sum Low	Regional Advisor on Environment and Sustainable Development, ESCAP

United Nations & IPPF

UNFPA	Mr. Xu Shu-Yun	Director, Asia and the Pacific Division (APD)
UNFPA	Ms. Ikegamki Kiyoko	Director, UNFPA Tokyo Office
IPPF	Dr. Raj Karim	Regional Director, ESEAOR, IPPF

National Committee

Australia	Ms. Rachel Ingwersen	Assistant to Dr. Meredith Burgmann
China	Mr. Yang Shengwan	Senior Researcher, ESCPH, NPC
India	Ms. Robina Singh	
	Mr. Manmohan Sharma	Executive Secretary, IAPPD
Korea	Ms. Sang Mi Lee	Director General, CPE
Nepal	Mr. Bishnu Giri	Nepal Parliament Secretariate
New Zealand	Ms. Emma Dunlop-Bennett	Assistant to Judy Turner
Philippines	Mr. Roberto M. Ador	Executive Director, PLCPD
Vietnam	Dr. Nguyen Van Tien	Executive Director, VAPPD
	Dr. Nguyen Duc Thu	Programme Officer, VAPPD
	Mr. Nguyen Mai	Programme Officer, VAPPD
	Mr. Dinh Ngoc Quy	Programme Officer, VAPPD

APDA

Mr. Hirose Tsuguo	Executive Director Secretary General
Mr. Kusumoto Osamu	Assistant Secretary General Senior Researcher
Ms. Kimura Ryoko	Programme Officer
Mr. Takemoto Masanori	Researcher

AFPPD Secretariate

Mr. Shiv Khare	Executive Director
Ms. Takagi Hiromi	Programme Associate
Ms. Pariyaporn Techanaparak	Programme Associate

Interpreter

Ms. Hara Fujiko	Japanese-English Interpreter
Ms. Ide Maya	Japanese-English Interpreter
Ms. Kawamura Shiho	Japanese-English Interpreter