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THE WORLD OF WEATHER AND WATER

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Transcription of
Interview with Dr. John Rodda
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World Meteorological Organization

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The World of Weather and Water

Interview with Dr. John Rodda, Director
Department of Hydrology and Water Resources (WMO)

by Dr. Sylvia Moore
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Dr. Moore: With me in the studio today is Dr. John Rodda who is the Director of the Department of Hydrology and Water Resources at the World Meteorological Organization at Geneva. Dr. Rodda, what were you doing before you came to Geneva?

Dr. Rodda: I was involved in hydrological research activities. Looking at things like the influence of land use on run off from river basins. I was also involved in flood forecasting through the use of radar and for nine years I was the Secretary-General of the International Association of Hydrological Sciences. So I was very concerned internationally in that respect.

Dr. Moore: For you fresh water is a global concern. What is the scope of your work in that respect?

Dr. Rodda: Today at WMO we have a global programme concerned with hydrology and water resources which is managed through the Commission for Hydrology to serve the bodies that collect the hydrological data on the world. These bodies are the hydrological services which have a role comparable to meteorological services but are concerned with water. It is these Hydrological Services of the world which the programme is meant to support and sustain. Hydrological Services have programmes which are concerned with assessing the water resources of their countries and they have programmes concerned with predicting floods in their countries, two very important aspects for nations particularly in the developing world. Many are also involved with pollution problems and controlling pollution, how to reduce it, how to monitor it and so on.

Dr. Moore: What we hear so much of these days are the problems of ecology and the environment, economics, energy poverty, how can we manage to sustain people on the planet? How is that going to be possible in the future in relation to the natural resources? Water is one of the main natural resources we have. Would you say that it is more important than any of the other resources?

Dr. Rodda: Being a Hydrologist of course I would, and if you try and be objective about it of course we cannot survive without water, just as we are able to survive without some of the other things we have as part of our everyday life. For instance, we could change our way of living so that we walked or cycled everywhere rather than using motor cars or we could use public transport. But we need a certain amount of water everyday to drink, to use for energy purposes and so on.

In the average day I believe it is about three hundred litres that the people in Western Europe consume or use in various ways. On the other hand, if you are on a life raft in the middle of the Atlantic, you could get away with as little as a litre a day and this is the sort of amount of water that people have in the least developed countries. Those countries are suffering the worst of the problems of water.

Dr. Moore: Nevertheless there is much feedback that we ought to take the water problem more seriously than we are doing. Is that not so?

Dr. Rodda: I think the difficulties of the future water scene are not really considered today. Perhaps we have been taking too much account of problems like climate change, hazardous wastes, and radioactive waste problems and not enough about water. There are very serious consequences as a result of the population explosion which are likely to unfold as the next century continues. You can see today in many parts of the world where water is in short supply, particularly the semi-arid areas and in the rapidly expanding urban areas of the third world, where there simply is not enough water for the population at the present.

Dr. Moore: You mention climate change. Does climate change affect water?

Dr. Rodda: Oh yes. Unfortunately the global models do not yet predict very well what will happen to the precipitation regimes. But you can anticipate that in some areas there will be less rainfall and probably more evaporation so that less water would be available for supply purposes.

On the other hand in other areas there may be more rainfall so that there may be more water available. Unfortunately of course you also get the flood problem and you could have an increased risk of flooding in many areas as a result of climate change. But it is not all loss and it is not all gain. The impact of climate change will be very unevenly distributed around the world. We do not really know how this will work out. But perhaps more important than climate change is the likelihood that the population of this planet will increase to about ten billion by say 2050. The question is where is all the water coming from to meet the needs of this increase in population?

Dr. Moore: So we are not only going to be confronted with energy poverty but water poverty. What are the yardsticks for maintaining good water levels for supplying people with the water they need in all the areas you mentioned such as for drinking, for sanitation?

Dr. Rodda: Standards of course are what we set to achieve in countries like Switzerland. Standards in terms of reliability of supply for drinking in terms of the quality of that water, but it will be extremely difficult to see those standards extended to the whole world in the circumstances that may unfold in the next century. Of course it would be very laudable if we could achieve them. But I would think it would be very unlikely. There simply will not be enough water in many parts of the world to meet the needs of the expanding population. Particularly in vast urban areas places like Mexico City and in many of the other countries of the third world where we expect there will be some 20 or 30 cities with populations in excess of twenty million.

Dr. Moore: Much research is to find clean, renewable energy sources. Will water play a role in those? For instance, the controlled nuclear fusion energy source announced a couple of days ago?

Dr. Rodda: Water is needed for the generation of power not just hydro-electric power but to generate electricity by thermal and nuclear means a very clean source of water is needed for the boilers which generate the steam which powers the turbines. Equally water is needed to cool this pure source of water so that it can be used again.

Now the exact means of generating the power from nuclear fusion I am not certain of. But if the power is linked to generation through the conventional boiler system and the use of steam, then obviously a lot more water will be needed for those purposes. But if I may come back to the role of the Hydrologist I think it is important to recognise that the Hydrologist is in a sense like the banker.

You use money. Everybody uses money for their different transactions. The Hydrologist is the person who can tell you how much money there is in the water bank. He can say whether these activities are viable because of the presence or absence of sufficient water resources. He, or she, is that person who can tell you whether the river flows are likely to sustain development; whether the ground water is available for pumping for irrigation. He can say whether these water based activities are then sustainable.

If a river's flow dwindles in its natural course then it is obvious to everybody that activities that have been based on the abstractions of this river water can not be sustained and those down stream will suffer considerably. You have plenty of examples of these activities where the Hydrologist is in a very good position to say whether these activities are sustainable. Equally, he can through his monitoring of river water quality and ground water quality, indicate whether pollution is making sources less available than before.

So these activities which are bound up with the operation of hydrological networks and assessment of water resources and monitoring the quality of those waters are extremely important in terms of the current concern for the environment.

Dr. Moore: I am sure that research plays an important role?

Dr. Rodda: Yes. Hydrologists and those associated with the science have for some time been studying the changes in the hydrological régimes that result from changes on the land surface. When you build a city or extend an urban area, you watch the flow of water from paved surface into the rivers and streams that drain the locality. In some instances you speed up the flow of water and you alter its chemical characteristics. Now much research has gone into what these changes are and models are built so that you can forecast more precisely the results of say cutting down a forest or putting a single crop cultivation in a large area. In the tropics for example, establishing tea plantations instead of the native forest.

A lot of work has gone into these areas and information is available from the research conducted which will show the results of these changes. So these are very important to consider in terms of the current concern for the environment and changes in the landscape where they are taking place.

Dr. Moore: Who owns water resources? It seems to me that water is going to be a scarce product and will become a commercially interesting product. Therefore for the average citizen it is going to cost more to have access to water. Would you agree?

Dr. Rodda: Water is relatively cheap. In most developed countries it is becoming more expensive. In developing countries, for instance in cities like Madras and others where water supply for household is based on water carriers, the cost of this water is extremely high by comparison with what we pay in Switzerland.

You asked who owns the water. In general it is governments who own the water or the state or provincial governments. In some countries, if you want to use some of this water, usually you have to get a license or some agreement from the government to abstract it. If you are a company interested in selling water, then you have to get an agreement from the government which allows you to abstract the water. Then of course you have to store it and pipe it to the people who want to buy it from you. There is a well developed structure for water supply in many countries at the present time. Some based on private companies, some based on public companies but the tendency I think is to put more emphasis on the private element these days rather than on the public or nationalized element.

Dr. Moore: If water is being moved from one location to another location where it is needed, is there not a danger of changing the ecological environment?

Dr. Rodda: Certainly large scale water transfers and small scale water transfers are important in this respect. You have only to consider how the building of reservoirs in many upland areas for the supply of cities and towns in the lowland areas has influenced the land use in those areas. Access to the reservoir gathering grounds is restricted because health problems might develop. So you have a change resulting from that but this is small scale effect. You probably can remember the concern that was expressed about the possibility of diverting some of the rivers in the Soviet Union.

There are a number of large rivers that flow towards the Arctic and the proposals were to divert some of this water towards the Caspian Sea. There was a large research project which was conducted by our colleagues in the Soviet Union to investigate the effects of these diversions. Some of the effects were shown to be rather small. Others were shown to be quite important but I think the weight of opinion in the Soviet Union led to these projects being abandoned or at least they were delayed so at the present time I have not heard of progress in this area from colleagues there. But obviously the public perception of transfers of water and their effects on the community and environment is an important consideration.

Dr. Moore: Equitable and adequate water supply for all people especially those in developing countries is the concern of a major conference which will take place in January, the International Conference on Water and the Environment, sponsored by several United Nations Agencies and the United Nations. What can that Conference contribute? What kind of mechanism could be proposed to achieve the goal of equitable and adequate water supply for everybody?

Dr. Rodda: Many Agencies have programmes in water and in many national governments there is not a forum for discussing the problems of fresh water on an international basis although the United Nations Committee on Natural Resources discusses fresh water problems once every two years. These are relatively infrequent discussions and perhaps at too low a level. Yet we all know that the potential exists for many difficult and explosive political situations especially within shared river basins where nations who are anxious to conserve and protect their own supplies perhaps at the expense of their neighbours. These situations are existing in some areas and there is the potential for them in other areas.

Then the United Nations should consider these difficulties and possibly raise the level of discussions of fresh water and the fresh water issues that involve not only those in the shared river basins but in terms of pollution of inland waters and marine pollution as well and many other factors like these. The level of discussions should probably be raised and the General Assembly might consider it fit to address fresh water issues at an appropriate time in its debates.

Now a mechanism for preparing for these discussions is one of the things that may come out of the conference in Dublin and of course there are many others.

Dr. Moore: Are these the main topics that you will be looking at in Dublin?

Dr. Rodda: The conference has been requested by the preparatory committees for the United Nations Conference on Environment and Development and will take place in Brazil in June 1992. The Dublin conference has been asked to look at the mechanisms for international collaboration and cooperation and to discuss water problems. So it is incumbent on the Dublin conference to make proposals as to how best to accommodate these fields of cooperation, collaboration and discussions of fresh water problems. So one of the recommendations could be an improved mechanism for consideration within the United Nations System.

Dr. Moore: Presumably the recommendations from that conference will go forward to the United Nations Conference on Environment and Development? At Brazil in June 1992?

Dr. Rodda: Yes. That is right.

Dr. Rodda: I know many other issues are going to be discussed in Dublin - drinking water and sanitation is one, water for agriculture is another, the problems of how to make sure that water resources are continually assessed is another and of course that is perhaps the closest to my heart because it brings into focus the roles of the hydrological services of the world that I mentioned earlier.

Over the last fifteen years from investigations that the World Meteorological Organization carried out with UNESCO recently, we found that the capabilities of National Hydrological Services have gone down considerably especially in developing countries. We are less able now to assess what water we have available for use than we were fifteen years ago. Because instruments have been degraded, because the staff of the hydrological service has left for better things in perhaps private industry, and because governments have generally reduced funding for their activities.

Dr. Moore: So you have to highlight some of these issues and draw the attention of the world to it at your conference in the near future. For listeners who would like to know more about this conference they should contact the Conference Secretariat at the World Meteorological Organization at Geneva. Thank you very much, Dr. Rodda. This is Sylvia Moore calling you from the Studio at the Palais des Nations, at the United Nations, Geneva.
