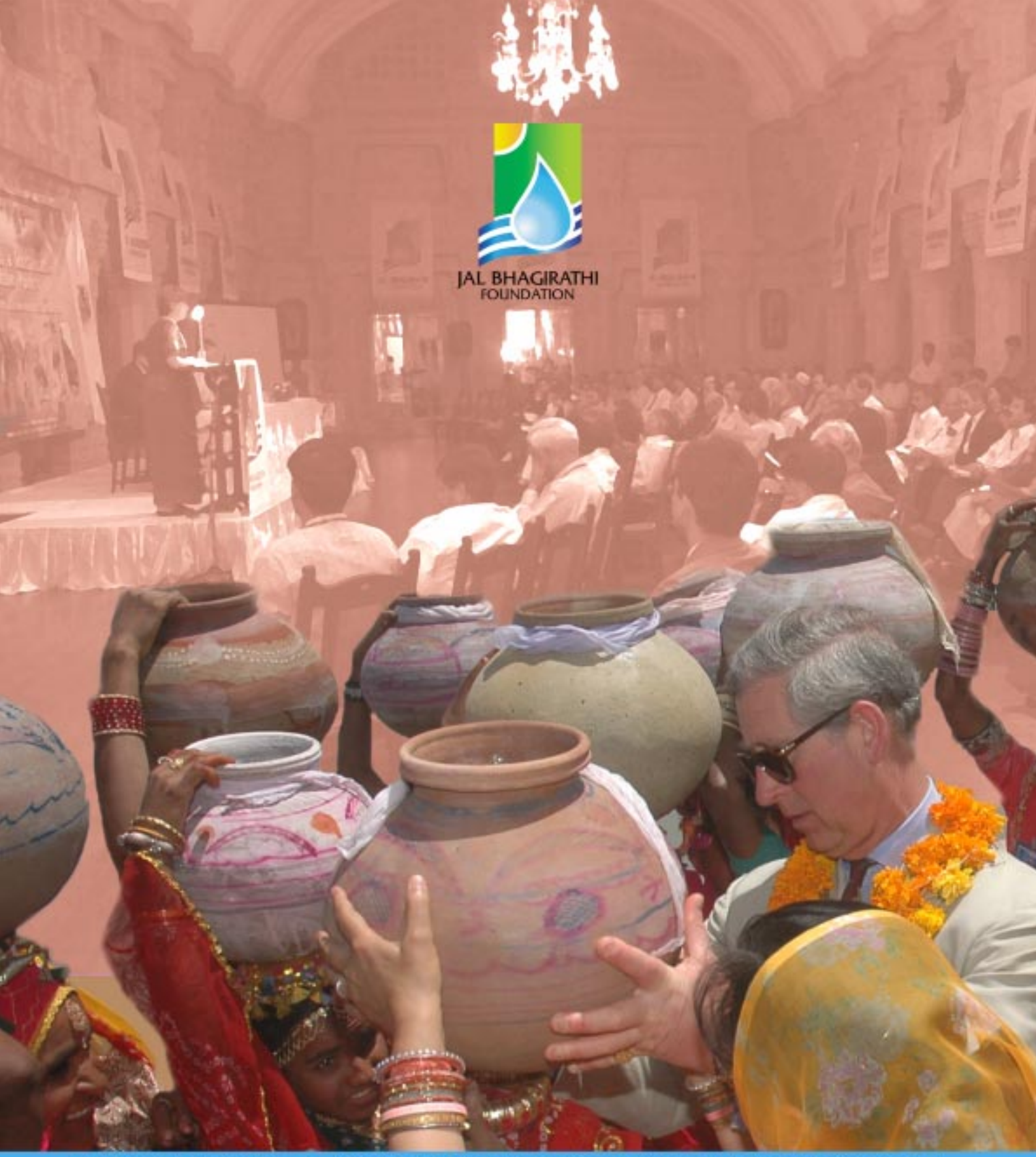

JAL BHAGIRATHI
FOUNDATION

TOWARDS A SUSTAINABLE WATER FUTURE

Strategies to address competing claims

unicef

ITALIAN COOPERATION

UNDP

Sida

JAL BHAGIRATHI FOUNDATION

Jal Bhagirathi Foundation (JBF) was instituted as a Trust on January 15, 2002. The organization has taken up the responsibility of creating an environment of Gram Swaraj – a dynamic, self-reliant and responsive village community, positioning its work and learning at the national level for further replication thus contributing towards the ongoing debate on pro-poor policies and the creation of village republics.

The strategy of the Foundation involves ecological restoration, economic revival, strengthening democratic governance through village-level institutions, developing a cadre of local volunteers, networking with government agencies, research organizations and non-governmental organizations to facilitate policy reforms.

The organizational structure is a unique integration of a village-level volunteers' pool and a professional resource base, both complementing each other's effort. Presently, the village-level volunteers are being assisted by the professional and technical workforce to effectively adopt the right-based approach by sensitizing and mobilizing communities, and by planning, implementing and monitoring development interventions for strengthening democratic decentralization in the region.
JBF is proactively functioning in Jodhpur, Barmer and Pali districts.

The Foundation has a Board of Trustees comprising four members:
HH Maharaja Gaj Singh is the Chairman, Shri Rajendra Singh is the Vice Chairman,
Shri Prithvi Raj Singh is the Managing Trustee and HH Maharani Hemlata Rajye is a Trustee.

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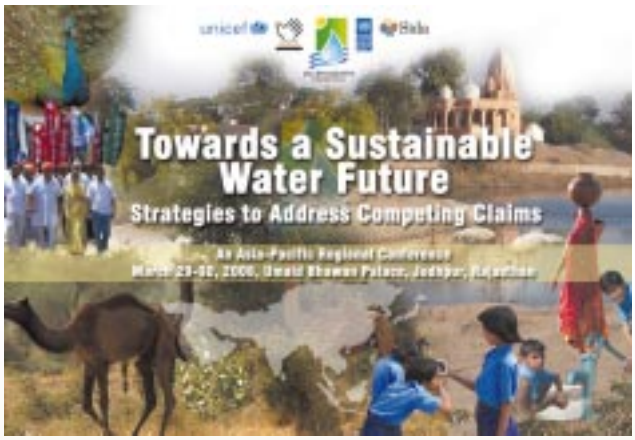
1

Conflicts, Resolutions and Solutions

TOWARDS A SUSTAINABLE WATER FUTURE

Water has been an essential element of civilization and today, water conflicts stand to put civilization at risk. Once empires were founded around rivers; soon, empires are likely to fight over them. Water, previously an object of worship, is now, in many cases, a commodity for sale. The importance of water has never diminished – from the time when temples were dedicated to Poseidon to this age when dams and desalination plants stand as testaments to our unquenchable thirst for water.



In the past, nature was equally a nurturer and a tyrant. Man was not only dependent on nature, he was at its mercy. While nature provided man with all the elements he required, it could also destroy his life, his work and his past in one fell swoop.

Water has been an essential element of civilization and today, water conflicts stand to put civilization at risk

As man progressed, his control over the elements increased. Rivers could be channelised and storms predicted. When man began to understand, and to some extent control, the elements, especially water, he stopped fearing them. Sadly, as he lost this fear he also began to lose respect for all that nature had provided him with, forgetting that the seas may be conquered, but the earth cannot be made to yield more water.

All ancient civilizations realized the importance of conserving water, and they had their own methods of ensuring the efficient and careful use of water – the mainstay of the Indus Valley Civilization was the extremely advanced water management techniques – wells, lift and surface canals, water tanks and irrigation works. Today, we are realizing the importance of water conservation anew. However, we are realizing it in the context of a world which is consuming more water than it is replenishing, which has not decided what is the most appropriate way of viewing water, and where rivers do not just flow through the mountains or on the plains, but through masses of legislation, over land deals and around private leases. We are realizing this in a world where there are as many water conflicts as there are water problems.

Water conflicts bring into view larger issues and raise bigger questions – questions dealing with social equity and stability, the meaning of development and the nature of rights, as there is no one who is not affected by these conflicts. Water, perhaps, is the best mirror of inequity and injustice in a society. These conflicts do not just reflect the water situation of a country, but also its past, culture and economy. Perhaps the first of these conflicts is over how is water viewed – as a need or as a right ? As a property or a resource? Every society has its own way of viewing water and what works for one culture may be a cause for conflict in another.

In some societies, applying market laws to water may result in a more restrained and careful use of water. However, in another scenario, it may lead to people being denied an irreplaceable necessity. The viewing of

Organizing Agencies

JAL BHAGIRATHI FOUNDATION

Jal Bhagirathi Foundation was introduced as a trust on January 15, 2002. The organization has taken up the responsibility of creating an environment of gram swaraj – a dynamic, self reliant and responsive village community, positioning its work and learning at the national level for further replication, thus contributing towards the ongoing debate on pro poor policies and the creation of village republics.

The Jal Bhagirathi project "Vulnerability Reduction through Community Management and Control of Water in the Drought Prone Areas of the Marwar Region" is a multi-dimensional programme, intending to make a significant impact on poverty alleviation, drought proofing and women's empowerment to ensure sustainable livelihoods and finally impact policy approaches both at the State and National level.

This conference was a continuation of initiatives taken by the Foundation to advocate institutional and policy reforms in bringing together practitioners and policy makers to exchange learnings.

THE ITALIAN DEVELOPMENT CORPORATION

The Italian Development Corporation's activities in India are handled within the framework of the "Indo-Italian Cooperation Agreement" signed by the two Governments on Feb. 1981. Since then, the Directorate General for Cooperation to Development (DGCD), a Division of the Ministry of Foreign Affairs, has financed several projects in the country.

In 1999, the Italian Parliament reiterated India's status as a "Priority Country" for Italian Cooperation in the Asia-Pacific region. By the end of the same year, the "Development Cooperation Office" was set up as a part of the Italian Embassy in New Delhi to coordinate and strengthen development cooperation activities between the two countries.

The programme are executed through bilateral, multilateral and multi-bilateral channels (e.g. financial support to UNDP, UNIDO, WHO, UNODC, UNICEF, ILO). Besides these, funds of the Italian Government are channeled directly to Italian NGOs working with local Indian counterparts. Furthermore Italian Regions, Municipalities and Provinces have been sponsoring numerous development projects in India through the Decentralized Cooperation mechanism. The most active ones in India are: the Region of Lombardy, the Municipality and the Province of Milan, the Autonomous Province of Trento and Bolzano, the Region of Sicily, Sardinia, Liguria and Tuscany.

The Italian Development Corporation's concern for the water situation in the world and their commitment to addressing more effective water management in the drought stricken regions of the globe is expressed through their support of institutions such as the Jal Bhagirathi Foundation to upscale grassroots experiences into models of replication in developing countries.

UNDP

UNDP is the UN's global development network, an organization advocating change and connecting countries to knowledge, experience and resources to help people build a better life. UNDP is on the ground in 166 countries, working with them on their own solutions

to global and national development challenges; as they develop local capacity they draw on the people of UNDP and its wide range of partners.

The UNDP in partnership with the Jal Bhagirathi Foundation is working on the project-"Vulnerability Reduction through Community Management and Control of Water in the Drought-Prone Areas of the Marwar Region" which supports social mobilization efforts and strengthens people's organizations for sustainable natural resource management. It also attempts to ensure women's empowerment and advocates community rights over common property resources. UNDP has been instrumental in actively supporting the advocacy efforts of the Jal Bhagirathi Foundation and partnering to organize better donor coordination in Rajasthan to promote water policy reforms.

One of the most important agencies of the UNO, UNICEF – The United Nations' International Children's Fund, is devoted to the cause of welfare programmes for women and children around the world, particularly in developing countries.

UNICEF has been working in India since 1949. The largest UN organization in the country, it is currently implementing a $400 million programme from 2003 to 2007. What makes UNICEF unique in India is its network of ten state offices. These enable the organization to focus attention on the poorest and most disadvantaged communities, alongside its work at the national level. Women and children are able to access basic services such as clean water, health visitors and educational facilities, and these services are of a high quality. At the same time, UNICEF reaches out directly to families to help them understand what they must do to ensure their children's future. UNICEF uses its community-level knowledge to develop innovative interventions to ensure that their initiatives bear fruit.

UNICEF and The Jal Bhagirathi Foundation have joined hands to strengthen the traditional water management techniques for ensuring water conservation through rainwater harvesting, sanitation and empowerment of the community for drought management.

The Swedish Agency for International Development Cooperation, SIDA, is a government agency under the Ministry of Foreign Affairs. SIDA is a global organization. Its head office is in Sweden and it has field offices in some 50 countries. SIDA's goal is to contribute to making it possible for poor people to improve their living conditions. SIDA's support to health, education and culture has the aim of making sure that more citizens are active and committed. Like other Swedish government agencies, SIDA works independently within the framework laid down by the Swedish Parliament and Government. They specify the budgets, the countries with which Sweden - and thereby SIDA - is to workwith, and the focus of Swedish International Development Cooperation.

SIDA has been a major donor in promoting traditional water management in India by supporting eminent institutions such as the Tarun Bharat Sangh and the Centre for Science and Environment, amongst others. They have once again come forward to co-partner the Jal Bhagirathi Foundation in organizing this conference to better understand water conflict management.

water as a right may ensure its being provided to everybody but could also result in over exploitation and misuse. Viewing water as a property could be a step towards better management of water, yet could also be a cause of monopolization of water resources. As a resource, water would be available to all those who have a need for it, yet it would be difficult to prioritize these needs.

Just as water conflicts are not the same in every region, their resolutions can also not be the same. However, what is common in every region is the need to conserve water, to replenish it and to distribute it fairly. Water cannot be managed solely by a community, a government or an individual. All three – governments, communities and individuals need to work together if they are to succeed in creating a plan for water management which will serve them well. The future of water is not an issue separated by state or country boundaries, or divided by societal and religious differences. These are lines drawn by man and are not understood by rivers, oceans and rainfall. A river polluted by one region does not become pure when it crosses a boundary into another, and while methods of water management may be shaped by religion, society and government, they cannot be restricted to the boundaries set by these institutions. Water management by everybody at all levels is a necessity that cannot be denied by anyone, as it is integral to a sustainable water future.

A sustainable water future is not a destination we can

> A river polluted by one region does not become pure when it crosses a boundary into another

reach, it is a state which we must create and maintain, as the world is evolving and will continue to do so. The water management plans of hundred, fifty or even twenty years back are inappropriate today. In the same way, the resolutions adopted today will have to be constantly revised and altered with every new invention, every new movement and every little change in attitude. When with the passing of every day there is a change in the very world for which we have to create a water future, we cannot afford to be complacent or lax. A sustainable water future is not only requires an awareness of the water situation and the means to tackle the water problems of today, but also the ability to predict how changes in diverse fields will affect the water situation, and whether these changes will be positive or negative.

All the development which has taken place till today has been the product of immense talent and skill. It is required that this talent and skill be channelised into the creation of a sustainable water future, as without the fulfillment of this most basic necessity, not just development, but existence itself is impossible.

> A sustainable water future is not a destination we can reach, it is a state which we must create and maintain

The Setting – Speakers, Subjects and Venue

The conference " Towards A Sustainable Water Future – Strategies to Address Competing Claims" was held at Umaid Bhawan Palace, against the majestic backdrop of the Mehrangarh Fort, in the city of Jodhpur, known worldover for its historic traditions of water conservation, ingenious and life sustaining step wells, and awareness amongst the people about the importance of water. There could not have been a more appropriate setting than this place, where it is possible to view both problems and solutions, conflicts and resolutions. A place where one can see the debilitating absence of water and the inspiring presence of innovative methods to conserve and replenish it.

This conference brought together people with ideas and experiences as diverse as themselves – from the Prince of

Wales who carries compassion in his heart wherever he goes, to the Maharaja whose concern for the people is expressed through his efforts to help them, from the bureaucrat who shapes the policies of today, to the farmer who is affected by them, from the NGOs and activists working at the grassroots level, to the international agencies supporting them – the conference had delegates from places far and near – Israel, Maharashtra, Pakistan, Orissa, Sri Lanka, Kerala, Thailand, Afghanistan and many more.

The participants deliberated on the four thematic sessions of the conference –

- Resolution mechanisms for sharing water between rural and urban areas
- Resolution mechanisms to manage competing inter - sectoral water demand
- Resolution mechanisms for water management - policy implications
- Integrated water resource management - negotiating user water demands

The passionate and enlightened discussions of the participants were interwoven with the colourful and vibrant folk traditions of the region. The inauguration took place through the offering of water to the Tulsi plant, symbolizing the nourishing and nurturing power of nature, and was followed by the singing of folk songs showing awareness about water and water issues ingrained in the people of the desert. A gathering was also organized at Mehrangarh Fort, where all present could command spectacular views of this ancient and hardy land.

The conference was an effort towards retaining the wisdom of ancient cultures, which has developed and evolved over centuries , while finding solutions to the problems which have multiplied and increased in magnitude in recent years.

2

WELCOME ADDRESS DELIVERED BY

HH Maharaja Gaj Singh of Jodhpur, Chairman, Jal Bhagirathi Foundation

It is my privilege to welcome here HRH the Prince of Wales, HE Antonio Armellini, Dr. Maxine Olson, Mr. Carl Gustaf Svensson and all participants and delegates to this conference.

I am honoured that HRH the Prince of Wales has come back here to us in Jodhpur. He had previously visited the Tarun Bharat Sangh. He is someone who has a keen interest in charitable works, and his charities and trusts range over a number of issues and regions. He has 350 charities which he attends to in England and we were fortunate to have been his guests at Windsor Castle last year. Water and Rajasthan are two of his passions and he has

hosted and helped a number of NGOs in India, amongst them the Barefoot College, Jal Bhagirathi Foundation, Tarun Bharat Sangh, JVF, Wells for India, INTACH, etc. He is someone who, in his position, is able to influence things, and he is deeply concerned about the traditional aspects of life and the environment, things that are very close to my heart too. Sir, a very warm welcome to you here today.

This conference is going to address concerns on the increasing demand of water and the global shortages that we are witnessing. Today, the issues that concern us all are access to water, and control over it. By 2025, we are told that 40 percent of the world's people, more than 3 billion, may be living in countries experiencing water stress and chronic water scarcity. This imbalance between demand and supply has resulted in a crisis that is leading to conflicts – these conflicts can be broadly divided into three groups – the conflicts arising when water is transferred from rural areas to meet the demands of urban settlements, those created by competing intersectoral water claims where different users

This conference is going to address concerns on the increasing demand of water and the global shortages that we are witnessing

of water come into conflict over limited water resources, and the conflicts triggered by the absence of clear policy and regulations.

It is the endeavour of this conference to discuss the experiences of practitioners from different sectors, to debate on resolution mechanisms and to prepare an abstract that may be used as a reference by the

practitioners and policy makers working in the water sector. Closer to home, those who are familiar with the crisis here, and we have actually witnessed water crises recently– there was police firing in Sriganganagar, where the demand of the farmers was to release water from the canal immediately for their crop; from the Bisalpur town dam, which was largely made for irrigation purposes, water was diverted because Jaipur was in a crisis; closer to home in Jodhpur, in Mathania and Ransigaon, the water tables have dropped so low because in earlier days, before the canal, a lot of the groundwater was diverted to Jodhpur. The pollution of the river Luni is also a very disturbing factor – dyeing and printing industries are discharging their effluents into the dry river bed, which is polluting not only the river bed but also the wells that are around.

These are some of the issues we have to address today. The JBF has been actively working in the districts of Jodhpur, Pali and Barmer to solve the drinking water problem through traditional systems of rainwater harvesting which are more resilient and responsive to the changing needs. With the support of the Italian Development Corporation, the UNDP, and the UNICEF, the JBF has been working in approximately 200 villages in the Marwar region for the past four years and has been successful to some extent in solving the drinking water problems in these areas.

It is heartening to know that when the UNDP conducted a mid term evaluation of the project activities, it emerged that during the short span of time, there has been a 95% increase in the availability of drinking water for humans and livestock – 97.6% households have been benefited by our projects and 95% of the desert community has also benefited.

I would like to share with you that JBF is not restricting its activities to only Rajasthan and India. We are also taking part in a number of conferences, and now we have gone global. The JBF participated in the water fair recently concluded at Mexico at the World Water Forum. It was the only Indian exhibit at the fair and there were approximately 3000 exhibits from all over the world. The stalls became a conclave of discussions between delegates from neighbouring countries like Pakistan, Bangladesh and Sri Lanka, and provided a vibrant environment for discussion of water related issues from the different regions. It also became the meeting point for all the Indian NGOs and in true Rajendra Singh style, he held a meeting there sitting on the floor and all the other NGOs joined him and they had this meeting in Hindi which caused a great amount of stir in the conference as the media and others wanted to know what they were talking about.

Finally I would like to thank all of you present here for your interest in this field and of course the Italian Development Corporation who are supporting us, the UNDP for their help throughout our work – past, present and future, the UNICEF, and of course the SIDA, for co-hosting this important event of the JBF.

Once again, I welcome you all here today and hope that this conference will throw up some very interesting and problem solving steps ahead so that we can address this very pressing need of everybody for water. Thank you so much.

The JBF has been actively working to solve the drinking water problem through traditional systems of rainwater harvesting which are more resilient and responsive to the changing needs

Speech by HRH The Prince of Wales

Your Highnesses, Your Excellencies, Ladies and Gentlemen, I cannot tell you what a pleasure it is for me to be here in Jodhpur. I am so grateful to His Highness for inviting me to speak. I have taken what interest I can in this whole subject of water conservation and specifically in what His Highness has done through the Jal Bhagirathi Foundation. I accepted His Highness's invitation and I was determined to come because I mind deeply about the future of my children and my grandchildren.

As some of you may know, I have had the privilege today of going with Their Highnesses to the village of Artiya to see at first hand the issues that you have been addressing in your conference. Three years ago I visited Bhaonta with Rajendra Singh and Bunker Roy both of whom I have admired for over 20 years and who show the need to work at the local level. Until you have seen the extraordinary resilience and fortitude of small communities in desert areas, struggling to survive with the most meagre of water resources, you cannot begin to understand the urgency of these issues.

What particularly struck me today was the way in which small community-based projects, helped but not dictated to by the international agencies, can make such a difference. It is in this way that the Jal Bhagirathi Foundation, and other organizations represented here today, have been transforming so many people's lives. I have been enormously impressed by the work that you are doing, and wish you every encouragement with it.

I would not presume in such an erudite gathering to quote the terrifying statistics that underpin the global water crisis. Nobody needs reminding that water is essential to life. The falling water tables, the unreliability of piped supplies, the huge number of communities with no access to clean water and sanitation. For many communities across the developing world, the provision of clean water is the first and most essential step out of a life of poverty. These challenges, coupled with the ever-growing demands of cities, and of our modern lifestyle for ever-increasing quantities of water, are putting a truly unsustainable strain on rapidly-diminishing resources.

I am particularly pleased that you have been addressing the critical issue of conflict over water resources. This, at so many levels, afflicts people's lives – and in my view it poses a very real, and growing, threat to local and even regional security. I spoke at my old university in Cambridge about this subject 13 or 14 years ago. Addressing these conflicts, and addressing the whole issue of conserving and valuing water as a resource, has to start at the micro-level. I have always been so inspired by those struggling at the micro-level - it is worth listening to them.

In the UK and elsewhere I have in my own way tried to empower people at the local level. If villages can work together to address their water needs, districts, states and nations can follow their example. Simple traditional systems such as water harvesting, check-dams, johhads and ponds, can relieve the pressure on the river systems and the ground water from which so many conflicts stem.

I wish I had a PhD in Common Sense as that is what is needed to solve most problems. I do believe more than anything else that we need to rediscover traditional wisdom in all these areas. This is of crucial and fundamental importance. People have developed an extraordinary understanding of how to work in harmony with nature. So I make a plea to you here today.

Simple traditional systems such as water harvesting, check-dams, johhads and ponds, can relieve the pressure on the river systems and the ground water from which so many conflicts stem

Speech by H.E. Mr. Antonio Armellini, Italian Ambassador to India

Firstly, voluntary organizations working in this field in India and around the world need to come together and articulate with one voice the need of communities such as Artiya, the village we saw today. Together they should also create much greater awareness of the depth and breadth of traditional knowledge and wisdom.

Secondly, governments and the private sector need to work more closely with organizations such as the Jal Bhagirathi Foundation in full and listen to their advice. We need to create an environment which fosters and promotes such organizations and schemes. We need to ensure that successful community-led programmes are not negated by the more unscrupulous amongst us

without proper recompense and due recognition of such programmes and what they have done to regenerate individual communities.

If our children and grandchildren are to have a secure future on this planet, the proper stewardship of the world's water resources simply has to be continually addressed. I wish you every encouragement with the splendid work that you have been doing, and which you are now taking forward.

Your Royal Highness, Your Highness Maharaja Gaj Singh, Your Highness Maharani Hemlata Rajye, Shri Rajendra Singh, Shri Prithvi Raj Singh, Dr. Maxine Olson, distinguished guests,

I am most honoured and pleased to participate in the Asia-Pacific regional conference: "Towards a sustainable water future – Strategies to address Competing Claims", organized by the Jal Bhagirathi Foundation.

The past decade has been a witness to a massive increase in the exploitation of underground water by farmers that unfortunately will never be replaced. This increasing dependence on water extracted from deep underground in a manner that is unsustainable is indeed threatening and it seems that nobody has seriously worried about its effects over the long period.

Today the world grows twice as much food as it did a generation ago, but it uses three times as much water to grow it. Two-thirds of this water is meant for irrigation purposes – massively unsustainable in future.

The groundwater boom is turning to bust. Fifty years ago in Gujarat, bullocks driving leather buckets could easily lift water at 10 metres from open wells. Now instead even tube wells dug at 400 metres are running dry. Millions of farmers are migrating to urban slums and are compelled to work as construction workers and labourers across India. Given the rate at which the water tables are dropping they are left with limited choices.

From China to Iran and Indonesia to Pakistan, rivers are running dry under the impact of increased exploitation. Millions of small farmers have bought pumps and are sucking water from beneath their fields. India, China and Pakistan are estimated to account for more than half the world's total use of underground water for agriculture.

Today the world grows twice as much food as it did a generation ago, but it uses three times as much water to grow it

The consequences of the eventual, inevitable failure of underground water could be catastrophic. It is a slow-burning drought disaster that will one day affect hundreds of millions of people. Yet so far it has not registered on the radar screens of governments or aid agencies as much as it should have.

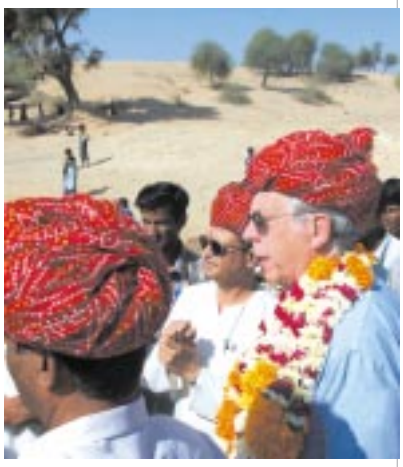
International strategic studies are showing that in the near future there is the likelihood that wars will be fought on water issues. Conflicts will arise between rural and urban areas, between states and between regions of the world. The Himalayan reservoir only is providing water for more than 500 million people.

This certainly will not happen everywhere at the same time. Each aquifer has its own countdown to destruction. As each bubble bursts, it will undermine the world's ability to feed itself. This isn't just a crisis for the developing world. According to recent calculations, a tenth of the food needs of the world is grown using underground water that is not being replaced by rainfall.

Countries where farming does not rely on artificial irrigation, have little idea of how much water it takes to grow our food. It takes between 2000 and 5000 litres of water to grow 1 kilogram of rice, for instance. That is more water than many households use in a week, for just a bag of rice. It takes 1000 litres (of water) to grow a kilo of wheat, 11,000 litres of water to grow the feed for enough cow to make a quarter-pound hamburger and between 2000 and 4000 litres for that cow to fill its udders with a litre of milk. Clothing only adds to the hydrological pain. You could fill 25 bathtubs with the water that grows the 250 grams of cotton needed to make a single T-shirt. One peculiarity of India's water is that a great deal of it neither reaches rivers nor collects underground. The monsoon rains evaporate in the sun or run away in flash floods. So one solution being widely discussed all over the globe is to catch the rain. "Rainwater harvesting" therefore appears an effective response to an environmental challenge in the present circumstances.

Rainwater harvesting has been pioneered in India, yet it may offer solutions much more widely. In countries as far apart as Mexico, Peru, China and Tanzania, governments and communities are experimenting with similar schemes that avoid the need for large infrastructure, empowering communities in water management in villages, and restore some ecological balance, because they can only tap the rainwater that actually falls.

A major factor is effective control at the local community level. Few individual farmers can successfully catch their own rain and store it underground – and this quickly dissipates into the wider aquifer. But when an entire village does it, the effects are often spectacular. Water tables rise, dried-up streams flow again and, with more water for irrigation, the productivity of fields is transformed. By some estimates, 20,000 villages in India are now harvesting their rains. Of course there is no more water than before, but local harvesting does seem to be a key to using it more efficiently and sustainably. It might just rescue the world from hydrological anarchy.



> Each aquifer has its own countdown to destruction. As each bubble bursts, it will undermine the world's ability to feed itself

I am proud to note that the UNDP/JBF project for "Vulnerability Reduction through Community Management and Control of Water in the Drought-Prone areas of the Marwar Region", which is now in its second year of activity, is supported by my Government. This is both for Italy and India a very prestigious project; it entails a total outlay of approximately 3 million Euro, and is part of the continued engagement of the larger UNDP-Government of India "Natural Disaster Risk Management Programme".

The Water-harvesting project in Rajasthan holds such relevance to the current scenario that we would like to ensure sustainability of the programme, by continuing our support also in the future.

I take this opportunity to thank Jal Bhagirathi Foundation for raising awareness of issues on water harvesting through the organization of this important event.

Thank you.

Speech Delivered by Dr Maxine Olson, Resident Representative, UNDP, India

Your Royal Highness Prince Charles,Your Highness Gaj Singh ji, distinguished delegates from Afghanistan, Pakistan, Iran, Israel, Sri Lanka, United Kingdom and India.

All of us who are gathered here are fully aware of the importance of water – for health, for livelihoods and for the condition of the environment that sustains us all. I am pleased to speak to you this morning on behalf of the United Nations, and specifically the UN Development Programme and UNICEF – two organizations which together represent the breadth of the issue within the United Nations – from health and sanitation to livelihoods and environment. We are pleased to partner together to support this conference. I also wish to acknowledge the support of the Government of Italy, who makes UNDP's support possible.

In recent years, water related interactions throughout the world have become increasingly hostile, in both water scarce and water rich regions. Rising population, disregard of environmental resources and mismanagement have put a tremendous pressure on water supplies. As the claims intensify, the impact becomes severe on the poor in both urban and rural areas and particularly on women and children, who remain the predominant providers of water to the household.

In the past two decades, promotion of and support to community based management of natural resources, has demonstrated considerable success in sustainable use and management of these resources. In many places, strong and inclusive community institutions at local levels with awareness about their resources and rights have been able to resolve the competing claims internally.

However, the situation becomes more complicated when communities must relate to other stakeholders who are accessing the same source of water. It is here that sharp variations between interests, priorities, roles, responsibilities and accountabilities emerge.

Over the next two days, we will explore strategies for addressing competing claims on water. Governments, civil society and communities the world over are struggling to do so, and some promising strategies have begun to emerge.

> Rising population, disregard of environmental resources and mismanagement have put a tremendous pressure on water supplies

Approaches being recommended for managing competing claims and interests include both"hard" and "soft" options ranging from legal mechanisms, to participatory and consensus building multi-stakeholder dialogues, to specific water policy instruments. Conflict management in the water sector is an area which requires a great deal of work, on the ground as well as a wider sharing of lessons and experiences. As we begin the conference, may I suggest that we remember the following three fundamentals:

- At the micro level, where people live, we must prioritize – a minimum amount of water is essential for everyone. The quality of life and health must be first. Child and maternal mortality rates are too high, and can only be brought down if water is available for cleanliness. Sustainable livelihoods, within the capacity of the water supply over the long term, are also a high priority. Water for the poor farmer and herder is an essential ingredient of employment generation in rural areas
- Formal and informal institutions for governance will need to incorporate water conflict management roles and mechanisms and build their capacities accordingly to deliver on this account
- Finally, principles of participation, transparency, equity and non-discrimination will have to remain central to approaches and mechanisms that seek to find solutions to prevent, minimize and resolve competing claims

I will end on this note with the hope that we will all benefit from the deliberations during the next two days, and take back with us emerging good practices as well as areas that need our further attention.

On behalf of the United Nations, I thank you all for joining us and look forward to being part of the discussions.

Address of Mr. Carl Gustaf Svensson, Counseller and Head, Development Cooperation Section, SIDA

Dear friends,

At the outset let me thank you for this honour to say a few words in this conference on 'Towards A Sustainable Water Future: Strategies to Address Competing Claims'.

I would like to congratulate the Jal Bhagirathi Foundation for taking this initiative and bringing together this enlightened group of people to address the problem of water management that is gaining increasing importance and is a matter of great relevance to our common sustainable future across the world and in India.

It is gaining importance because, today, with rapid urbanization there is an increasing demand for water in the urban areas and increasing pollution. There are reports that increasingly farmers around the cities find it more profitable to export ground water to the cities and neighbouring towns than using it in farming. At the same time agriculture today needs far more support in view of the deteriorating situation in the rural areas.

I also think that ground water management poses the most difficult challenge today. It meets the drinking water needs of more than 80% of the Indian population. While rain fed agriculture is practised in most parts of India, over 60% of supplemental irrigation in Indian agriculture is from groundwater. And there are many parts of India where the groundwater levels are depleting to alarmingly low levels. Further, the presence of fluorides and arsenic in groundwater is putting the poor at a serious health risk. Sustainable management of groundwater, today, therefore is an imperative for sustainable livelihoods, particularly for the poor. Today the situation is such that there is an increasing demand for water in the face of decreasing availability mostly due to our inability to manage water effectively.

Sweden, through SIDA, in the past as well as in the present has financed several initiatives in water management. The famous MARK II hand pump, which significantly improved the drinking water situation in India and elsewhere is a result of joint Indo-Swedish efforts through UNICEF. Groundwater recharge has been observed in certain aquifers through simple rainwater harvesting techniques in Alwar, not very far from New Delhi. The origins of the Jal Bhagirathi initiative could be found in Alwar and I am pleased to note that they have further improvised on that initiative by Tarun Bharat Sangh.

> Sustainable management of groundwater, therefore is an imperative for sustainable livelihoods, particularly for the poor

Oxfam – Svaraj is analyzing the urban-rural competing demands on water in and around Bangalore. There are several other successful initiatives that focus on the management of water.

Management of this resource therefore needs innovative solutions which in turn require information about the rates of recharge in different types of aquifers, reasons for groundwater contamination and mitigation, and so on, which you are well aware of. At the same time, perhaps more importantly, it is about people getting together to identify innovative solutions in managing water.

There are several modern techniques to assess various aspects of groundwater for better management. Several Swedish institutions have been working in this field for many years and I am also pleased that several of our partners in India are attempting to build linkages with those institutions in Sweden.

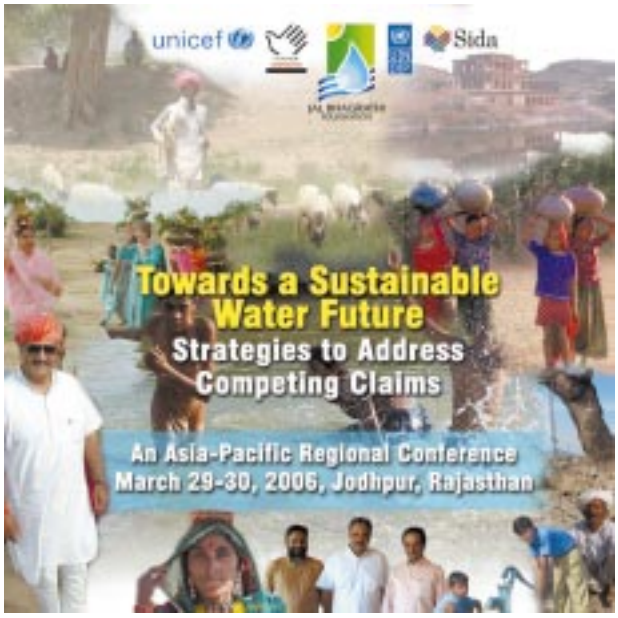
Sweden in accordance with the new country strategy for India puts increasing emphasis on technical cooperation and assistance where Indian and Swedish stakeholders could look for solutions to our common problems. It is a "shared responsibility". I will be pleased if this platform can germinate many Indo Swedish partnerships which can capitalize on each others' technical strengths.

Once again thank you for the honour and wish you all the best for a successful conference!

3

INTRODUCTION

Historically, development of all kinds has taken place in areas rich in water. As technology advanced, new methods of using water evolved, driving the development to greater heights, thus fueling the demand for water. Unfortunately, this development has had a lopsided emphasis towards extraction and use of water rather than replenishing and recharging it. Driven by the greed and profit motives, man has been using this abundant but limited gift of nature without a thought to the future. This disregard for the laws of nature has led to the situation becoming so precarious that the sceptre of widespread desertification and prolonged drought is looming large.



Development has had a lopsided emphasis towards extraction and use of water rather than replenishing and recharging it

Disregard for the future is not just evident in the increasing demand for water and its ruthless exploitation; even more blatant is the level of care shown in preserving the quality of water. The bulk of water which is used comes out as waste. It is the nature of this waste that is a cause for concern. The urban domestic sewage, the noxious industrial effluents, the insecticide and chemical laden agricultural seepage, all have resulted in the deterioration of the quality of water making it unfit not just for human consumption but even noxious in many places.

Large centralized water distribution system juxtaposed against decentralized community based local water conservation systems

Nafisa Barot –
Uthan, India

In most cases, social and political reality have been responsible for the conflict of interests, as decisions based purely on merit require no debate or justification. The government's arguments in favour of large projects list their benefits as a larger reach and standardization, along with the ability to cater to larger areas. In the face of these policies, the room for community specific projects centering around local people is little.

However, large projects seem to benefit only the powerful, and to solely serve their needs, these people being the big industries, the contractors and those with political clout. The resultant apathy towards local and community based initiatives is perplexing as both quality and quantity are heavily weighted in favour of local community based initiatives.

Decisions based purely on merit require no debate or justification

The situation is clearly illustrated by the example of supply from the Narmada as against the local systems. In Gujarat, three thousand five hundred villages had their own system of water committees and water management plans, as opposed to the two thousand villages covered by the Narmada. In the villages covered by the Narmada, water users' associations had to be set up before the initiation of water supply, but were not, due to the lack of effort and initiative. In the absence of these measures, only 10% of the villages received water as per the norms set by the government.

How money is wasted but not given to local projects is shown by the case of Balesna village, where the recharging system of the community succeeded in ensuring fluoride free water to traditionally high fluoride areas through rain water harvesting. The village also helped forty other villages in harvesting rain water; yet when a request for a pipeline to carry water from a distance of about one kilometer was made by the village, it was given piped water from a dam quite far away by the government.

Without the amalgamation of data in terms of demand and available resources, it is very difficult for the centralized and decentralized systems to go together. It is important that the role of civil society be reinforced, and deprived sections be empowered as these are necessary for a sustainable water future.

It is important that the role of civil society be reinforced and deprived sections be empowered, as these are necessary for a sustainable water future

Both quality and quantity are heavily weighted in favour of local community based initiatives

Water governance-Understanding the philosophy of water

Rajendra Singh,
Jal Bhagirathi Foundation

In view of the increasing conflicts taking place, the issue of water governance has become extremely important – there are conflicts between brothers, between villages, between regions and between states over the use of water, and some predict water wars. However, it is easy to understand water conflicts by viewing them through the perspective of traditional thought and philosophy about the control and rights of water.

Three major thoughts emerge in our philosophy of water:

A hundred years in the past, water was viewed as a community property, given by nature to sustain lives and its importance was realized by the community, which conserved it and distributed it with discipline. The aim was to maintain a balance, i.e. return as much to nature as was taken.

Another thought has been that of treating water as a commodity. This is a recent development with those subscribing to this thought considering water as any other commodity of economic transactions to be exploited, procured and sold for a profit.

The third school of thought considers water as a human right, vesting upon the welfare state the responsibility to provide water to all – hence creating the desire to have water security legislation.

> It is easy to understand water conflicts by viewing them through the perspective of traditional thought and philosophy

Conflicts have arisen due to the differences in viewpoints of these three factions, all of which vie for different forms of water governance. The conflict in Lava ka Bas between the community and government had arisen because the ownership of water was given to the government under the Irrigation and Drainage Act. The genesis of the recent conflicts in Amravati and Bisalpur is of a similar nature.

To harmonize various interests and to resolve the conflicts it is imperative to understand that the solution lies in the disciplined use of water. A case in point is the area of the recharged Arvari river. The renewed flowing of water in the river has led to the people of the area realizing that unplanned exploitation would lead the river back to the same fate. Hence the formation of the Arvari Parliament with the people deciding upon the amount of water to be harvested, the cropping pattern and the use and conservation of water. The sustained availability of water in the region due to community effort can be acknowledged as an important solution to conflicts of this nature.

The three prevalent ways of viewing water

- **As a community resource**
- **As a commodity**
- **As a human right**

Conflicts arise due to the differences in perspective

To harmonize various interests and to resolve conflicts, it is imperative to understand that the solution lies in the disciplined use of water by the community

Maintaining sustainability of water resources

Dr. Ramaswamy R Iyer- Former Secretary, Water Resources-GOI
Member; National Commission for Integrated Water Planning

Sustainability and competing claims may appear divergent concepts but they are inter-related. It is the demand for water that ultimately decides the sustainability of water – to use the terms of economists.

To maintain sustainability of water resources, the oft repeated maxim of Gandhiji that nature has enough for everyone's need but not enough for everyone's greed is to be kept in mind.

It is the greed that makes unsustainable demands on nature. For the resolution of conflicts and the maintenance of sustainability, proper management of demand is required. In economic philosophy, demand is good; it leads to increased production and development, and economists encourage demand, not control it. However, in the case of water management this approach is inappropriate. The availability of the source is finite, hence the demand needs to be tailored accordingly. The traditional

economic supply side response is not applicable as the scope to augment available resources is limited and should be cautiously undertaken.

The answer lies in restraining the demand. Therefore, there is a need for-

- Efficiency in the use of water in agriculture
- Re-examination of the rural – urban water supply parameters. Need is normally projected in per capita norms which are fairly high; there are people in favour of further increasing them. This would be disastrous – in fact there is a need to scale them down
- Recycling and multiple use of water in industries
- Technological innovations in the efficient use of water
- Waste control should become an important area of attention – waste should be reduced and recovered. All water supplied returns as waste, hence the recycling of domestic and municipal waste, agricultural residues and industrial effluents is needed.
- Controlling the demands without which a water crisis cannot be averted and sustainable development cannot be a likelihood. It is imperative that the precious nature of this life sustaining element be recognized and efforts made for economic efficiency and conservation in its use and a sincere effort made to reorder our lives.

In reply to a question on what would happen if India were to attain the standards of consumption reached in the west, Mahatma Gandhi is said to have remarked: "My God! We shall soon strip the earth bare, like locusts". Those were prescient words and early precursors to the environmental movement that was to emerge much later

Key Points of the Plenary Session, March 29, 2006

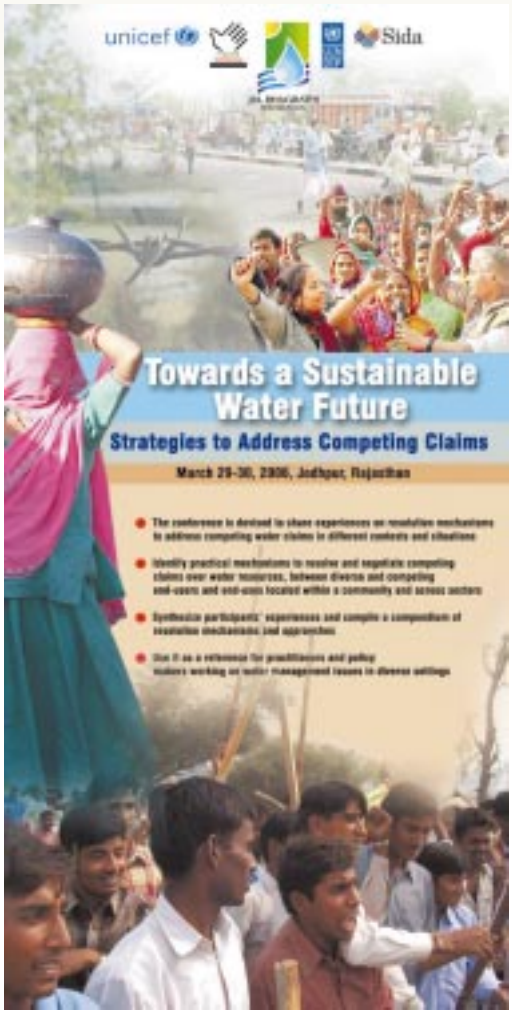
- Social and political reality have been responsible for the conflict of interests, as decisions based purely on merit require no debate or justification
- Large projects seem to benefit only the powerful, and solely serve their needs, these people being the big industries, the contractors and those with political clout
- Quality and quantity are heavily weighted in favour of local community based initiatives
- It is important that the role of civil society be reinforced, and deprived sections be empowered as these are necessary for a sustainable water future
- Conflicts arise due to the differences in the way people view water – some view it as a community property given by nature to sustain life, some as a commodity and some as a human right
- The solution lies in the disciplined use of water
- It is the demand for water that ultimately decides the sustainability of water. For the resolution of conflicts and the maintenance of sustainability, proper management of demand is required
- All water supplied returns as waste, hence the recycling of domestic and municipal waste, agricultural residues and industrial effluents is important
- The precious nature of this life sustaining element needs to be recognized and efforts made at economic efficiency and conservation in its use
- A sincere effort to reorder our lives needs to be made

4

INTRODUCTION

Urbanization by its very nature involves a large conglomeration of people within the limited areas of cities. As the population grows the cities rise vertically, leading to a situation where an acre of land which earlier held a family now provides living space for thousands of people. And the life style of these people is different from that of their counterparts in rural areas: the technology they use for their daily chores, for their construction, for their recreation, and the modes they use to supply water, all result in their consuming far more water than those living in rural areas. This high concentration of people in small areas and their extraordinarily high per capita demands of water become the scourge of urban water management.

Urban areas cannot be self sufficient in their water requirements, hence water is drawn from the surrounding rural areas. The source of supply could be surface and ground water. In the early stages of supply when water was relatively abundant, surface water was tapped, but as the demand increased the groundwater came to be exploited more and more. Initially no objection was raised by the rural areas as they could not foresee the results of the water transfer.



As water demands increased, economic interests got involved, and private bore wells started selling water. This unlimited tapping of water has led to an apocalyptic scenario–the groundwater levels have gone untenably low, the suppliers of water themselves are facing severe drinking water shortages and the quality of agriculture has taken a severe beating, leading to unemployment and migration. Deforestation has disturbed the rain cycle, sandmining and soil erosion have led to degradation of river basins; and the pollution of the city has come to plague the rural water resources.

People in rural areas, faced with a choice between existence and extinction, are coming out in force against the transfer of water to urban areas. This conflict of interests needs to be addressed at the earliest before it escalates into an uncontrollable situation.

> High concentration of people in small areas and their extraordinarily high per capita demands of water become the scourge of urban water management

Rehabilitation of the Israel Southern Coastal Aquifer

David Alkan - Ministry of Water Resources, Israel

In Israel, water is a scarce commodity. However, a judicious combination of technology, education and awareness has helped tackle the problem successfully and though extremely important, it is not so much of a scare now as many other problems.

A study of the rehabilitation of the southern coastal aquifer in Israel amply illustrates the success of the Israeli water management policies. This aquifer is located in a region with erratic rainfall averaging between 300 and 500mm per annum, and drought once in five years on an average. The aquifer is located in a densely populated area with irrigated farmlands and a number of industries. It supplies 15% of the national water resources.

The pressure on this aquifer comes from

- competing land uses
- over exploitation of the aquifer
- increasing sealed ground surface area
- water contamination
- scarcity of rainfall and frequent droughts
- increasing salt content in the groundwater

The plan and measures to recharge this aquifer are:

> The aquifer is located in a densely populated area with irrigated farmlands and a number of industries

- Massive seawater desalination plants – three large coastal desalination plants have been set up and their production last January was 100 million cubic meter per annum. The cost of desalinated water comes to about 55 US cents while cost of natural water in Israel is about 25 cents, that of tapped water is 35 cents, and that of ground water is 10-15 cents. At this cost it can be a sustainable mix with other sources of water
- Desalination plants for other saline water and brine disposal
- Low salinity water supply–the quality of desalinated water is 20 ppm which is very good quality
- Upgrading of waste water treatment plants and their use in irrigation – which is proving very useful and the agricultural productivity is also attracting the Muslim population to it, though they traditionally consider it impure
- Waste water transport and reclamation systems

> **A judicious combination of technology, education and awareness has helped reduce water stress in Israel, where water is a scarce commodity. Though still extremely important, it is not so much of a scare now as many other problems**

CASE STUDY

Sharing of water between rural, urban and peri-urban areas located along Arkawati River Basin in Karnataka

Ms. Bharti Patel – SVARAJ (Oxfam India Society), India

This case study highlighted issues pertaining to sharing of water between different water users from rural, peri-urban and urban regions located along the Arkawati River basin in Karnataka. Arkawati river basin has a catchment area spread over 4351 sq kms and flows through the rural districts of Bangalore for about 190 kms, with 150 big and 1084 small tanks in its catchment area. This case study provides an insight into conflicts emerging due to competing water claims and vested interests of different stakeholders settled along the Arkawati river basin and the conflicting government policies. Such issues are reflected in the main causes of the conflict outlined below:

- Granite quarrying - a strong mining lobby threatens or tries to buy out the movement leaders
- Sand mining and sand filtering – this disturbs the ecological balance of the area
- Industries – small number of apparel dyeing and chemical units are making it difficult to monitor the pollution levels in the basin
- Dumping of solid waste and sewage water from Bangalore city and other adjacent towns along the river catchment area pollutes the river and has brought dumpyards to the backs of the villages
- Rise in the use of chemicals in commercial crops in rural Bangalore
- Contract farming of cash crops leading to monoculture
- Ground water is seen as private property and overexploited resulting in depletion of ground water levels to below 500 feet
- Conflict triggered due to water privatization policy

Doddabalapur taluka in Bangalore

Case study details:

Dobbabalapur taluka in Bangalore is faced with severe water problems for both drinking and agricultural purpose.

The City Municipal Corporation (CMC), responsible for supplying water for domestic use, supplies water once a week for a maximum of two hours.

Almost 90% of the households have to buy water for drinking purpose from bore wells in surrounding fields, which is again often of very poor quality. CMC has dug 104 bore wells in the area, out of which 35 wells have already dried up due to overexploitation.

The daily requirement of water in the town is 70 lakh litres per day. People have dug private wells in and around the town, which have now either mostly dried up or have poor quality salty – hard water. The public supply system includes: 4 OHTs, 145 small square type tanks and 147 public taps. Only a little over one-third of households have legal water connections.

Jakkala Maduvu project was initiated to supply water to Doddabalapur at the cost Rs 23 crore. But people dependent upon the source of water, from which the water was to be supplied, are protesting

against this project, it being the only source of water for them.

The problem of water scarcity is further compounded by factors such as:

- Pollution resulting from sewage water from the city's open drainage and poor sanitation system
- Solid waste from city and peri urban town disposed off directly into the tanks or feeder canals
- Effluents from 80 dyeing units and other industries flowing directly into the tank
- Lack of people's involvement and participation in resolving issues
- Lack of trust in people's representatives due to the common perception that representatives are hand in glove with other vested interests
- Private water market is booming with private water tankers visiting the town daily
- CMC has contracted out its work of delivering drinking water to private suppliers, as a result of which the

poor will end up paying a higher price for a basic amenity like water

- Due to lack of regulations, ground water exploited by private landowners for irrigation
- Decline of tanks and lakes over the past few years. For instance, Bangalore had around 262 lakes, of which only 81are alive today. The Bangalore station and bus stop are built on lake bodies and the housing of many poor communities are on tank beds which flooded during recent floods

Conflict resolution measures:

- Community mobilisation for active participation and collective action to resolve issues
- Use of integrated approach and mechanisms for co-ordinated development of water resources at the basin level, with the participation of public, private, civic society and communities
- Use of media to highlight the issues and educate people
- Campaigns to save Arkawati river basin – Arkawati Kumudvathi River Rejuvenation Committee constituted, with members drawn from NGOs, CBOs, panchayaths, industry and government
- Arkawati Jal Chethana Samithi constituted to raise awareness amongst people and a youth squad constituted for tank protection
- A farmer's body "Karnataka Rajya Raitha Sanga" constituted to represent the issues of farmers in resolving conflicts
- SHG groups involved for their roles beyond activities around thrift and savings and non-agri enterprises
- Radio programmes used in order to understand the cultural realities of river rejuvenation work through rejuvenating the memories of the people in the catchments area
- To deal with issues pertaining to conflicts arising due to quarrying in the basin – need for photo and video documentation to highlight the extent of the quarrying and its impact on the basin. Meetings and discussion with local people to be organised to seek their understanding and build awareness in the community about the consequences of over exploitation of the resource. Consultations with quarry workers whose conditions of employment breach safety and labour regulations
- The groups themselves are active participants in the assessment of water bodies and its source vulnerabilities; clarification of the risk to public health; facilitation of negotiation between water user and water losing groups in urban, peri-urban and rural settings; development of participatory planning procedures across the relevant basins and aquifers

Challenges

- Increasing pressures of urbanization on villages of the basin
- Land prices have gone up and people are willing to sell or give their lands on lease
- The case of individual rational contradicting with collective relationships
- Alternative employment opportunities in non-farm activities such as serving in resorts, working in quarrying, sand filtering etc are more attractive
- Organizing people around the issues of "hunger", "sustainability", "alternative/ traditional agriculture" is challenging in these semi-urbanized area

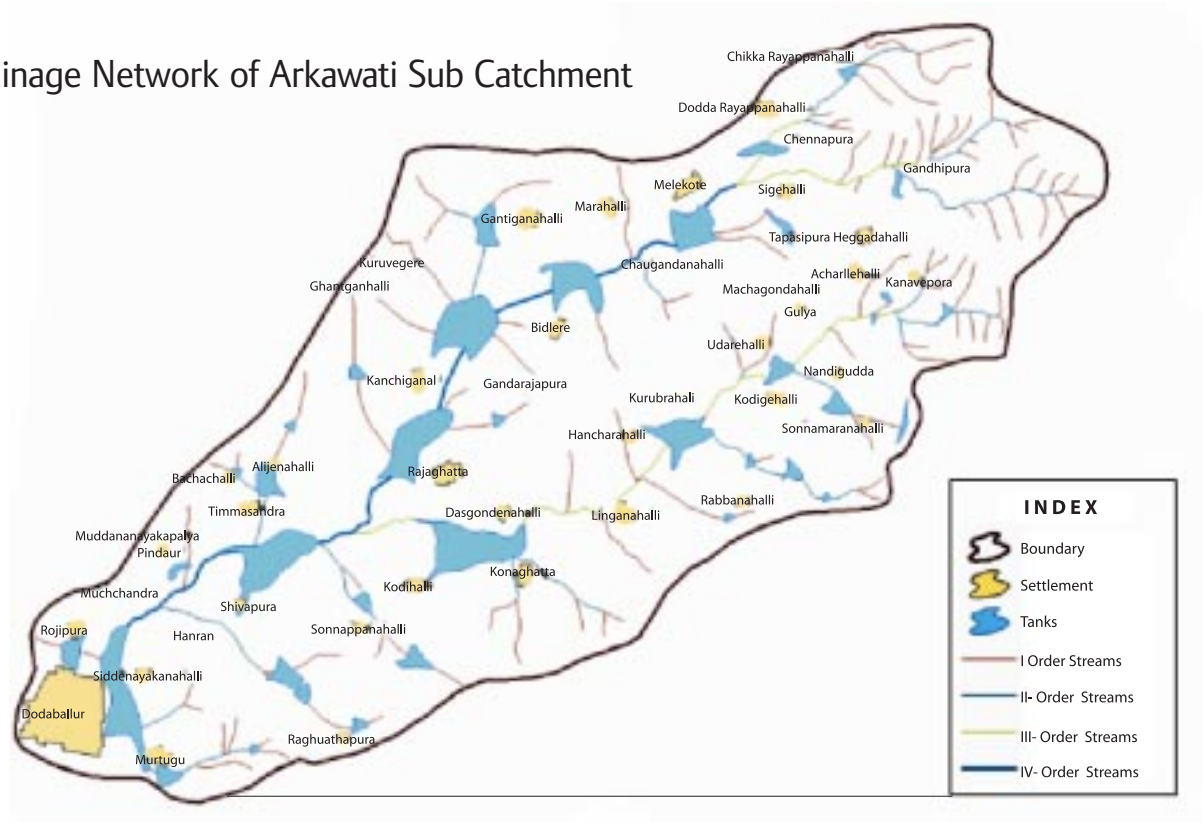
Opportunities

- Bangalore is still getting 20% of its drinking water from a reservoir in the basin (Tippagondanahalli). People from Bangalore have a stake in conserving the water resources in the catchments area
- Industries are dependent upon ground water in rural/peri - urban areas around the city
- Bangalore International Airport Area Planning Authority has been given the mandate to save natural river valley
- Local administrations - Panchayats, CMCs and other Government bodies are facing the challenge of supplying drinking water to the citizens and they are quite sensitive to the importance of rejuvenation of water resources in this area

Critical learnings

- Need for basin/ sub-basin approach
- Integrated approach – keeping in view various usages such as, drinking water, livelihood water and survival of the eco-system and bio-diversity in agriculture
- Need for a curative as well as preventive strategy and to examine causes of water conflicts such as: inequitable distribution of water, regulations and policies which favour the rich and mega projects, indiscriminate pollution of water and water bodies; lack of consideration for those who have little choice but to use the polluted water and to live closer to dumping grounds of city waste in their back yard

Drainage Network of Arkawati Sub Catchment



Arkawati

Community **Private**

Civil Society **Government**

- **Public-Private relationships are defined by 2 partnerships**

- **In the Government-Civil-Society-Community partnership, it is Private which is on the outside, looking in for opportunities**

- **In the Private-Government-Community partnership, it is Civil Society which is on the outside, looking in to ensure that societal obligations are met**

- **In both, it is Community which is the most affected**

Resolution mechanism for sharing of water between Chennai city and surrounding rural areas

Gilbert Rodrigo-Gandhian Unit for Integrated Development Education (GUIDE), India

The rapidly expanding city of Chennai has a population of over five million within the metropolitan limits, and an agglomeration of another three million. Water brought from surrounding areas is used to meet the water demands of the city. There are two regions from which Chennai gets its water – Poondi and Palar. Poondi reservoir, which supplies water to Red Hills a reservoir used to supply water to Chennai city and Tamaraipakkam through an open channel, has been built at the cost of sixty five lakhs, with bunds stretching over eight kms, sixteen surplus flood gates and a capacity of 3231 Mcft. The reservoir has now been silted to around 5-8 feet and the construction of a coffer dam has led to siltation up to 18 feet at a particular place in the reservoir. The Palar region, which supplies water to Chennai through 302 bore wells and wells, consists of twenty three villages. Around eighty two filter points are drilled on the river bank in Palar village, and from each bore well forty trips are made daily to Chennai, at the rate of Rs 40 for each 12000 litre tanker and Rs 70 for each 20000 litre tanker. The village tank has now dried up, and the land has been sold for the construction of an international school. Wells, previously of a depth of 25 feet, have been deepened to 60 feet, and are still dry. Only three out of five hundred wells in this region have water in them, and are functioning. Recently, a resolution was passed restricting the rights to sell water and the District Collector was also informed about the same.

In the Palar region, the farmers are willing to sell their water as it not only ensures a regular income but also is more lucrative than practicing agriculture

In the Palar region, the farmers are willing to sell their water as it not only ensures a regular income but also is more lucrative than practising agriculture. The region has been facing labour scarcity as the labour has moved out to nearby industries for work. Sand mining, which provides an alternative employment option but also seriously disturbs the ecosystem, has been taking place at an alarming rate. The agricultural productivity of this territory has decreased considerably – the region cultivated two paddy crops every year;

Achievements of Resource Protection Committees (RPCs)

At local level

- Protection of water resources through desilting, growing and planting trees in catchment area and practising less water intensive agriculture
- Prevention of small level encroachments and illegal resource exploitation

At district level

- Prevention of illegal sand mining in the river bed
- Prevention of illegal soil mining in the tank beds
- Prevention of commercial water exploitation

now it yields one crop with difficulty.

The Palar region has been witness to water conflicts in two sites – Velliyoor in Thiruvallore district, and Palayaseevaram village, situated on the banks of the Palar river.

Veeliyoor, located close to Red Hills was once known for its heavy groundwater potential. In 1969 under a UNDP scheme, water was supplied from bore wells through pipes connected to Red Hills. This resulted in water scarcity in the area, which led to digging of more bore wells in Velliyoor. In 2001, some of the farmers also started leasing out their wells for supply of water to Chennai. This resulted in decline in availability of water for agricultural purposes. Farmers who gave their wells on lease refused to abide by any regulations or restrictions as this was a lucrative economic option for them. The profitability of the act encouraged more farmers to supply water from their bore wells to the city. In August 2004, the drinking water bore well of the village dried up, and the village panchayats decided to stop the supply of water to Metro Water. The farmers benefiting from Metro Water tried to get a stay order, creating tension in the village between the two factions of farmers – the ones who wanted to continue water supply to Metro Water and the ones who wanted to use the water in the wells for agricultural purposes. The protests took the form of road blocks and damage to public property with farmers breaking pipelines. Several farmers were subsequently arrested under the PPD Act. With the delay in negotiations by officials, a solution to this conflict is yet to be found.

In Palayaseevaram village, once identified as an important source of water in the region, six bore wells were dug in 1967 to supply water to Chennai. More wells were dug later to increase the water supply, and in 1995 a sugar mill cum distillery was established in the area. The over exploitation of water resulted in the reduction of agriculture to 10 percent, with agricultural land being left fallow and unused. Agricultural labour has been migrating to areas outside the village to find other employment options, young women have been engaging in distress labour and working on sub-optimal wages.

In Chennai, multi-stakeholder consultations have not been very successful as people from Chennai city do not take interest in resolving the conflict and even the affected villages are not consistent in participating or offering resistance. As a result, multi-stakeholder consultations have not been a very effective tool for conflict resolution in this region and situation.

As an alternative, village level resource protection committees have been formed with equal participation from men and women. These village bodies are linked at the block and district level and are emerging as a river basin network. This has been possible through problem analysis and bringing together people through tools such as PRA exercises. This has helped in the prevention of pollution by industries and the introduction of water monitoring and water auditing.

Multi-stakeholder consultations have not been a very effective tool for conflict resolution in this region and situation

Sharing of water between Rural & urban Afghanistan

Mohammad Jan Rustazadah-
Ministry of Energy and Water, Afghanistan

The displacement of people, the destruction of traditional ways of managing water and the degeneration of natural and forest resources due to the twenty four years' war and six years' drought have all been causes for damage to the environment in Afghanistan.

A policy of integrated management of river basins has been adopted by the government to meet the challenges in the water sector. Integrated Water Resource Management (IWRM) is a combination of stakeholders and the government, and does not differentiate between rural and urban areas, as owing to the process of urbanization, the former are likely to turn into the latter.

The river basin approach includes the natural river boundaries, according to which water management is planned, while ignoring the political and administrative boundaries.

The aims of river basin approach are:

- representation of users in the basin areas
- equitable sharing between rural and urban areas
- monitoring of the evolution of the river basin development and management plans
- balance of user and environmental needs

It is intended that the management of urban water supply will be carried out by seven independent and autonomous companies, and that of rural areas by community associations. Through the identification of sub-basins and participation of stakeholders, community based water management is being reintroduced, i.e. the traditional system of the 'miro' for the operation and maintenance of irrigation systems. Through the amendment of water laws, these community associations are being made into legal entities.

The development of water users' associations is also being carried out in areas where traditional systems are in disuse.

Despite the high priority of water management, the lack of trained staff has been a serious handicap in the progress of this sector.

Key Points of Thematic Session One-

summarized by Dr. S. Janakrajan, Madras Institute of Development Studies (MIDS), India

- It is necessary to create awareness about the fact that a joint effort is required for conserving and using resources in the best possible way for the rural, peri – urban and urban sectors, and that these efforts are most effective when carried out in unison
- The culture of using recycled water for domestic, agricultural and industrial purposes must be inculcated. Perception of recycled water should change from "waste water" to "used water". Water literacy must be promoted and awareness created, beginning from the school level
- Migration from rural areas to urban areas occurring because of unemployment, lack of educational and health facilities and lack of other facilities should be discouraged by targeting the causes. Water conservation needs to be linked with creating infrastructural economic, social and cultural facilities
- Dialogue between stakeholders, donors, NGOs, communities and markets must be promoted as compared to the current isolated functioning of the four major stakeholders
- Rainwater harvesting must be promoted in a systematic and scientific way
- Water loss through transmission and leakage of water must be reduced as this accounts for the loss of 40% of the total water supply
- All water projects must be interconnected at the village, town, taluka and city level to facilitate best water use for communities; these are separate at present
- Unprecedented and unlimited market freedom has to be questioned
- The inequity in water allocation across users has to be reviewed
- Panchayats must to empowered to manage natural resources, including the river portions which pass through their villages
- Treatment plants for sewage need to be made compulsory for every town, city and mega city, through amendments in current laws and directives

The aims of river basin approach are –

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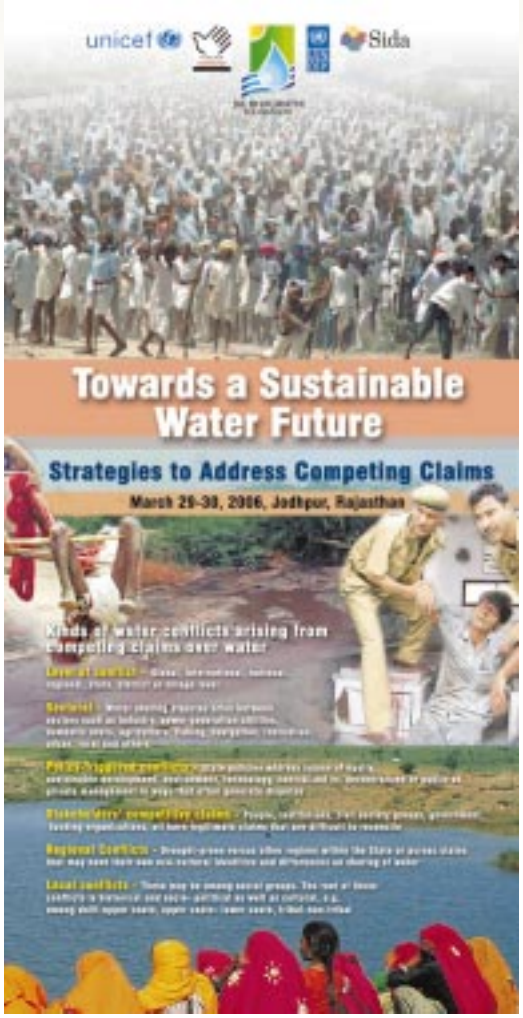
Integrated Water Resource Management (IWRM) is a combination of stakeholders and the government, and does not differentiate between rural and urban areas, as owing to the process of urbanization, the former are likely to turn into the latter

5

INTRODUCTION

Water has become a scarce commodity and it has many claimants. Whether it is the urban domestic demand or rural agricultural requirements, whether it is water for industries or navigational purposes, whether it is water for fisheries or animal husbandry, the supply remains limited and the demand ever increasing. This competition for the scarce resource leads to conflict. Till now the scales have been weighted in favour of the urban sector and the economically more powerful sections to the detriment of the rural and agricultural sector. This equation may change now as the more aggrieved sectors, facing a struggle for survival, become more assertive and organized.



The challenge facing the water managers is to manage the demand to reasonable levels and strike a balance between various sectors keeping in mind the requirements of the various stakeholders. Formulating the policy, the laws and evolving the governance of water to minimize conflict, has to be the target of the day.

> Formulating the policy, the laws and evolving the governance of water to minimize conflict, has to be the target of the day

Multistakeholder platforms Need to evolve common framework

Suhas Paranjpe – SOPPECOM, India

Recently, there has been much use of Multi Stakeholder platforms (MSPs). The earlier processes which brought stakeholders to the table were driven by conflicts; however the systems were not all inclusive and some stakeholders were excluded which in itself sowed seeds for further conflict. Their exclusion from decision making was bound to lead to conflicts. Multi Stakeholder Platforms are a process of getting over these problems.

For the MSPs to be effective they need to be given sufficient teeth to get the parties to the table. The MSPs should play a facilitating role, not just in conflict resolution per se but in changing perceptions, bringing people together and raising issues. They ought to have an accommodative approach that can incorporate various viewpoints.

While deciding upon issues or coming to a resolution they should ensure that the productive potential of the ecosystem is not disturbed. This is a compromise of the no intervention in ecosystem approach. Besides this, the principle of equity should be recognized and those being adversely affected should be given an important stake. Also, sharing of surplus or shortages should form a part of the negotiations.

MSPs are fast evolving and developing on the three planks of equity, environmental sustainability and participation.

To be successful;

- The MSPs have to take into account the heterogeneity of the stakeholders
- Need an approach which can accommodate various interests
- Need access to reliable data and information and digital support systems
- Need community support and the help of a research agency
- Need to make a distinction between right holders and stakeholders
- Need to distinguish between direct and indirect stakeholders and give different weightage to them
- Need to differentiate between livelihood stakes, and government and commercial stakes

The Multi Stakeholder Platforms should play a facilitating role, not just in conflict resolution per se but in changing perceptions, bringing people together and raising issues. They ought to have an accommodative approach that can incorporate various viewpoints

Issues and conflicts emerging from intersectoral water transfer around Hyderabad

Mattia Celio-IWMI, India

The increasing urban water demands of Hyderabad have led to an increase in the number of supply areas to the city. At present Singur, Krishna, Manjira, Osmansagar and Himayatsagar are the main sources of water supply. However, despite the increase in the supply sources, the demand has been so intense that the water resources of the supply areas have been put under severe pressure.

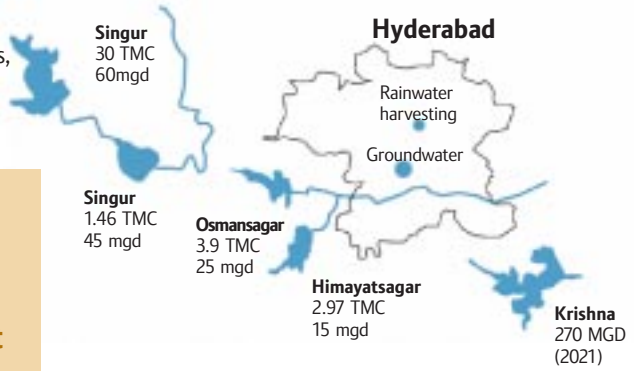
A study of the Manjira river shows the problems caused by diverting water to meet the urban demands. Manjira river used to cater to the irrigation demands of Nizamabad region and the city supply to Nizamabad. In 1980, Hyderabad also started sourcing its water from the Manjira river. As a result there has been a reduction in the water supply for irrigation to Nizamabad and the Nizamabad city supply has also been affected. This has led to protests, agitations and strikes as the needs of the people of Nizamabad have gone unfulfilled.

To resolve the crisis the government is trying to augment the supply for Nizamabad through tapping of the Godavari river. The government has also been trying to build canals but the allocation of irrigation water from the Singur dam has not been decided as yet and a proper network of canals has not been prepared. At present the resolution methods include both short term and long term responses such as taking coercive action by arresting the protesters or non-intervention as the conflict may be self-diffusing (short term response) and tapping of new resources to increase the water supply, good governance by those in power and acknowledgement of the people's water right (long term responses).

To resolve the crisis the following suggestions are to be taken into consideration

- Allocation between agricultural and urban sectors to be decided on sound assessment of quantity wise and time wise availability and demand for water
- Both urban and irrigation sector to manage their demands
- Compensation and negotiation to be put in for water transfers
- Adoption of basin wide water management strategies

When all the different stakeholders are involved in decision making and resources are allocated on the basis of sound assessment of needs and resources then the conflicts arising due to intersectoral demands are likely to decrease



Water transfer from agriculture – Situation in Sri Lanka

Kusum Athukorala – Net water, Sri Lanka

Increasing urbanization and greater per capita water consumption by city dwellers has put a crushing strain on the traditional rural water supply systems and raised a plethora of issues which seek immediate attention and answer.

Anuradhapura, the old capital of Sri Lanka, is an important Buddhist pilgrimage place, a tourist destination and a burgeoning urban centre to which is added a large military camp. During festival time, almost 1.3 to 1.5 million pilgrims come to the city. The army itself accounts for 36% of the municipal supply.

To meet the increasing demands of water for Anuradhapura, water from the tanks of the Mahaweli river basin was tapped. Traditionally, water from these tanks was used for domestic, agricultural and other uses like fishing, flower and root gathering, etc. but with the increase in urban water supply the traditional water uses of the local communities came under threat. The cultivation of paddy suffered, there was uncertainty over the future of fishing and issues like sand mining cropped up.

The National Water Supply and Development Board (NWSDB) entered into an agreement with the irrigation department to source the water from the tanks and the community was ignored. Here the issue of water rights and ownership came to the fore as under the Puranagama system the community controls the use and distribution of water which is regulated by a close knit kin group. This century old customary system was ignored; therefore, an anomaly between the state's viewpoint about water control and customary rights also emerged.

The threat to the customary rights and to their livelihood led the people on a path to agitation. Protests were launched, there was threat of violence to the project staff, the Human Rights' Commission and the Supreme Court were moved and NGOs helped mobilize support and create awareness.

The issues highlighted by the Anuradhapura experience are –

- The validity of customary rights
- The displacement of people
- The loss of livelihood
- The need for balance in the water distribution in urban and rural sector
- The need for community/ stakeholder participation in issues of water transfer
- The need for clear policy guidelines
- The need for streamlining use of resources like sand mining, fishing and use of groundwater etc

CASE STUDY

Uramiyah Lake Basin, Iran

Saedi Ferdowsi – UNDP, Iran

Lake Uramiyah is Iran's largest national park. It is a large 5000 km saline lake which hosts no plant or fish life except blue green algae which support a single specie of brine shrimp (Artemia Urmiana). This is a rich source of food for many bird species including greater flamingo and white pelican. The lake is a RAMSAR site and a UNESCO biosphere reserve.

The lake has a basin of 51876 km, about 65% of which is mountainous. It spreads into three provinces and hosts 15% of the flora species of Iran, including 290 rare or endemic ones.

As a result of over-exploitation of the area there was a 3.5m fall in the lake level and up to 7 km of shores were exposed and salinity was at saturation point. This degradation led to a collapse in Artemia Urmiana densities, the flamingo disappeared (no nesting since1998) and pelicans reduced from 400 to 16 breeding pairs. In the agricultural sector there was shortage of irrigation waters, ground water levels fell and there was saltwater intrusion from the lakes.

To set right this dismal state of affairs in order to restore, conserve and sustain the ecosystem of lake Urmiana, a new approach of ecosystem based management with a shift from mechanical protection to conservation and sustainable use has been adopted. This approach, beside other things –

- regards the ecosystem as the most appropriate unit,
- integrates environment with other sectors,
- involves stakeholders in decision making and management plans
- brings together new partners (government. NGOs, private sector)
- seeks win-win solutions
- uses economic incentives and
- encourages wise use of resources

At Lake Uramiyah a new approach of ecosystem based management with a shift from mechanical protection to conservation and sustainable use has been adopted

CASE STUDY

River Basin Approach to Manage Inter-Sectoral Conflicts – Chalakudy River

Dr. A. Latha – Chalakudy River Samrakshan Samithi, India

This case study highlights intersectoral demands and conflicts between various stakeholders dependent upon the Chalakudy river in Kerala. The Chalakudy river originates in the Annamalai region of Tamil Nadu, passes through some of the rich and dense forest areas, and is the collection of several falls, of which Athirapally and Vazhachal waterfalls are the main tourist destinations.

The Proposal to build a seventh Athirappilly hydroelectric project on Chalakudy river triggered several debates and campaigns and problems of river water usage were highlighted.

The main stakeholders and sectors affected by Athirappily hydroelectric projects are:

- Kerala and Tamil Nadu governments: Tamil Nadu is the recipient of water from four dams; Kerala State Electricity Board (KSEB) which controls the river and its catchment area
- Kadar tribes who are dependent on the river for their livelihood, and are displaced with each new project to areas unsuitable for their skills and way of life
- Irrigation department
- Tourism potential as the river has several waterfalls and passes through densely forested area
- Environmental concerns
- Lakhs of people from almost 19 panchayats dependent on the river for their drinking and irrigation water needs

Crux of inter-sectoral conflict

- Lack of hydrological data base for the river
- False and fabricated data base of Kerala State Electricity Board (KSEB)
- Impact of regulated downstream release by the two KSEB dams
- Daily flow pattern changes in river as decided by power demand in the State
- One more hydro project will further worsen the scarcity

The matter was referred to the High Court, to which the court ordered a public hearing on the proposed hydroelectric project, and the **recommendations given by the Public Hearings Panel were:**

- A comprehensive Environment Impact Assessment (EIA)
- Budgeting of water
- Study of ecological aspects
- Consultation with different departments, panchayats and NGOs
- A new public EIA
- Opportunity for public hearing
- Extension of the study to downstream areas

But in 2005, when Kerala State Electricity Board (KSEB) gave clearance to the project for the second time, more than thirty organizations representing local panchayats, tribal groups, local samithis, civil engineers etc. came together to form Chalakudy River Protection Forum (CPF) and Public Interest

The Proposal to build a seventh Athirappilly hydroelectric project on Chalakudy river triggered several debates and campaigns and problems of river water usage were highlighted

Litigations (PIL) were filed in the High Court against the project. This organization created awareness amongst the people, petitioned the government, initiated campaigns and held dharnas. This resulted in the plans for another project being shelved.

CPF used the following strategies to campaign on the issue:

- Panchayath level meetings and campaigns
- Panchayath resolutions to CM of Kerala
- Sit ins (dharnas) and small group meetings
- One day fast
- Media features
- Letter campaigns
- 'River For Life' walk
- 'Water Rights' Convention
- Indefinite Satyagraha at Athirappilly from Dec 23rd 2005 onwards
- Other groups joined in solidarity

Strategies that worked:

- Continuous interactions, workshops, meetings with panchayath, tribals and farmer groups from 2001 onwards
- Public hearing became the foremost platform for raising upstream/downstream linkages for the first time in Kerala
- 10 panchayath submitted resolutions – concerns pertaining to downstream impacts of dams
- Print and visual media spread the issue at wider levels
- Need for Post facto assessment of dams on rivers acknowledged by Planning Board
- Inter state river disputes became a hot topic in Kerala
- CPF activities and indefinite satyagraha became a learning process for the communities about the issue

Some of the lessons learnt form the Chalakudy River experience can be summarized as follows:

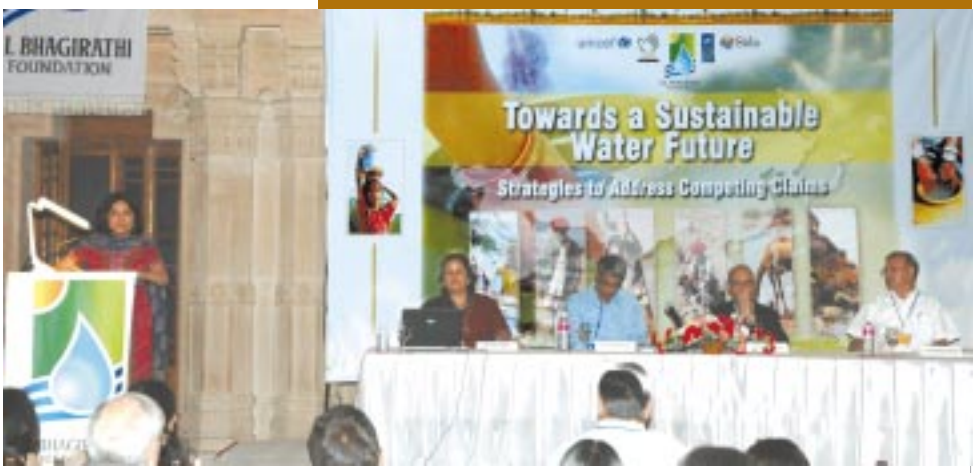
- Future and present water needs of different users at the river basin level to be taken stock of
- Need for clarity about the basis for apportioning river water
- Need for a platform to address upstream/downstream linkage problems inclusive of community needs
- Need for maintenance of minimum flow in the river
- A participatory river basin management plan with river restoration as the main agenda

Key Points of Thematic Session Two - summarized by **Dr. Sara Ahmed, India**

Three key areas of concerns emerged from the discussion

- Multistakeholder processes and constructive dialogues
- Need for institutional framework
- Economic incentives and tradability

- Multistakeholder processes are gaining popularity, but for them to be really effective, institutional support has to be provided both at the state and community level. The role of the multistakeholder consultation needs to be recognized by the government, and due weightage given to the views emerging from their dialogues and deliberations. Stakeholder processes and partnerships are sometimes complex and costly and they are not a panacea for solving all the problems. These partner ships need to be built on transparency, sharing of information. and availability of reliable data, which at present is lacking
- The most important and largest stakeholder in IWRM is the state. IWRM by its very nature entails the projects to be undertaken in vast areas over inter district, inter state or even international levels. Besides, the number of departments dealing with resources is very large and synergy needs to be built up amongst them. Thus for the success of IWRM the government has to play a pivotal role at both the policy formulation and implementation level. At the recent conclave in Mexico, Indian government representation was conspicuous by its absence, this needs to change
- In IWRM, the diversity of stakeholders and their interests are both very diverse and intertwined, and the cost of compensation to the people who may have to suffer losses could be huge. Hence, there is need for economic incentives and tradability



6

INTRODUCTION

The way water is viewed determines how it is managed, and thus the differences in water management strategies adopted by different cultures all over the world. A water management policy has a lot to do with how society has traditionally utilized and replenished water.

Being an irreplaceable necessity for life, water used to be an integral part of a society's structure, rituals and religion. With the passing of that way of life and the creation of a more heterogeneous society, there arises the question of how water is viewed by this society and on what basis policies should be made for the management of water in such a society. In a homogeneous society still linked with its roots, it is comparatively easy to make policies on water, as the traditional attitude towards water gives hints as to what will work in the present times. However, in a more complex society it is difficult to determine whether water policies should be based on the past of a society, or the direction in which it is heading. Very often, there are some sections of society which feel that the old way of managing water is the right way as it has worked well over time, and that modern life needs to be adjusted to this method of managing water, there is the other section which believes that water management policies need to cater to the demands of a changing world which is moving away from its past.

Whatever the problems and concerns of policy making, it is necessary to have a comprehensive policy on water. The absence of a clear policy on water only leads to exploitation and misuse of water resources, as they are not offences in the absence of any legal enactment. Without a water policy, conflicts are more likely to arise and less likely to be resolved.

Where a cohesive and well structured water policy has been integrated into the fabric of modern society, the nature of water is more likely to be that of a concern, not that of a conflict. However, where attempts are made to implement an unsuitable and ill defined water policy, more conflicts are likely to arise.

It is therefore necessary to have the right water policy, acceptable to all stakeholders.

> The absence of a clear policy on water only leads to exploitation and misuse of water resources

Water policy development – Importance, conflicts and recommendations

Rajendra de S Ariyabandhu - Global Water Partnership - South Asia Regional Office, Sri Lanka

A conflict between the state and civil society arose when a water policy had to be formulated. This water policy was needed as there was competition between various segments over the allocation of water resources. These segments included irrigation, domestic water supply and hydro power amongst others. The main difficulty in the formulation of a water policy was the absence of an apex body amongst the many institutions and legislations.

It was suggested that a comprehensive legislation be devised and a permanent institution be created for coordination between the various parties implementing and affected by the legislation

When a body was created and legislation approved, it faced severe opposition from civil society, human rights activists and environmental NGOs, as the policy contents, tradable entitlements and new institutional arrangements were unacceptable. The policy had a poor and non-transparent consultation process and violated the human right to water, making it a commodity. The policy also favoured bulk users, while denying rights to the poor. In the face of the protests, the government temporarily withdrew the policy and the water policy process was a significant factor in the change of government in 2001.

Successive governments tried to revise the policy; however, the changes were also opposed and the government appointed committees and task forces to work towards finding a solution, with the Prime Minister taking control of the policy process. Changes were introduced in the form of increased decentralization, greater power to water users and the river basin as the unit of decision making; however, these changes were not considered satisfactory and the protests continued. After alternative policy proposals by the same government, the reform process was shelved.

In terms of local context the tradition, culture and philosophy of the place must be kept in mind and there should be an open, transparent and consultative process which reaches the masses

Some of the lessons drawn from this experience

- **Need for understanding of the local context in terms of tradition, culture and philosophy**
- **Cautious use of external expertise**
- **Selection of modules should be suited to the local context**
- **Respect for existing institutions, and their consultation in decision making processes**
- **Need for open, transparent and consultative process reaching the masses**
- **Recognition and respect of the political environment**
- **Exclusion of some issues from the policy document, in the likelihood of the document being rejected in totality**

Utility reforms and stakeholder conflicts in Kerala

V. Kurien Baby-Socio-Economic Unit Foundation (SEUF), India

Kerala has a tradition of strong, decentralized, financially sound and fairly independent Gram Panchayats. In 1999 the state government handed over 1050 drinking water schemes to the Gram Panchayats but unfortunately the scheme was a non-starter. Thus, a package of rehabilitation of these schemes was started in which 127 schemes were taken over. As per the plan, the scheme was to be taken over by the gram Panchayat - a Transition Management Committee was set up which would be responsible for restructuring and rehabilitation of the scheme. Finally the scheme was to be handed over to the community for 100% ownership and maintenance. Till now 51 schemes have already been completed.

The stakeholders in the process were the government of Kerala, the Kerala Water Authority, the Trade Unions, NGOs, the Gram Panchayat, the Politician and of course the Community. The type of conflicts that emerged were:

1. Intra micro micro conflicts i.e conflicts within the existing scheme; between the satisfied and the dissatisfied users, privileged and those with inadequate supply, illegal connections, misuse etc.

2. Inter micro micro conflicts - between existing consumers and those wanting to join, conflict for control of the Committee, etc.

3. Micro micro conflicts because of political ideology - In a Gram Panchayat ruled by the Communist Party the opposition came from the Congress and so on.

The stakeholders were encouraged to resolve the conflict among themselves. A platform was provided to them to discuss and sort matters out, with a package of incentives and disincentives offered to them.

The platform helped in consensus building, mutual trust and credibility building of the stakeholder. A better appreciation of each other's problems and limitations was evolved and capacity building was done through knowledge and awareness creation.

Solutions started to emerge locally through a process of accommodation, withdrawal, force and consensus. Thus conflicts were used as instruments for water utility reforms in a rural setting, resulting in improved governance and instead of reverse reforms the focus was on drive reforms.

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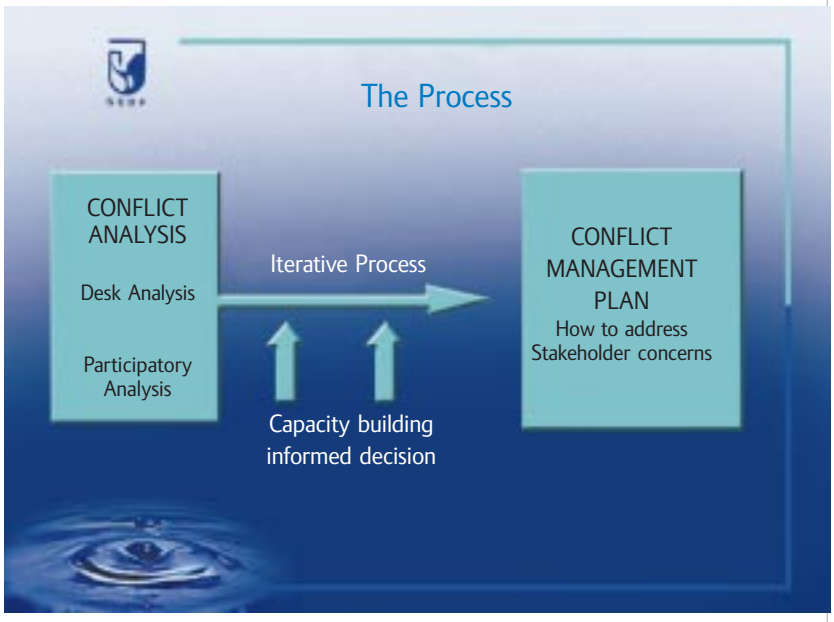

Urban water supply in Chennai-conflicting visions

Dr. Karen Coelho – India

An increase in urban water demand and the ruthless exploitation of rural water resources by policy implementers has led to a stage where farmers have lost their means of livelihood and have become labourers. This conflict has been seen in Veliyoor, where farmers have agitated against the continuous depletion of their water resources, creating ill will and animosity.

The government's policy of tradable water rights has allowed for the exploitation of groundwater without imposing any responsibility on the municipal bodies for developing other sustainable long-term options, making sustainability difficult.

In Chennai, the government has responded to the water crisis by setting up a 100 mld plant for desalination of seawater and announcing the creation of others in the public and private sector.

The suitability of desalination as an answer to Chennai's water problems needs to be examined. Desalination, being an energy intensive technology, has been adopted by the water poor and energy rich countries of the Persian Gulf and the Arabian Peninsula. However, its practicality in an energy poor nation like India is questionable. The requirement of electricity for every cubic metre of water produced by desalination is 6 kwh, which the Chennai government intends to provide through coal burning, creating a situation where there is a CO_2 – water trade-off. The rainfall in the countries that have adopted this technology is only 1/10 of Chennai's average rainfall, which is 1200 mm per year. Also, desalination has been adopted due to the absence of alternative options for ensuring the required water supply, whereas in Chennai, other low cost options are available, which may be considered more feasible as the cost of desalination is Rs. 500 crore for installation of the plant and Rs.45 to 50 for the production of every kilo litre of water, which is much higher than the traditional systems.

As the water desalination in Chennai is meant to be an addition to the existing water supply, it will not act as a deterrent in the current scheme of exploitation of ground water. Desalination has amongst its by-products a heavy brine effluent that sinks to the seabed and has been noted as a cause for marine desertification, as on the Gulf coastline. This brine effluent would have a disastrous effect on marine flora and fauna, endangering the marine life of Chennai's waters. This, along with the use of other chemicals, is likely to highly aggravate the pressure on the seabed, impinging upon the livelihood of the fishermen.

The government has been promoting this project in a highly non-transparent manner without consulting those sections of society that the project is likely to have the most impact on.

As the effectiveness of desalination as a solution to Chennai's water problems is highly questionable, other alternatives need to be developed for mitigating Chennai's water problems. Through the recycling of waste water for industrial use, the revitalization of water bodies and the introduction of rainwater harvesting, the problem of pollution can be countered, as these measures will lead to the recharging of ground water and prevention of floods, while supplying water for a variety of purposes.

Solutions to the water conflict can be reached when the inequalities of water distribution are highlighted and the dominant interests challenged, community control over water resources introduced, and water mining is halted. These measures will lead to a nullification of the water problems that are to be targeted by the desalination programme, saving both capital and natural resources.

Desalination

Energy intensive technology
Adopted by water poor and energy rich countries
Adopted in the absence of other solutions
Can lead to marine desertification

Desalination in Chennai

High cost of installation and functioning
Alternative solutions available
Promoted in a non-transparent manner

THE CITIZENS' WATER FORUM, CHENNAI

Works to keep ownership of water resources in public hands
Explores and advocates sustainable modes of water supply
Pushes for halt to extraction from peri-urban areas
Creates citizens' pressure for accountable and transparent water governance
Advocates stronger role for elected local governments in policy-making on water

Model for resolution mechanisms in the Israeli Context

Dr. Arnon Soffer- University of Haifa, Israel

Resolution mechanisms for water management require an understanding of the thoughts of the people on water and the place of water in their culture and society. In Israel and around, there are many communities like the Bedouins, the Arabs, the Jews and others. The culture and philosophy of the communities treats water as something close to God, a divine gift, ensuring that there are no wars or conflicts over water.

This point is amply illustrated by water management in the Jordan River Valley. The Sea of Galilee, the lowest fresh water lake from which water is taken to Golan Heights and the desert of Israel, is present in this river basin. The river valley has five riparian states, i.e. Lebanon, Syria, Israel, Palestine and Jordan, each of the states being politically antagonistic to Israel. However, conflict over water has not occurred. As per the Israel – Jordan agreement, water is supplied to Jordan. Israel and Palestine have been at war, yet the water supply from Israel to Gaza and Ramala has never been stopped. Similarly, in the past five years of the Intefadah, water supply pumps have never been sabotaged.

It is in this background that a model for a resolution mechanism is suggested. The most important thing in this model is to form a professional team comprising the various stakeholders and academicians, fully financed by the government and in no way dependent on donations. The work of this team being to study the problem, the procedure, data on population and land availability, and to prepare a model for the users, i.e., the farmer, the industrialist, etc. Industrial needs, being very vital, need to be accorded due importance as the industries are responsible for bringing in money, creating employment and absorbing – farmers from rural areas, these functions being very important in the face of the population explosion.

This government-backed team should, after studying the needs, problems and the availability of water, come to a reasonable compromise solution, as compromise can be seen as the crux of the solution. This team would also ensure the acceptance, ratification and implementation of these suggestions.

Industrial needs are to be accorded due importance as the industries are responsible for bringing in money, creating employment and absorbing farmers from rural areas

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Resolution mechanisms for water management require an understanding of the thoughts of the people on water and the place of water in their culture and society

The nature and management of water conflicts

Dr. M S. Rathore – Institute of Development Studies, India

The challenges posed by water scarcity for policy makers, managers and users, coupled with the rising intensity of water conflicts has made it difficult for the government to deal with water issues. The government has proposed river linking as a solution to these problems in seeming ignorance of its implications, which include, amongst other things, more claims and counter claims.

The presence of conflicts in a developing society needs to be accepted as inevitable. These conflicts need to be managed and minimized effectively to gain from the positive implications of well-managed conflicts, i.e. steps towards widespread justice and equality in the social structure. Conflicts are also an important source of organizational learning, which is required in both policy formulation and the resolution of future conflicts, as the proper study and analysis of the nature and causes of present and past conflicts can lead to the formulation of more effective solutions for future ones.

There are manifold causes and contexts of conflicts, including:

- The exclusion of relevant stakeholders from the process of decision making and implementation
- The encroachment upon resources
- Theft
- Negative externalities of development, as seen in the Sardar Sarover Dam.
- Policy triggered conflicts where the paradigm of development may be defined in an arbitrary manner as in the UNICEF norms for urban rural per capita water requirement in Rajasthan (150 to 160 litre for urban and 70 litre [including cattle] in rural areas)
- Resource use conflicts where there is an infringement of traditional rights
- Inequality amongst stakeholders across caste and class lines
- Unjust laws and inappropriate policies
- Individualism v/s collectivism
- Issues of property rights
- Issues of rights and responsibilities (upstream/ downstream/head/ tailhead)

The mechanisms for resolution for these conflicts which can be envisaged presently are;

- Policy reforms, which have been demanded by certain donors, leading to the attempt at intersector reforms
- Mediator or third party intervention
- Federation of institutions where groups join hands in identifying a cause and resolving it
- The comparatively new phenomenon of multi-stakeholder platforms, of untested effectiveness and considerable promise

Key Points of Thematic Session Three - summarized by **Dr. Ramaswamy R Iyer**

- There is a need for participatory consultative policy making. The problems arising due to the absence of such a policy are illustrated by the following examples
  - The Sri Lankan Policy and its eventual suspension
  - Chennai's Metro Water, a financially strong entity, yet non-participatory
- Water policy should not be viewed in isolation but in conjunction with the interrelated Agricultural and Energy policies
  - Excessive pumping of ground water due to cheap energy pricing
  - Water intensive cropping patterns promoted by Agricultural policies leading to stress of water resources
- Two views were expressed over urban–rural relations over water, whether water should shift from rural to urban areas
  - The inevitability of these transfers due to increasing urbanization
  - These transfers are unequal negotiations, discouraging good agricultural practices or resource conservation
- The absence of incentives for economy in water use and the wasteful use of water is a cause for concern
- Extensive decentralized water resource use in this country makes regulation difficult
- A new legal framework and National Water Policy are important as regulation is a necessity
- Need for a holistic water policy was expressed
- Need to distinguish between stakeholders as the term multi stakeholders needs explanation, everyone being a stakeholder- a primary, secondary and problem causing
- Concern expressed over turning water, a primary life need into a marketable commodity through tradable water rights

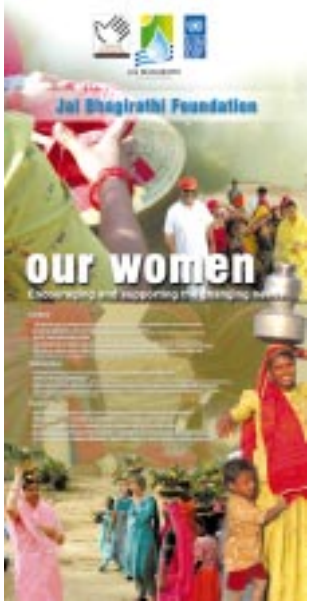
The presence of conflicts in a developing society needs to be accepted as inevitable. These conflicts need to be managed and minimized effectively to gain from the positive implications of well-managed conflicts, i.e. steps towards widespread justice and equality in the social structure. Conflicts are also an important source of organizational learning, which is required in both policy formulation and the resolution of future conflicts

7

IINTRODUCTION

Water resources are needed by everybody and everybody has their own demands on water. It is not just difficult but also impossible to satisfy all these demands, as water resources and infrastructure are limited. Very often, demands are made without taking into consideration the availability of water and the needs of other users. This leads to a situation where those, who have the maximum access to water in terms of land holdings or money, get their demands satisfied, even if those demands are unreasonable.

Water may be treated as a commodity by some, but the minimum basic requirement of water needs to be fulfilled for everyone, because if water is a commodity, it is not a commodity which can be replaced. Also, a number of subsistence occupations have water as one of the basic and irreplaceable inputs. Inequitable distribution of water is bound to lead to a situation where there are water conflicts.



It is necessary to devise resolution mechanisms which manage to give all users equal importance while successfully utilizing all available water resources in a sustainable manner.

Very often, when water is provided from a single source, those who have access to that particular source are likely to exploit that water, while infringing upon the water rights of others. By adding supplementary sources of water, not only is the stress on the main source reduced, but scope is left for a more just distribution of water.

These additional sources do not need to be large scale or primary sources of water, but in a situation where every drop counts, the tapping of small sources to satisfy smaller demands, is a reasonable step.

Not only do multiple water sources allow for better water distribution, but also give the smaller or disadvantaged users scope for negotiation with the bigger and more powerful users. In situations where there is a tussle over water sources, it is necessary to look for complementary sources while using negotiation to bring down demands and increase responsibility towards water replenishment and conservation.

where there is a tussle over water sources, it is necessary to look for complementary sources while using negotiation to bring down demands

Water resources – competing demands and integrated management

Abadullah Khulmi - Ministry of Energy and Water, Afghanistan

In Afghanistan the main, problems faced by policy makers are those arising due to lack of authentic data and information. Policy makers lack the most basic knowledge about the quality and quantity of surface and groundwater and its location. As water policy was not a priority for policy makers previously, there is no reliable record of irrigation practices, flood prone areas, cropping patterns and quarrying activities. This is probably due to the political and social instability in the recent years. With the absence of information about indigenous methods of cultivation and irrigation, it is not possible to make a comprehensive and applicable water policy for Afghanistan.

The implementation of those policies which already existed or which have been formulated recently is constrained by the lack of coordination between various agencies, whose areas of functioning and decision making are not clearly defined. The professional capacity of those employed is insufficient as the opportunities for modern training and exposure have been limited, at best. The scattered and fragmented population distribution combined with an administration still in the process of acquaintance with the intricacies of Afghan society, polity and physiology, has restricted the prospects for people's participation, therefore limiting the rewards which are gained from the sharing of experiences and problems.

The lack of adequate infrastructure has been another significant hindrance to effective water management. The water supply system has a low efficiency, being in need of repair and upgradation. The lack of awareness of modern conservation measures and the loss of knowledge about traditional water preservation practices has created a situation where water conservation is not widely understood and practiced.

In the face of these challenges the main need is that of countrywide collection and assessment of data so that effective water supply and management system can be planned, irrigation schemes devised and communities trained in the proper and efficient use of water. Also, the government and private sector personnel need to be trained and educated about water management systems and practices. Adoption of river basin management systems along with the development of traditional irrigation systems must be a part of the water policy of the government.

Adoption of river basin management systems along with the development of traditional irrigation systems must be a part of the water policy of the government

Measures needed in Afghanistan

- **Prevention of overcutting of forests**
- **Construction of drainage systems to tackle water logging**
- **Establishment of agro economical zones**
- **Conservation measures through integrated water management**
- **Formation of water users associations**

Addressing competing claims– Case study, Iran

Dr. S. Ahang Kowsar – Fars Research Center for Agriculture and Natural Resources, Iran

New settlements in areas of water scarcity can cause tremendous pressure on the water resources of the areas. Such demographic pressures on water management can be observed through the occurrences taking place after the settlement of the nomadic Bedouins by the government of Iran, which has an annual rainfall of about 240 mm and is mainly dependent on groundwater. The settlement was done in an area where there was little groundwater, making extraction unviable, and agriculture impossible. The subsequent migration of the Bedouins to the towns and their inability to find livelihoods there led to their adoption of a life of crime.

However, large scale rainwater harvesting, made viable and effective by the presence of large tracts of alluvial soil, has been adopted as a measure to combat the pressures of nomadic settlement. Also, public awareness about this problem and its ramifications is being increased; groups such as Aquitopea have been working towards creating knowledge about the balanced use of water, and about water shortages. Attempts have been made to resettle the nomads, a measure which requires much ground level preparation and successful motivation of the nomads. Steps such as mapping of the land, laying of canals and approval of money have been successfully accomplished by the government, however, this scheme has faced difficulties in implementation, such as;

- The traditional leadership of the Khans on the tribes has weakened without an alternative developing causing difficulties in decision making
- Lack of understanding of the nomad mentality and requirements by the western educated technocrats responsible for making laws
- An attitude of neglect towards public infrastructure caused by the system of providing state facilities in the form of free services.

The importance of creating a feeling of responsibility and stakeholding increases due to the presence of these problems, as these are required for the successful implementation of the planned programmes.

Large scale rainwater harvesting, made viable and effective by the presence of large tracts of alluvial soil, has been adopted as a measure to combat the pressures of nomadic settlement. Public awareness about this problem and its ramifications is being increased; groups such as Aquitopea have been working towards creating knowledge about the balanced use of water, and about water shortages

Water conflict resolution in Gujarat – Stakeholder approach.

Sriniwas Mudrakartha – VIKSAT, India

Multidimensional facets of industrial pollution and water management are seen in the Khari river in Ahmedabad, including;

- agriculture water problem
- drinking water problem
- health and migration concerns

Severe land and water pollution has been caused by the industrial effluents discharged by industries around Ahmedabad, the sewage of industrial estates and the system of disposing pollutants by the reverse bore technique.

To provide a platform to the aggrieved, increase awareness about environment and work towards the management of water from the Sabarmati basin, the Sabarmati Stakeholders' Forum was formed. Constituted in 1998/99 its strategies included;

- increasing awareness about the problem
- increasing public participation
- involving the mass media
- petitioning the High Court

The people first went to the Court in 1978, a PIL (Public Interest Litigation) was filed in 1989 and 1995. The High Court ruled that1% of the industries' gross production would be given as compensation to the villagers. Treatment of the effluents was also initiated by the industries. In 2004, another PIL was filed to ensure that the funds accrued from the industries were used only to tackle the pollution and related problems. A committee under the Chief Secretary was formed and the Gujarat Pollution Control Board became a more active presence, resulting in the reduction of pollution levels by 80%.

Presently, the needs are:

- recharging of ground water
- compensation to those suffering from health problems,
- classifying of industries as polluting/ non polluting for better monitoring and to levy collection

The stakeholders petitioned the High Court through PILs which led to a more active presence of the Gujarat Pollution Control Board. This led to the reduction of the pollution level by eighty percent

Water sector mechanism in Maharshtra – Conflicts and strategies

S.P. Bagde – Groundwater Surveys and Development Agency, India

The Charghad Irrigation Dam in Maharashtra was constructed on the river Charghad, in 2001 for irrigation purposes. The five villages in the canal command area benefited as it was now possible for them to grow wheat and onions along with cash crops like oranges. However, the sixteen downstream villages started facing water scarcity as before the construction of the dam the river had been perennial and had filled the wells in those villages.

The villagers from the sixteen villages facing the water shortage undertook a padyatra (journey on foot) to the dam, for jalsatyagraha demanding the release of water. The villagers in the canal command area threatened to perform jalsamadhi (immersion in water) if water was released from the dam. The authorities tried to stop the padyatra of the villagers from the downstream region, however, the protestors turned violent, and broke the only valve of the dam, releasing water into the river and filling the main canal with stones.

Despite the protests and demonstrations, no water has been released from the dam so far.

To find an effective solution to conflicts of a similar nature, it is important that some action be taken, and some measures are suggested in this context:

- Downstream people's riparian right on surface water to be ensured by Irrigation Department i.e minimum flow of good quality
- Service delivery to be ensured (reliable, affordable and sustainable) through infrastructure already created by 16 villages
- Right to life – fundamental right (Article 21 of the Constitution of India) to be ensured
- Drinking water priority – National and State Water Policy to be followed
- Conjunctive use, micro irrigation to be practised in canal command area
- Participatory irrigation management involving stakeholders
- Watershed development to be combined with canal irrigation
- Water allocation priorities (Article 5, NWP, 2002) giving highest ranking to drinking water do not get implemented because the irrigation authorities while supplying water for irrigation during the cropping season do not take into consideration the minimum water levels required to be maintained for drinking water supply in the months of water scarcity. These water levels to be maintained
- Controlled utilization of water for irrigation needs to be incorporated in projects to avoid potential conflicts between drinking water needs and irrigation needs
- Major policy changes in the laws governing surface and ground water in the country

> Controlled utilization of water for irrigation needs to be incorporated in projects to avoid potential conflicts between drinking water needs and irrigation needs

CRITICAL LEARNING

- **Surface water ownership with the State – to be realized by the community**
- **Responsibility for allocation of surface water to rest with the Irrigation Department – creation of awareness amongst stakeholders**
- **Recognition of the value of water by all stakeholders in irrigation and rural water supply sectors**
- **Payment of a realistic price for services**
- **Reduction of demand for canal water through improvements in the efficiency of the canal command area, irrigation systems, etc**

CASE STUDY

Dangeipahad micro watershed Chilika Lagoon, Orissa

Dr. A.K. Patnaik – Chilika Development Authority, India

The Chilika lagoon is a remarkable example of the restoration of an eco-system through integrated water resource management of the lagoon and the drainage basin.

The complex ecosystem of the lagoon was plagued by a multitude of problems ranging from shrinkage of the lagoon area due to siltation, decrease in the salinity level, decrease in the fish diversity and yield, degradation of basic life support systems resulting in declined productivity both in the lagoon and the drainage basin area, and the declining productivity/resources which had led to an intense rivalry between the various stakeholders.

The strategy adopted for restoration included; targeted studies of the complex ecosystem and to trace the root cause of degradation, preparation of a restoration plan keeping in mind the entire ecosystem, improvement of the hydrological regime to enhance productivity, integration of the watershed in the management with micro watershed as a functional ecological unit, community participation and an extensive outreach programme to create awareness about the value and functions of the wetland.

The local communities were strongly encouraged to actively participate in the planning and management of the lagoon and drainage basin resources. It was made clear to them that in arriving at any decisions or solutions, the ecological character of the lagoon should not be considered negotiable. It was impressed upon them that the uninterrupted flow of benefits was possible only through restoration of the ecological balance of the region. In the participatory management of the watershed, due care was also taken to ensure that it helped in providing the communities a sustainable livelihood. The programme started with the work on the drainage basin which is about 4000 square kilometers in area and provided the fresh water flow to maintain the ecological integrity of the lagoon. The erosion of the drainage basin was causing large scale silt flow from the catchment to the lagoon and it posed the biggest of management problems. A study of the Dangeipahad micro watershed reflects the problems, the approach and the solutions of the entire project. A study of this micro shed had revealed:

- land degradation in the drainage basin
- flow of silt in the lagoon
- acute shortage of drinking water in the area
- depletion of natural resources
- reduction in productivity leading to inter and intra village conflicts

The communities realized that their callousness towards the environment had led to this degradation and as a measure of atonement they observed the "Atmasudhi Prayaschita Divas" on 3rd of June 2001. As a result of the outreach programme, awareness in the communities has increased and in the Dangeipahad water shed area, they planted seeds of indigenous species and took an oath not to cut a single tree or allow any outsider to do it. This became a movement in the entire watershed of the Chilika lagoon and every year starting from the 3rd of June, an Atmasudhi Prayaschita Week is observed. Conservation and environment protection have become ethical and moral components of the life of the communities in the area.

At each micro watershed level, watershed associations have been formed and they are key to the management of natural resources with equitable benefits to all. All adults from micro watershed villages are members of watershed committees. The general body of the committee, through a

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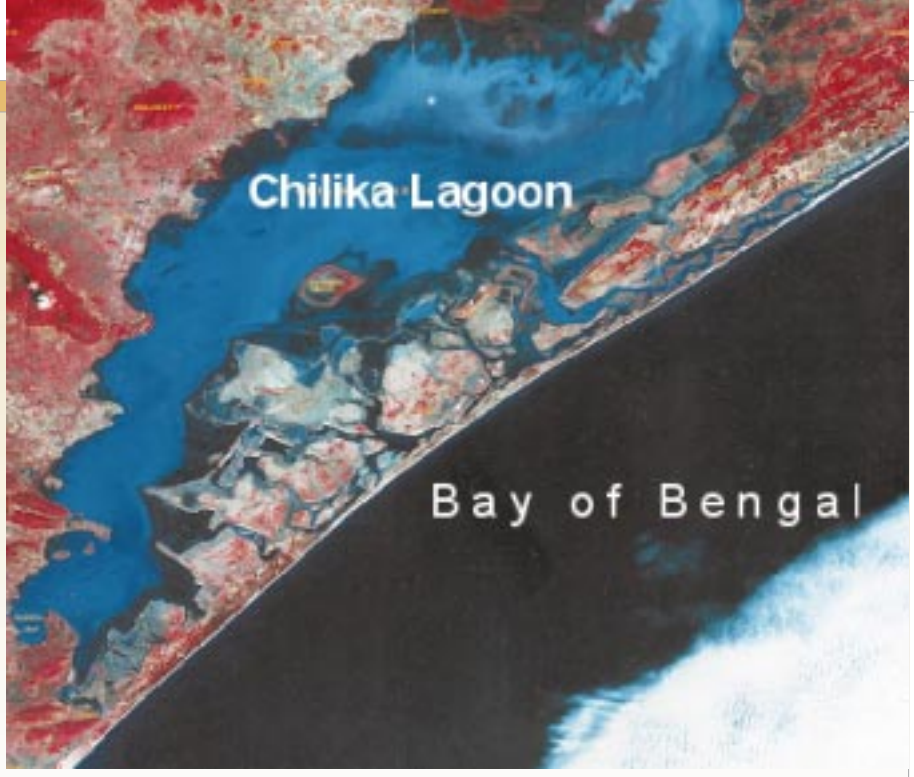


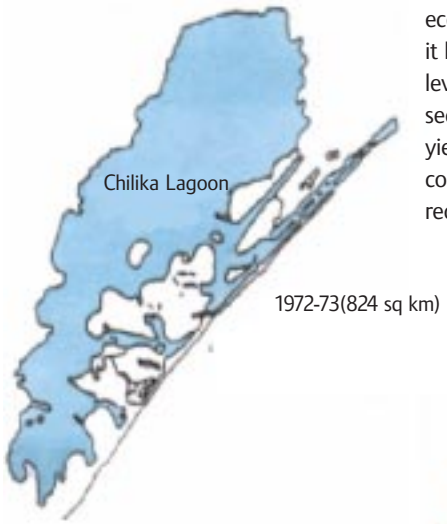
drafting committee, drafts the rules for the management which are deliberated upon in the general body and then adopted. The watershed committees have a fair representation from the landless, the socially weaker sections and women. The watershed associations are registered under the Registration of Societies Act.

To ensure the involvement of the community and the sustainability of the project, the watershed community share a part of the cost towards maintenance and improvement of the watershed assets created after the project period. The watershed associations and user groups have been able to efficiently implement the micro plan and ensure equitable distribution of the benefits, in consultation with the community.

Rainwater harvesting has been one of the most successful initiatives in the project with the structures being designed and installed by the local communities. As a result, the aquifers have been recharged and the local ecosystem and economy depending upon it has benefited. The increased moisture level in the soil has made possible a second cash crop for the farmers and the yield per hectare has also increased considerably. The wells have also been recharged and the intricate link between the ecosystem, water and livelihood is apparent to the local communities.

Through self-help groups, women have also been participating actively in watershed management and these groups also focus on capacity building and skill improvement of women. Through micro credit mechanisms, the self-help groups have also adopted income generating activities. These activities have empowered the women, who are now better placed to take decisions on financial matters.

The success of the project lies in the fact that for the communities, there have been increased earnings from land and non-land activities, reduced debt, and improved livelihood and food security. Also, there has been reduced environmental degradation and reduction in the silt load going into the lagoon. Migration in search of employment has reduced by eighty percent as the vulnerability of the ecosystem to drought has reduced. Improved agricultural incomes for small farmers and increased wage labour opportunities for the landless have provided the benefits of prosperity to the most impoverished. Inter and intravillage rivalries and animosities have greatly reduced as a result of both attitudinal and economic transformation.



Recognizing the activities of the Chilika Development Authority in the restoration of the wetland, it was conferred the prestigious Ramsar Wetland Conservation Award and the Indira Gandhi Paryavaran Purashkar for outstanding achievements in the management of the lagoon and its drainage basin. Also, Chilika was the first site to be removed from the Montreaux record in 2002

A Story about a river and its people – Promoting transboundary community to community dialogue

Sergio Feld - UNDP - Bangkok Thailand

The Mekong River is the longest in South East Asia and the twelfth longest in the world. Approximately 65 million people, belonging to over a hundred ethnic groups, depend on the natural resource base that the basin provides to sustain their livelihoods.

Agriculture, together with fishing and forestry, employs around 85% of those living in the region.

The Mekong River Basin is rich in resources, yet its inhabitants are amongst the poorest in the region. There are conflicting interests regarding how the river basin resources are to be distributed and used. Networks between communities tend to be fragmented with few exchanges between them; thus they have limited ability to manage their resources together.

" The Community Dialogues Initiative" seeks to break down artificial borders and reunite people who have common needs, particularly with respect to shared natural resources. In August 2005, five representatives of six communities from Thailand, Laos (PDR) and Cambodia met in Chiang Kong to discuss and seek solutions for their concerns.

People living in the Mekong area are highly dependent upon the surrounding environment and natural resources for their survival. This makes them particularly vulnerable to fluctuating water levels, bank erosion, decreasing water quality and reduced water uses for their livelihoods. Often communities lack the capacity to demand information and participate in decisions that affect what happens to their natural resources.

Different communities can learn from each other and identify solutions to move forward. People have an opportunity to come together and share their past experiences and exchange ideas. The priorities of the communities of different countries are:

Cambodia

- Develop a community forest near villages
- Develop a community fishery area in the Sesan river.

Thailand-

- Improved soil and water quality with the use of simple biotechnology
- Conservation of fish stocks
- Protection of the river bank with aquatic plants

Laos PDR

- Protection of the river bank.
- Conservation of fish stocks through zoning areas
- Development of skills for grassroots research

The networks across the rivers have been strengthened as a result of:

- Sharing of ideas and strategies to protect common resources and interests
- Stronger ability to express local needs by coming together
- Finding local solutions for fairer management of natural resources
- Enabling people to demand better protection for their environment across borders

" The Community Dialogues Initiative" seeks to break down artificial borders and reunite people who have common needs, particularly with respect to shared natural resources

The trans - boundary community dialogues initiative is a UNDP managed initiative. The UNDP works with key partners to create better management of the environment and natural resources between neighbouring countries and seeks to involve communities in the decisions that affect their lives

Key points of Thematic Session Four – summarized by **Madar Samad, IWMI, India**

- Genuine multistakeholder participation – It is extremely important in identifying issues, understanding the dimensions of the problem, bringing about a reconciliation of interests, formulating common goals, preparing public awareness and providing a community based forum for the government to interact with. This is amply illustrated by the efforts of the UNDP in the Mekong River Basin where a consensus cutting across national boundaries has been built up. Another example of the CDA's success is the restoration of the Chilika water shed in Orissa
- Need for Comprehensive National Level Policy – This would define the role and responsibility of the various government agencies, civil society and the community, and provide a legal framework to water governance. In areas and regions where community level participation and stakeholder intervention has failed, as evident in the case study of the Indus River Basin management from Pakistan, the need for such a policy becomes imperative. In Maharashtra, the state level water policy succeeded in minimizing the conflict through Water Users' Associations
- Need for holistic approach to watershed management – Water management is an extremely complex issue with various strands being intertwined. The problems which manifest themselves are a result of a plethora of closely interrelated causes of all which need to be tackled to reach a solution. The integrated approach to the Chilika lake watershed management stands out as an example of the success of such an approach

8

Delivery of urban services and emerging conflicts between urban - peri-urban and urban – rural populations

S. Janakrajan - India

In the urban context, three basic challenges are encountered, i.e. demographic pressures, rapid industrial growth and vast urban expansion. These challenges lead to a number of problems, the consequences of which are as follows:

- Scarcity of land for urban use
- Drinking water scarcity – Inadequate, inequitable, unsafe and irregular supply
- Transport/traffic congestion and bad roads
- Lack of adequate drinking water and sanitation
- Water stagnation and lack of adequate storm water drains
- Degradation of coastal ecology and seawater intrusion
- Lack of land for housing
- Mushrooming of slums – Unsanitary living conditions in slums, open drainage systems and lack of access to toilets
- Unhealthy solid waste management – including bio-medical wastes
- Unhealthy wastewater management

In the urban context, three basic challenges are encountered, i.e., demographic pressures, rapid industrial growth and vast urban expansion

All this results in pollution of air, water and land. To reduce these stresses, metropolitan cities exploit the resources of peri – urban areas by –

- Dumping solid wastes
- Dumping urban sewage
- Transporting groundwater
- Encroaching upon lands
- Encroaching upon surface water bodies such as tanks
- Resulting in severe environmental and health implications:

This leads to enormous pressure on peri urban areas and conflicts arise due-to the divergent interests of urban and peri-urban areas. Poor urban planning coupled with inefficient governance results in ecological and environmental degradation, increasing the chances of severe and unmanageable pressure on present as well as future generations.

The case study of the Chennai water problem amply illustrates this problem.

The following solutions can be considered for resolving these problems:

- Technical – mega civil engineering plans to bring water from distant

Resolution mechanisms for water management – Policy implications

Presentation by **Dr. Ramaswamy R Iyer**

places – through the supply augmentation approach like the river linking project.

- Economic response – price as an instrument – full cost recovery – as a measure of water management – an off-shoot is the ongoing process of privatization of water – willingness to pay for water debate; conventionally it may be expected that water consumption and water price are inversely related; if prices go up consumption could be expected to go down
- In developing countries, even if prices go up, consumption does not go down, because people's critical minimum need is not fulfilled and the consumption level would never change until the critical minimum level is attained
- Advocacy of IWRM – good concept – but we do not have the enabling environment particularly because of a fragmented institutional structure – what we have is a messed up system

There is an urgent need to look into the peri-urban issue from the angle of a single ecosystem and as a part of an integrated socio-economic developmental process in an economy.
This encompasses issues such as long-term perspective and participatory planning and governance, and a broad based partnership and a sustained dialogue among all key stakeholders – *This is indeed the need of the hour!!*

The key issue in India is not only that water is never a part of urban planning, but the peri-urban issues are completely ignored and given the least importance in the overall urban planning process

There appears to be a need for a comprehensive national water law.

The universal requirement of water has a wide range of issues on which conflicting claims compete. They could be river water sharing, anxieties of downstream users, water quality issues, environmental and ecological concerns, inter-group conflicts, inter-sector conflicts, conflicts over water transference, conflicts over state control and civil society initiatives, conflicts between the state and the people, etc.

The conflicting claims may arise at the international or national level, hence different

frameworks exist to resolve and minimize them. At the international level there are treaties, agreements, international law, commissions, etc. Generally the principles adopted are based on equitable opportunities, equitable utilization, protection of the interests of the lower riparian areas. However, there is no comprehensive Water Resource Convention like the Biodiversity Convention or the Kyoto Protocol.

At the national level, India's existing policy framework is inadequate. The National Water Policy of 1987 did little else apart from according priority for drinking water. The NWP 2002 does not take the policy much further except that it facilitates private sector participation in water projects. There is a need for a policy promoting a holistic, harmonious and sustainable view of water with mechanisms for prevention and resolution of conflicts.

The existing laws focus on rivers, canals and irrigation, and conflict resolution mechanisms exist mainly for inter-state river water disputes through adjudication. Other kinds of water related conflicts are not dealt with. Civil society initiatives and community management have no backing in law, neither are there any clear principles of corporate versus community use.

Integrated water resource management-negotiating user demands

Presentation by Madar Samad

Integrated Water Resource Management is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP–2000). It basically entails the management of water for basic human needs, food production, livestock, environment, industry and commerce while maintaining the resource base of both surface and ground water, and biodiversity through integration of the natural system and human requirements.

The maintenance of natural system and human system requires:

Natural System

- Integration of freshwater management and coastal zone management.
- Integration of land and water management
- Green water and blue water integration
- Integration of surface and groundwater management
- Integration of quantity and quality in water resources management
- Integration of upstream and downstream water related interests

Human System

- Cross-sectional integration in national policy development placing water related development within the economic and social sectors.
- Macro-economic effects of water development.
- Basic principles for integrated policy making.
- Influencing economic sector decisions.
- Integration of all stakeholders in the planning and decision making process.
- Integrating water and wastewater management.

For Integrated Water Resource Management to be successful, it needs an enabling government which provides appropriate management instruments, and properly defines institutional roles with clear management boundaries, regulations and conflict resolution mechanisms.

Summary of sessions and key discussion points

Dr. A.J. James

The issues raised and experiences shared in the conference were categorized by Dr. A.J. James under the heads of State Governance, Civil Society, Donors, and Essential Action, as given below.

STATE GOVERNANCE

- Policy formulation and review to set priorities of water use, equitably allocate water rights and quantities (e.g. minimum flow rates in canals), define boundaries for water administration, and to re-examine norms of water use and industrial location, to address special problems of wetlands (ensuring minimum ecological flow), to include water conservation in all activities of the government, keeping in mind the priorities of the poor and disadvantaged groups (who may not want to be part of private interventions)
- Legislation to back policies so that they become law and are therefore not only applicable more widely, but may be enforced by legal means
- Effective policy enforcement mechanisms to ensure that policy is effectively translated on the ground, even if the violators are government departments themselves
- Coordination within government between sectoral policies and regulations (e.g., electricity, water, health) as well as programmes (that envisage large-scale investment in water, e.g. the NREGA and Bharat Nirman)
- Improving existing or creating new institutions (e.g. Inter-State River Water Tribunals, Maharashtra Water Resources Regulatory Authority)
- Effective legal instruments (PIL; Maharashtra Management of Irrigation by Farmers Act; Maharashtra WRR Act; RTI Act)
- Compensation for those who lose access to water and other resources as a result of projects or programmes of a government and donor agency
- Pre-empting conflict by insisting on multi-stakeholder consultation at all levels of project formulation, implementation and evaulation

CIVIL SOCIETY

- Sustained and effective multi-stakeholder dialogue, making sure the right stakeholders are consulted, within a clearly-defined process of consultation
- Judicial activism to pave the way for effective multi-stakeholder dialogue, when vested interests prevent the latter
- Campaigns in the media to express civil society needs and to ensure that these are heard by policy makers and other civil society organisations
- Public hearings to inform local communities and spread awareness of conflict issues
- Panchayat Resolutions to formally register conflicts at the lowest tier of local governance

DONORS

- Coalitions to mobilize and effectively campaign and lobby for better water governance by the state, bring out conflicts into the public domain, assist civil society groups actively engaged in conflicts
- Inclusion of the younger generation in water conservation and conflict resolution through educational campaigns in schools
- Pre-empting conflict by insisting on multi-stakeholder consultation at all levels of project formulation, implementation and evaluation – and ensuring that communities can protect their rights if they do not want private intervention in water use

REQUIRED

- **Conceptual clarity among civil society, government and donors on issues** such as who the stakeholders are and that conflicts are not necessarily negative
- **Accurate information from government and independent research institutions** on the status of water resources at basin, aquifer, watershed and local levels; on government regulations, plans, and on past experience with conflict resolution
- **Awareness within civil society, government and donors** on existing water laws, other experiences with conflict resolution – and how to do it
- **Capacity within civil society** to lead conflict resolution negotiations at all levels (particularly the grassroots) and to ensure these are done in a transparent and inclusive manner
- **Adequate consultation with stakeholders** during the formulation of donor and government projects and programmes, during their mid-term evaluations, even by the Planning Commission and other government and donor agencies

ESSENTIAL ACTION

1. **State Governance**
   - A memorandum from conference participants to all state and national government ministers and secretaries listing the key mechanisms they would like strengthened or put in place by the state
2. **Civil Society**
   - A web-based and hard copy compendium of possible conflict resolution mechanisms based on past experience, to guide future action
   - Broadening the membership of a civil society coalition on water conflicts
3. **Donors**
   - An open letter from conference participants to donors requesting for more consultation in project formulation, implementation and evaluation, and support for capacity building of civil society organisations for effective conflict resolution

Keynote Address

Sunita Narain – Centre for Science and Environment, India

The scarcity of water, its pollution and the sheer poverty that it causes, is something that has brought the issue of water to the centre stage. However, before talking of conflict resolution one must realize that conflict is inevitable unless one starts doing things differently and starts thinking differently about what we are doing with water. At present, conflict resolution is spoken of almost as if a new department is to be set up: either the real nature of the problem has not been understood, or it has not been incorporated in our souls.

The issues of water for livelihood security, water for people, water harvesting and the supply of water to people have all been discussed in this conference. It is clear that the efforts being made to provide and supply water are inadequate. The 80's and 90's have left us a rich legacy of people who have worked in this field, like Rajendra and Anna, and the understanding we have today of the methods which would not work, is due to their efforts. These two decades were very rich in research work, documentation and experimentation. This is what we inherited. Till the year 2000 the answer was seen in hardware. This hardware solution entailed bringing in pumps and pipes, building hand pumps, creating storage facility and diverting water long distance. This, it was realized, could not be done at the scale required in India. Even if the hardware were created, the problem of sustainability remained; the country simply did not have the wherewithal to maintain and repair the pumps, pipelines, etc. This solution was both inequitable and unsustainable.

However, in the year 2000, it was realized that a different solution was required, but even then, it was only a partial understanding of the message: it was understood in terms of its words but not in term of its politics. This is clear when one sees the translation of all the effort that has happened, whether it is in the community based water management projects, rainwater harvesting, watershed work, work under the EGF – the Employment Guarantee Scheme – or water conservation work. Today there is enormous attention on water harvesting structures. Water harvesting has become part of the language and policy of government. Today, the major task is to see that policy becomes practice, to make sure that the government, donors and all other agencies understand that these are not just technocratic solutions, that it is not just about building a hand

pump but managing a watershed. We have to understand the politics which we haven't been able to incorporate deep enough in our policies. Before talking about the people's participation and the community's participation, we have to understand how these processes will be incorporated at the village level where the gram sabhas, the panchayats and the fragmented bureaucracy do not have control over their water bodies and land.

The biggest tragedy is that we talk about integration without thinking that integration will take place by the people

and therefore, the integration will have to be at the village level. This is the other challenge: to upscale, to take the extraordinary experimentation of the 90s to a level required in this country. The Employment Guarantee Act is an extraordinary opportunity- in which other country would one find that the labour of the people is taken to build assets not only as a drought relief but as a relief against drought. The effort should be to make these opportunities work at a level which is required in this country. The opportunity does exist- the Finance Minister launched a Restoration of Water Bodies programme two years ago; it was called a pilot project. But the tragedy is that the learning of the pilot project has not been used to formulate full scale programmes. We are constantly undertaking pilot projects but we do not learn what works and what doesn't from them .That is why conflicts are inevitable.

The main task ahead for us is to learn from the past 20 years and to incorporate the learning not just in words but in deeds. The biggest fear with water harvesting is its becoming a government project without a heart and soul, and ten years later, we realize that it doesn't work.

The expectation that the poor people will manage their water resources will never work. It is our responsibility, the advocates and believers of the idea of rainwater harvesting; we have to make sure that it works even if it becomes a government project. We have to demand changes where they are required, as it is a matter of life and death. The biggest land is the forest land; it can become the biggest source of watersheds, and provide us with water and food security, but we have never integrated forests in our watershed programmes.

The role of civil societies – I don't know the role of government or donors but I do know what is the role of civil society. It needs to be aggressive and to make sure that what we believe in and advocate, the government does not go wrong with that.

We know water is the determinant of this country, we know we need distributed growth, but it can happen only if we create a distributed water management system.

We know the government is responding by creating programmes, but until we get the coordination right, where the communities participate, not just as token representatives

> This is the other challenge: to upscale, to take the extraordinary experimentation of the 90s to a level required in this country

but as real stakeholders, we will not be able to bring change. As a civil society, we cannot remain a genteel, passive voice and function as extension agents of the government. We cannot say that we'll deliver for you and our ten villages will be better than yours. It is not a race for ten villages, we have to keep the pressure on the government to see that they don't mess up the programme that we believe so strongly in.

If India's urban water management system fails, there will be conflicts which we will not know how to resolve –it is already being seen in the states where the conflicts are going to be maximum – in Ganganagar, in Tonk, in Maharashtra. Every state of India will have skirmishes as urban India's demand for water grows more and more.

In the West, seventy percent of water is in cities and industries and thirty percent is in agriculture. In India, we have seventy to eighty percent water in agriculture and twenty to

thirty percent in cities and industries. We are urbanizing and industrializing as the rest of the world but also remaining poor and rural. We will never see a transition as in Europe or even Latin America where everybody has gone and settled in the cities. If seventy percent of the nation is urban, then urban water is a priority, but we will always remain 70:30, or at the most, 60:40; if large numbers remain in rural areas, conflicts will occur. Therefore drastic changes are needed in policy and the way urban India manages its water.

Every city is looking at increased water availability because this is considered a sign of wealth and prosperity; cities are more powerful so they can source water from further away. The further you go, the higher the distribution losses, higher the inequity and higher the cost. Even the rich in the cities cannot pay for the water in the cities or the waste they generate, e.g.

in Bangalore – with Kaveri water – water price is going to be forty rupees per kilo litre. Today Bangalore is highest with rupees 5 per kilo litre and Delhi 2.2 rupees per kilo litre; 80% of the water that reaches homes leaves it as waste. No city can pay only for water, it must also pay for waste management and sewage management, but we do not. That is why every one of our rivers is like an open drain. With what the villager gets – water being taken away, waste being generated, more pollution in the river – conflict is bound to happen.

The only way urban and rural India can ensure that conflicts do not happen is when they completely change the way they look at water. The cities have to stop sourcing water from outside and look at their internal resources first. Jodhpur has to

look at Padamsar and Ranisar, and recharge its step wells – recharge them not because it is pretty to do but because it is imperative to do so. If it recreates the water system, the cost of delivery will be lower, and the cost of supply will be lower, and people will be charged only for what they get from outside as deficit. We must reuse, recycle and segregate our domestic waste to put it back into ponds and lakes and to recharge our groundwater. Both waste management and rain water harvesting need a phenomenal input of technology, innovation,

> Both waste management and rain water harvesting need a phenomenal input of technology, innovation, and a complete change in the way we look at water

and a complete change in the way we look at water.

Water conflicts are going to be inevitable and they are not going to be polite. The solutions needed are less genteel and are difficult, but achievable. We have to build a water-prudent society particularly in the cities and industries. We have to learn from the wisdom of the poor so that it becomes the practice of the rich.

Thank you.

An audience interaction with Ms Sunita Narain was one of the high points of the conference. Questions on issues ranging from the role of civil society, the urban water situation, conflict resolution and the role of government were put to Ms Narain, who answered by dividing them into broad categories as given below

1. Civil society role and democracy, PRIs, etc.: We have to define our own role in today's context. The issue of water conservation is the idea of a large number of people, so the role of Civil Society is to make sure the implementation of the idea also happens, the way we believe it should happen. This will be the critical next phase of the water challenge. So, we have to work with and work against the government. Today, redefining the terms of democracy, with or against does not mean we are enemies of the government. The role of Civil Society is to ensure that our idea is implemented properly

2. How to scale up? We can talk of the incredible work of 1990s, but we have to make sure it scales up. Civil Society must debate its role more clearly – we have to make sure our overall goal remains the same – but the scale needs to be changed. Civil Society has traditionally provided models that can be upscaled but Civil Society has been weak on being able to take the experiment to a larger scale. This needs to change

3. How to work with the panchayat system? We have created village institutions, but the weakest part of the Panchayat is its representativeness. The panchayats have not been able to influence government policy enough. Integration of land and village bureaucracies must happen at the village level – forest, water, PHED, etc. There are certain models, the challenge is to translate them into policy. The role of watchdog is to be played to ensure that policy becomes practice

4. What is the space for NGOs in this? How do we work for and against government? Keep our independence in order to push, prod and scream to get the change. This is where a balance has to be struck. I am not working against the government. That is only in the mind of a petty bureaucrat, who personalizes government as one person. Here is where the maturity of today's Civil Society must show up. We have become extension agents and lost our bite. We must get back our bite so that we can make a difference. So, yes, spaces are getting smaller and smaller, and we are getting more and more compromised in these spaces. We are at a crossroad today. Our dreams and visions are common, but they are also those of others – what we need to do from now is different

> The more enabled the democracy, the more media and civil society action, the more the chances of success

5. Free riders: We don't even understand who are the free riders in our society. In water debate, every one is saying that its the farmers who get free power, free water. But they don't get electricity when they need it, and use their own money to dig their wells, and to energize them with diesel. Their agriculture does not give them the returns they deserve. That is where democracy is failing – because we are failing. No politician will have the guts to say they will subsidize the rich in the name of the poor – but they do it all the time. We have not been able to show that they are. If you can get that research out, it will change the nature of the democratic debate in this country

6. Political will: There is a lot of political will in this country. All politicians ask us what to do about water. They are desperate to do something. They understand that water will make or break their electoral future. Water is centre stage. But they don't know what to do about it. They are in the clutches of their bureaucrats and technocrats who say give us five years, no problem, we will get you the dams, pipelines etc. We have to get to politicians and show them there is a way to do things differently

7. Urban sector: I am not against privatisation, I just don't think it is feasible in our part of the world. In countries like Jakarta, the drinking water model is so expensive that private entrepreneurs can never recover their costs. So they can only supply to a small segment, partly, without taking back the waste. Even if we pay Rs. 10 for a bottle of water, those companies do not pay a penny for the water they take! And they don't take back the waste. So privatization is not a simple answer – let's not even look at it as for privatization or against but as: how can Indian cities look at water and waste? How can an Indian get a basic legal entitlement to water? Can we manage systems better? I believe economic growth is inevitable, but the economic growth – as and when it happens – happens in a way that is least socially divisive and most environmentally friendly. That will only happen when we start thinking differently. To do this, conflict management is not the name of the game – democracy is. The more enabled the democracy, the more media and civil society action, the more the chances of success

Vote of Thanks by HH Maharani Hemlata Rajye

Trustee-Jal Bhagirathi Foundation

His Highness the Maharaja Sahib, Rajendra Singhji, Ms Sunita Narain, I am very glad that so many people and participants are here after having traveled long distances, some even from foreign countries, to attend this conference, where you've discussed an essential and important issue – the right to use water – the most basic necessity and need of life.

Over these two days, the delegates and participants have had very enriching and lively discussions, sharing their thoughts and experiences.

For making this conference fruitful, I would like to express my gratitude to the UNDP for supporting our activities and providing help in organizing this event, The Italian Development Corporation for supporting us, UNICEF who has been supporting our projects and activities and who also co- hosted this event, the SIDA who extended their support to us for this event. Without the support of our partners, it would not have been possible to have this conference.

I would also like to thank Dr Satish Kumar and Mr. Deepak Roy of Unicef for participating in this conference, Ms. Prema Gera who has been a great help to us in organizing this event, the moderators of the four thematic sessions – Dr S Janakrajan, Dr Sara Ahmed, Dr. Ramaswamy R Iyer, Mr. Madar Samad, who summarized the proceedings of the discussions held, Dr A.J. James for sharing with us the key points of the discussions of various sessions, Ms Sunita Narain, for attending the conference and sharing her thoughts.

I would like to thank Maharaja Gaj Singhji, Rajendrasinghji, Prithviraj Singhji, Mahendra Mehta and all the members of JBF without whose contribution it would not have been possible for all of us to be here.

> It must be our endeavour to take everyone along, for there is no room for differences and divergence on this issue as this is a matter of survival, a matter of life and death

In the end I would like to make two points – one, the issue of water poses a challenge that is so great that it requires the efforts of all of us to face it, and by all of us I mean not just the civil society but also the politicians and the bureaucrats. It must be our endeavour to take everyone along, for there is no room for differences and divergence on this issue as this is a matter of survival, a matter of life and death. It is the civil society which has to ensure this convergence and move ahead in collaboration with them, for the enormity and the urgency of the task is such that without the resources and active participation of all segments of the society, especially the government, it cannot be accomplished before it is too late.

Two, ensuring water security for everyone is an endeavour in which there is no room for failure, for failing to provide safe water to a person is tantamount to denying the person a right to live. Water is a life source for all living things in this world and the government, the civil society, and the community all must see to it that the basic requirement of all is met in a reasonable manner. To fulfill this aim our efforts should be guided at conserving water by adopting efficient methods of utilization, water harvesting, recycling, putting it to multiple use, ensuring its purity and harnessing the water resources only to a viable level. We hope that the future generations will benefit from our prudence and sensitivity and have a water secure future. I wish each one of you the best in your endeavour in tackling this common problem and hope for your success.

Thank you all so much.

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