



Environment

Water & Environmental Sanitation Network  
(WES-Net India)



United Nations Development Programme

Energy and Environment

## Solution Exchange for WES-Net India and Energy and Environment Network Consolidated Reply

*Query: Water management conflicts between communities and external actors, from UNDP, New Delhi, India (Comparative Experiences).*

Compiled by Preeti Soni, Resource Person and Moderator; additional research provided by Ramya Gopalan, Research Associate, Solution Exchange for WES-Net; with support from Henrike Peichert, EE Network Facilitator  
18 December 2005

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**Original Query: Prema Gera, United Nations Development Program (UNDP), New Delhi**

**Posted: 22 November 2005**

UNDP has been supporting NGOs working in the area of community-based water resources management for some years now. The local communities comprising self-help groups, community-based organisations, water-users groups and federations have been experiencing a range of conflicts over water use both within communities as well as with external stakeholders in the area.

Institutional arrangements designed at community level offer an effective mechanism to address conflicts occurring among water managers and users, and at times intervention by external agencies is sought for facilitation and arbitration.

However, conflicts with a range of external actors are posing a serious concern for the partner NGOs and communities. The three most common areas of such conflicts are: (a) conflicts between rural and urban areas where water from rural areas is taken to meet the increasing demand in the urban towns and cities thereby leaving the rural areas with even less water for drinking water and livelihoods. (b) competing inter-sectoral water claims such as instances where an industry draws heavily on groundwater resulting in falling levels for the neighbouring communities (c) conflicts triggered by policy e.g., absence of clear ownership rights in water, subsidy in electricity resulting in over use of ground water thereby undermining community efforts in conservation and sustainable use of water.

In these three areas, we would be grateful to learn from network members about specific experiences with

- ways to prevent or minimize such conflicts that can be incorporated into the design of a project
  - methodologies for resolving conflicts when communities are faced with such situations.
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### Responses received on the Solution Exchange for WES-Net, with thanks from:

1. [Shir Ranjit Kr. Maiti](#), Panchayats & Rural Development Department (P&RD Dept), West Bengal
2. [Vinod Kumar](#), Maithri, Palakkad, Kerala
3. S Janakarajan, Madras Institute of Development Studies (MIDS), Chennai ([Response 1](#); [Response 2](#); [Response 3](#); [Response 4](#))
4. [Rahul Banerjee](#), Aarohini Trust, Indore, Madhya Pradesh
5. [D Joshi](#), School of Civil Engineering and the Environment, University of Southampton, UK
6. Devendra Dhapola, Key resource Center (WATSAN), Uttaranchal Academy of Administration, Nainital, Uttaranchal ([Response 1](#); [Response 2](#); [Response 3](#))
7. [V. Kurian Baby](#), Socio-Economic Unit Foundation (SEUF), Thrissur, Kerala
8. Prabhjot Sodhi, UNDP GEF SGP, New Delhi ([Response 1](#); [Response 2](#))
9. [Sara Ahmed](#), Ahmedabad, Gujarat
10. [Ramit Basu](#), Social Watch, New Delhi
11. [Prakasam Tata](#), Tata Associates International, Naperville, U.S.A
12. [Ashok Kumar Paikaray](#), Mahavir Yubak Sangh, Orissa
13. [Mihir Maitra](#), India Canada Environment Facility (ICEF), New Delhi

### Responses received on the EE Network, with thanks from:

14. [Pascal O. Girof](#), UNDP EEG SURF LAC, Costa Rica
15. [Lenni Montiel](#), UNDP Viet Nam
16. [Aslam M. Chaudhry](#), UN DESA Division for Sustainable Development
17. [Emilie Filmer-Wilson](#), UNDP Oslo Governance Centre
18. [Khalid Riaz](#), UNDP, Yemen
19. [Uygar Ozesmi](#), Global Environment Facility, Small Grants Programme, UNDP, New York
20. [Jaime Echeverría Bonilla](#), UNDP, Costa Rica
21. [Abdul Qadir](#), UNDP Pakistan
22. [Paul Paryski](#), Blue Ribbon Water Task Force, New Mexico/US
23. [Illia Rosenthal](#), International Fund for Agricultural Development (IFAD)

*Further contributions are welcome!*

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## Summary of Responses

This query seeks to identify ways to prevent, minimize and resolve water management conflicts between communities and external actors, in particular **rural-urban, inter-sectoral** and **policy triggered** conflicts. Members from the Solution Exchange and the UNDP global network recommended a number of possible strategies and methodologies to effectively manage such [water related conflicts](#). The salient points are summarized below:

**Conflict prevention.** The experiences and examples shared brought out the importance in project, programme or policy formulation for all parties to clearly understand the local context within which potential conflicts could arise, including the inherent socio-economic complexities. A clear need for the intervention should be established, geographical conduciveness for water sharing should be examined, and the approach delineated should take cognizance of the full range of local resources, institutions and the prevailing community power-structures/dynamics. Some important recommendations in this regard include capacity building, establishing clear water rights, water resource budgeting, formation of user groups and inclusion of stakeholders.

**Conflict management.** Contributor comments on conflict management methodologies linked them to the broad approach of water governance, the availability of institutionalized platforms, scientific inputs for informed decisions, and the existence of a decentralized regulatory framework. Two approaches were highlighted in the responses: the multi-stakeholders dialogue method, and the human rights-based approach.

- **Multi Stakeholders' Dialogue (MSD)** as defined by one respondent is a participatory methodology adapted to a particular problem in a situation where resource sharing is difficult and proved unsuccessful by conventional legal, economic or other institutional means. It entails bringing all the stakeholders together in a facilitated setting to identify and build in common concerns and interests. The most important objective of MSD is to find ways to turn situations of conflict and distrust into opportunities for mutual aid and cooperation. As shown by the **Tamil Nadu** and **Karachi** experiences, the MSD process has emerged as an important tool and conceptual framework for policy interventions and for arriving at a negotiated settlement. However, it needs to be noted that this process calls for skilled and sensitive facilitation, since it consciously addresses power dynamics of gender, caste, class etc., in a systematic process of social learning and cooperation.
- **Human Rights-Based Approach (HRBA)** bases conflict resolution on human rights standards that specify essential minimum levels of water access. HRBA can help negotiate solutions - preventing grievances from becoming conflicts - in a participatory and non-discriminating manner. Where people are unable to avert conflicts between interests and rights, HRBA provides a useful framework as it acknowledges and addresses the issue of competing rights and interests.

According to the advice provided, the success of any method attempted must be responsive to the needs of the communities involved and flexible enough to incorporate any changes that may arise. They also rely on certain preconditions:

- effective intermediation in consensus building and partnership building
- using participatory methodologies, to facilitate empowerment, informed decisions and mutually beneficial situations
- focusing on informal processes and not banking exclusively formal and inflexible structures
- avoiding excessive reliance on specific individuals
- addressing supply, demand, regulatory, economic and institutional processes in a holistic manner

**National Experiences:** The examples cited for **Tamil Nadu** brought out the effectiveness of multi stakeholders' dialogue (MSD) process in conflict situations. The experience in the **Palakkad Gap region** illustrated how fair distribution of water was made possible through the formation of a participatory beneficiary group that subscribed to an agreement and stipulated guidelines. In the **Midnapore** region, a household water budgeting system allowed the matching of demand with supply and facilitated experimentation with alternative water sources. Experiences in **Uttaranchal** and western parts of India (**Jhabua, Ratlam, Banswara**) highlighted how the passage of time and an exposure to successes of neighboring communities can enhance the responsiveness of initially unmotivated communities to accept new programmes. Another example in **Jhabua district** stressed upon the role of civil society institutions and a holistic socio-political approach in facilitating amicable resolution of conflicts.

**International Experiences:** In an example of resolving a rural-urban conflict, competing interest groups in the **Taiz area in Yemen and Southern Pakistan** clearly defined and promoted community education about the water rights as an enabling measure. Examples provided for **Costa Rica** and for **Karachi, Pakistan**, showed that service providers and the citizen stakeholders can be brought together to clear up the misperceptions and promote complementarity of different interests in managing the water distribution system.

The comparative experiences detailed below highlight the importance in any conflict resolution effort of context specific mechanisms and consensus building to create win-win scenarios.

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## Comparative Experiences

### National Experiences

**Salboni Gram Panchayat, Midnapore District, West Bengal** (from [Shir Ranjit Kr. Maiti](#), P&RD Dept, West Bengal)

As part of the Action Research Project, a **water budgeting system** was set up. All households submitted their water budgets for various uses, following which a participatory discussion was conducted to match water availability and demands. This enabled experimentation with alternative water sources, and helped resolve conflicts amicably. However, in the case of a semi urban area, the experience in undertaking the same process has been mixed and indicates that the process depends upon the facilitator and his/her ability to get political support.

**Kerala** (from [Vinod Kumar](#), Maithri, Palakkad, Kerala)

- **Gram Panchayats, Palakkad Gap Region:** The experience in this rain shadow area illustrates how **grass-root community** has been capacitated to manage natural resources. Although several ponds act as a major water source for agriculture, modern irrigation schemes and land reforms have adversely affected the source. The drought in 2003-04, however, offered a breakthrough as the owners of the pond and its command area (average 7-10) formed a **beneficiary group**. The owners ceded all water rights to the beneficiary group for sharing water among the members as per guidelines stipulated in the agreement registered with the Gram Panchayat. This initiative was supported by the then District Collector and the Gram Panchayats. Although the initial target was 500 ponds, only around 100 could be executed due to resistance from vested groups. Farmers were able to cultivate two crops, and the sharing water formula is holding well in most cases. Maithri and Kudumbasree, two agencies supporting the initiative were involved in capacity building of the community. Though lack of funds and other hurdles has resulted in the campaign losing its momentum this year, there are hopeful signs for 2006.

- **Gram Panchayats, Vadakarapathy and Eruthenpathy:** Another initiative was launched with the support of CapDeck (a SDC supported programme to strengthen decentralization in Kerala). *Neighbourhood groups* (NHGs) were formed in micro watersheds under the auspices of Gram Panchayats for natural resource management. Over the last one and half years, the NHGs have conducted socio economic survey, participatory resource mapping and water balance studies for their area. A digital interactive model regarding water usage and expenditure is being created for each locality and is made available at a resource center situated in the Panchayat office. People are now aware of the impact of heavy bore well pumping, and the differences between irrigation technologies etc.

**Tamil Nadu** (From [S. Janakarajan](#), *Madras Institute of Development Studies, Chennai*)

- **Palar Basin, Tamil Nadu:** Palar is one of the most heavily stressed river basins in India where leather tanneries have contributed to the environmental degradation, particularly water pollution. Policy initiatives and other efforts had been undertaken but could not really resolve the issue. Judicial activism through the Supreme Court's intervention in response to a public interest litigation filed against the tanners was also helpful mainly in creating awareness only. MSD was thus initiated, and in the absence of any alternative solution, it helps, at least, to bring together all stakeholders for a negotiated settlement. The *multi-stakeholders' committee of water users* of the Palar basin have met over 10 times so far to work on pollution prevention. RO plants have been set up in some tanneries and although more work is required, the biggest achievement has been the access gained by the committee into the tanneries.
- **Cauvery Basin, Tamil Nadu:** An analysis of this longstanding dispute on the issue of Cauvery waters between Karnataka and Tamilnadu exposes the sense of existing distrust. Hence, a Committee of farmers leaders of both States has been constituted - called the *Committee of the Cauvery Family*. Since June 2003, the Committee has met seven times and after this dialogue initiative, farmers of both states have agreed not to resort to violence. They have visited the Cauvery command areas of both states at least twice, and received first-hand information which has helped clear the built up mistrust and communication gap. Additionally, *distress water sharing formula* during distress years is being worked out.
- **Chennai, Tamil Nadu:** Since there has been a large amount of groundwater transported from peri-urban villages to the city, these villages are affected both economically and environmentally. Water transported from peri-urban areas to cities has reduced agricultural activities and affected rural livelihoods, and is the source of conflict between Chennai city and its peri-urban villages with the peri-urban villages losing and the city gaining – a kind of win-lose situation. To convert it into a win-win situation, an *MSD committee of water users* of Chennai and peri-urban villages has been constituted and is moving forward, presently documenting and digitizing local water bodies in peri-urban areas in GIS.

**Jhabua district, Madhya Pradesh** (from [Rahul Banerjee](#), *Indore, Madhya Pradesh*)

The experience in Western Madhya Pradesh, home to a large population of Bhil adivasi peasants revisits the environment-livelihoods linkage. The watershed development work here was hindered due to the privatization of common property resources until the NGO 'SAMPARK' undertook a creative communitarian approach to problem solving which graduates from a narrow technical perspective to a more holistic socio-political approach. The NGO has facilitated the setting up of *civil society institutions* which have enabled amicable resolution of disputes by ensuring a better distribution of costs and benefits, and gradually aspire to address other socio-economic factors including markets and policy. The importance of *positive participation in the market* has been realized for the long-term sustenance of successfully implemented watershed

development projects, and for the overall future development of the adivasis. For further information see [Bhil Indigenous People Villages, Jhabua district, Madhya Pradesh](#)

**Uttaranchal** (from [Devendra Dhapola](#), Key resource Center (WATSAN), Uttaranchal Academy of Administration, Nainital, Uttaranchal)

The '**Swajal Project**' team was working in a village, where the villagers had split in two parties due to personal conflict. All efforts were made to solve the problem and help them have the Swajal project, but both parties did not agree. So the team left the village saying that they will not return. After 7-8 months, however, the villagers came back saying they were sorry. Both the parties resolved their conflict, enabling the Swajal Project team to work in the village. At present, the village is running their water and sanitation schemes without any outside support. This experience highlights that in some cases **time** can solve the conflict provided the project staff leave a positive message.

**Western India** (from [Prabhjot Sodhi](#), UNDP GEF SGP, New Delhi)

As part of a project in some parts of Western India, the communities of one particular village in this region were approached through participatory rural appraisals and three-five year development priority vision was drafted. The communities during the three-day long exercise, which was held after a series of meetings leading to rapport and trust building over a period of six months, agreed to examine the ways to address their development needs. However, the dominant sections in the power-structure of the village fearing that the local empowerment processes could weaken both their political and economic conditions, threatened the team and asked them to evict the village. In spite of efforts at negotiation, the team was left with no option but to leave the village. However, a year hence when the **facilitation processes** had addressed issues and benefited people of another village, the situation acted as a stimulant to this village to develop similar systems. This resulted in achieving village development through negotiation for better management and operation of assets.

**Tamil Nadu and Gujarat** (from [Sara Ahmed](#), Ahmedabad)

A three year action collaborative research project on '**Negotiating Conflict: Gender Equity, Resource Rights and Institutional Practice in Integrated River Basin Management**' was initiated in 2003 to understand how struggles over water are negotiated at different institutional and spatial levels (household, community, inter-village and the state) in two micro-river basins in India - lower reaches of the **Palar River** in Tamil Nadu and the **Jholapuri River** in Gujarat. The main goal is to facilitate inclusive **multi-stakeholder dialogue processes** and **social learning forums** towards conflict negotiation and livelihood security. For details see [River Basin Dialogue](#).

## International Experiences

**Taiz area, Yemen** (from [Aslam M Chaudhry](#), UN DESA Division for Sustainable Development)

In a rural urban conflict situation in Yemen, the methodology in use to resolve the situation is **defining ground water rights**, registering them and allowing for voluntary inter-sector transactions in water rights. The National Water Resources Authority (NWRA) has adopted a basin co-management approach whereby it would work with local communities to manage water resources at catchment level.

**Karachi, Pakistan** (from [Emilie Filmer-Wilson](#), UNDP Oslo Governance Centre)

In the absence of dialogue between service providers and users, the Karachi water system had been poorly managed and was under tremendous pressure. In an effort to resolve the issue, the **Urban Governance Initiative** resorted to bringing the various stakeholders together to discuss the issue. This exercise helped clarify different interests - with authorities learning that they

needed to be more inclusive and transparent in their decision making process. Actual and potential conflicts were remedied, and the government learned the importance of bringing informal settlements into the formal system while the citizens helped emphasize the need for **rights-based laws** as compared to rule based laws regarding water.

**Costa Rica** (from [Jaime Echeverria Bonilla](#), UNDP Costa Rica)

Tourism development projects in the Costa Rican Northeast had neglected water management issues, and implemented a strategy basically ignoring local communities. Having underestimated the communities' response (which was fueled by some NGOs), these companies found themselves in the midst of a public relations disaster. Implementation plans were delayed and a lot of time and effort spent to mitigate the situation. The tension was eliminated once companies and communities started talking face to face, sharing their positions and finding common interests. Companies even agreed to fund water projects for neighboring poor communities, improving access and service levels. The lesson here is that private companies, which were making investments in an economically depressed area, could have avoided the situation by **engaging stakeholders** and not ignoring them. Transparency in behavior, including release of information, would have reduced communities' suspicions. Another lesson is that project development managers need to be trained in water resource management. Basically, project design and implementation should give emphasis to transparency, information generation, communication, and even funding or leverage of community public water infra-structure.

**New Mexico** (from [Paul Paryski](#), New Mexico)

New Mexico is using its scant water resources on a totally non-sustainable basis due to uncontrolled development, inefficient water use and mining existing aquifers. This situation is creating considerable conflict between cities, the developers, the agricultural sector (which uses 75% of the water very inefficiently), the first nations and the traditional Hispanic Acequia communities. In this situation, attempts are being made to find negotiated settlements through **consensus stakeholder processes** such as **state sponsored town halls** and through water basin active management. These initiatives met with some initial success. However, establishing water resources policy boards with various stakeholders, is another solution now being proposed.

**Other case studies** (Identified by [Henrike Peichert](#), EE Network Facilitator)

- **Nepal:** The Butwal Power Company (BTC) was promoting the Khimti Hydropower Project (KHP) in Eastern Nepal in early 1990s, and decided to construct a mini-hydropower plant in the vicinity to meet part of the KHP's construction power needs. A potential site was identified about two km downstream from the headworks (i.e. intake area) of KHP that could meet about one third of the demand. A challenge was that the source stream (Jhankre river) was used for irrigation (though water was not needed all the year round) and the only feasible intake site for hydropower was also used by the irrigation system. After discussions between BPC and the water users, a consensus was reached: irrigation flows would be released by the project for the agreed duration, time and quantity; at other times, power generation would get precedence. While recruiting workforce during project construction, priority will be given to local population, and the communities near the project area would be electrified. Thus, a **water sharing agreement** was signed between BPC and the Jhankre community members in 1992. The Jhankre-mini hydro plant was commissioned in 1996 and no water use conflicts have been reported to date. This case shows that private companies and communities can collaborate if dialogue is started from project inception.
- **Costa Rica:** This case highlights the country's recognition of the importance of its forests in providing environmental services, including water catchment protection and recovery of water resources. The water charge recognizes the **value of water** to the communities from which it comes and compensating them with a charge levied on downstream users. The introduction of the charge reflects a shift towards implementation of the principle of water as an economic good and supports the notion of integrated water resources management.

- **Pakistan:** The farmers on Rahuki canal/Southern Pakistan which is at the tail end of Sukkur barrage system have faced extreme water shortage since late 1970s. Non-availability of canal water for over a period of more than 15 years destroyed socio-economic and living conditions and people migrated to other areas. A local village-based NGO, Bhattai Welfare Association (BWA), organized the affected farmers and communities, forming the Rahuki Tail Abadgar Association for *lobbying and advocacy* with irrigation officials. Failing to lobby the officials, BWA and farmers group took irrigation water issue to the local Human Rights Court in 1994. After three months, the court ordered the irrigation department to complete the structural work and ensure irrigation water to all farmers in the area. The NGO and community followed up and ensured the implementation of the *legal* decree. Water was restored in 1995, and today all communities get their share of water. For more details see: [Community action for equitable water distribution](#)

**UNDP Programmes** (Identified by [Henrike Peichert](#), EE Network Facilitator)

- **Global Programme on Community Water Initiative:** is designed to contribute to achieving the MDGs for water and sanitation by piloting, learning from and disseminating experience on ways in which communities can take action to meet their needs. Among the niches the CWI will address in the future are diminishing water resources or their pollution in situations which increasingly generate conflicts among users and other stakeholders. For details see [UNDP's Community Water Initiative](#).
- **Regional Environment Governance Programme for Asia Pacific:** Under a sub-component of the Programme - the Community Dialogues Initiative a dialogue targeting the Lower Mekong River Basin Area was held in Thailand in 2005. The objective was to empower communities across borders in the Basin region (Cambodia, Laos PDR, Thailand). *Trans-boundary dialoguing* offers an opportunity to consult on demand driven shared strategies for 'equitable sharing' and local informal solutions for resolving conflict. For details see [Community Dialogues Initiative targeting the Lower Mekong River Basin Area](#)
- **A GEF Small Grants Programme project in Lithuania:** Industrial activities have made the village of Petrasiumai, one of the most polluted areas (especially its rivers) in the region. A SGP project is being undertaken to reduce the pollution of the river by joint efforts from different organizations. It also aims to establish a political dialogue with the municipality through the involvement of the polluting industries and the encouragement of community projects for solving common problems. For details see [Community P.O.W.E.R. \(People, Opinions, Wealth, Environment, Responsibilities\)](#)

## Related Resources

### *Recommended Organizations*

From [Vinod Kumar](#), Maithri, Palakkad, Kerala

#### **Maithri, Jalanidhi Project, Kerala**

Muthalamada, P.O Govindapuram, Palakkad Dist.-678 507 Ph: 04923-275465

and

#### **Kudumbasree, Kerala**

[www.kudumbashree.org](http://www.kudumbashree.org)

*These provided support to Palakkad Gap Region initiative by facilitating development of skills for the community like taking measurements, accounts and bookkeeping etc*

#### **CapDeck - Project in Capacity Building for Decentralization in Kerala**

SDC-CAPDECK, Pattom, Trivandrum - 695 004, Kerala, India

Ph: 0471-2543392, Email: [capdeck@md5.vsnl.net.in](mailto:capdeck@md5.vsnl.net.in)

*A programme supported by SDC to strengthen decentralization in Kerala is recommended for its involvement in Vadakarapathy and Eruthenpathy Grama Panchayaths.*

From [Sara Ahmed](#), IIM (A), Ahmedabad

**SOPPECOM, Maharashtra**

contact: KJ Joy, [soppecom@vsnl.net](mailto:soppecom@vsnl.net)

and

**WWF International, Andhra Pradesh**

contact: Biksham Gujja, [b.gujja@cgiar.org](mailto:b.gujja@cgiar.org)

*For information on Forum for Policy Dialogue on Water Conflicts in India that has been compiling a compendium on water conflicts case studies in India*

**Utthan, Gujarat**

[www.utthangujarat.org](http://www.utthangujarat.org)

and

**Gandhian Unit for Integrated Development Education (GUIDE), Tamil Nadu**

[guide@vsnl.net](mailto:guide@vsnl.net)

*Recommended for involvement in River Basin Dialogue project – UTTHAN also recommended for a docu-drama film outlining various stages in 'conflict transformation'*

**Capacity Building for Integrated Water Resources Management (Cap-Net) South Asia, Hyderabad**

[www.cap-net.org](http://www.cap-net.org)

*Recommended for workshops offered on negotiation skills in the context of water conflicts*

**Legal Pluralism & Integrated Water Resources Management, Tanzania** (from [Lenni](#)

[Montiel](#), UNDP, Vietnam)

<http://www.nri.org/waterlaw/>

*A collaborative research project aiming at improving plural legal systems in water management in Southern Africa through action research, capacity building and advocacy*

**Centre on Housing Rights and Evictions, Geneva** (from [Emilie Filmer-Wilson](#), UNDP Oslo Governance Centre)

<http://www.cohre.org/>

*Recommended for its work in the area of water from a human rights perspective*

***Recommended Contacts***

**Prof. Ramaswamy Iyer** (from [S Janakrajan](#), MIDS, Chennai)

*Former water resources secretary, Prof. Iyer, has been one of the active advisers of the Committee of the Cauvery Family*

**Tom Slaymaker** (From [D Joshi](#), University of Southampton, UK)

[t.slaymaker@odi.org.uk](mailto:t.slaymaker@odi.org.uk)

*May be contacted for information on a decision support tool system also contained on the SecureWater project website*

**Khalid Riaz** (From [Aslam M. Chaudhry](#), UN DESA)

[kriaz100@isd.wol.net.pk](mailto:kriaz100@isd.wol.net.pk)

and

**Moin Karim**

[moin.karim@undp.org](mailto:moin.karim@undp.org)

*Recommended for their knowledge of a similar rural urban conflict and the methodology used to resolve the conflict in the Taiz area of Yemen*

### **Recommended Websites**

**SecureWater** (from [D Joshi](#), University of Southampton, UK)

[www.securewater.org](http://www.securewater.org)

*The Overseas Development Institute (ODI) led and DFID-supported research website includes analysis of issues such as inter-sectoral and policy triggered conflicts*

From [Sara Ahmed](#), IIM (A), Gujarat

**River Basin Dialogue - India**

[www.riverdialogue.in](http://www.riverdialogue.in)

*Provides information on a action-research project on negotiating conflict through multi-stakeholder processes & dialogue in Jholapuri & Palar river basins.*

**Dialogue on Water, Food and the Environment**, available at

<http://www.iwmi.cgiar.org/dialogue/index.asp>

*This IWMI link has details on the initiative Forum for Policy Dialogue on Water Conflicts in India with some useful tools outlined*

From [Pascal O. Girot](#), UNDP, Costa Rica

**UNESCO's World Water Assessment Program & International Hydrological Program**

<http://www.unesco.org/water/wwap/pccp/>

*Programme on Conflict Management over Water resources includes capacity development materials & other information*

**Transboundary Freshwater Spatial Database (TFDD)**, by

Aaron Wolf, Oregon State University

[http://www.transboundarywaters.orst.edu/projects/spatial\\_database/](http://www.transboundarywaters.orst.edu/projects/spatial_database/)

*Linked to the UNESCO Programme this site is an interesting source of geo referenced information and relevant bibliography.*

**The Global Water Partnership**

<http://gwpforum.netmasters05.netmasters.nl/en/>

*An online Toolbox on Integrated Water Resources Management, which may be useful, developed by The Global Water Partnership*

**University for Peace**

[www.upeace.org/cyc](http://www.upeace.org/cyc)

*The Conflict and Cooperation Program with support from IDRC documents conflicts over natural resources, including water, compiling a number of illustrative case studies*

From [Lenni Montiel](#), UNDP, Viet Nam

**Community Water Supply Management**, available at,  
<http://www2.irc.nl/manage/partners/refsites.html>

*This IRC International Water and Sanitation Centre, Netherlands link provides general, specific, organisational, etc web pages on community management*

**International Water Management Institute, Sri Lanka**  
<http://www.iwmi.cgiar.org/>

*The IWMI website provides information on water related issues and contains research reports dealing with conflicts, particularly with ground water management*

**Water, Engineering and Development Centre (WEDC), Loughborough University, UK**  
<http://wedc.lboro.ac.uk/>

*This DFID-funded resource centre's website is recommended for improving information on water and sanitation.*

**Water Resources Management. Delft University of Technology, Netherlands**  
<http://cms1.tudelft.nl/live/pagina.jsp?id=6b71092c-a2dd-488d-a0e0-88b60a13729b&lang=en>

*This website is recommend for information on various issues related water management*

**Transboundary Waters and Crisis Prevention, Bonn International Centre for Conversion, Germany**

<http://www.bicc.de/water/>

*The BICC water page addresses issues of water, conflict and cooperation by applied research and activities, such as knowledge exchange and capacity development*

### ***Recommended Documentation***

**Cost-Benefit Distribution Problems in Watershed Development in Bhil Indigenous People Villages in Jhabua district in Madhya Pradesh in India and their Communitarian Solution** (from [Rahul Banerjee](#), Aarohini Trust, Indore)

<http://solutionexchange-un.net.in/environment/cr/res02120501.doc> (Size: 98.5 KB)

*Study of an NGO that successfully resolved a gainer-loser conflict and done some institution building at the local level to sustain the work*

**Case Summary: Costa Rica - Introducing water use charges to pay for environmental services** (from [Jaime Echeverria Bonilla](#), UNDP Costa Rica)

<http://gwpforum.netmasters05.netmasters.nl/ZappEngine/objects/ACF621.pdf> (Size: 577 KB)

*Describes process, & main problems in levying, collecting and distributing funds from the water sector (hydro electricity & water users) for use in protection of environmental services*

From [D Joshi](#), University of Southampton, UK

**SecureWater – Whither Poverty? Livelihoods in the DRA: A case study of the Water Supply Programme in India** in *SecureWater: building sustainable livelihoods for the poor into demand responsive approaches*, by

Deepa Joshi, Overseas Development Institute, London, 2004, available at,

[http://www.securewater.org/mainphase/India/RR\\_4\\_india\\_Securewater.pdf](http://www.securewater.org/mainphase/India/RR_4_india_Securewater.pdf) (size: 0.99 MB)

*The report outlines the research findings of the 'SecureWater' project that examined the application of the demand responsive approach in water supply policy in Andhra Pradesh.*

**SecureWater Through Demand Responsive Approaches: The Sri Lankan Experience** in *SecureWater: building sustainable livelihoods for the poor into demand responsive approaches*, by Rajindra De S. Ariyabandu and M.M.M. Aheeyar, Overseas Development Institute, London, 2004, available at,

[http://www.securewater.org/mainphase/Sri%20Lanka/RR\\_3\\_SriLanka\\_SecureWater.pdf](http://www.securewater.org/mainphase/Sri%20Lanka/RR_3_SriLanka_SecureWater.pdf) (Size: 610 KB)

*This study aims to understand relationships between water and livelihoods for poor communities, and demand responsive approaches in water and sanitation practices*

From [Lenni Montiel](#), UNDP, Viet Nam

**Community-based principles for negotiating water rights: some conjectures on assumptions and priorities** by

Bryan Bruns, presented at the International Workshop on 'African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa', 26-28 January 2005, Johannesburg, South Africa. <http://www.nri.org/waterlaw/AWLworkshop/BRUNS-B.pdf> (Size: 224 KB), available at, (<http://www.nri.org/waterlaw/workshop.htm>)

*The paper deals with negotiating water rights and participatory approaches for natural resource management*

**Conflict Management in Community-Based Natural Resource Projects: Experiences from Fiji and Papua New Guinea** by

Michael Warner, Working Paper 135, Overseas Development Institute, April 2000, London [http://www.odi.org.uk/publications/working\\_papers/wp135.pdf](http://www.odi.org.uk/publications/working_papers/wp135.pdf) (Size: 191 KB)

*The paper evaluates the new strategic design of community projects to overtly contribute to resolving conflict and building peace in natural resource management*

**Conflicts and Conflict Management in Watershed Management** by

Chris Huggins, African Centre for Technology Studies (ACTS), Kenya, June 2004 [http://www.gbf.ch/Session\\_Administration/upload/huggins\\_agriculture.doc](http://www.gbf.ch/Session_Administration/upload/huggins_agriculture.doc) (Size: 95 KB)

*This paper is a summarized version based on a literature review of the causes, and manifestations of conflict in watershed management programmes and projects globally*

**Water resource scarcity and conflict: review of applicable indicators and systems of reference** by

Pal Tamas, Technical Documents in Hydrology, PC-CP Publication (2001-2003), No. 21, UNESCO-IHP,

<http://unesdoc.unesco.org/images/0013/001333/133307e.pdf> (Size: 810 KB)

*The article considers conflict resolution capabilities, in particular the institutional dimensions, comparing capacities in developed and developing countries*

**Water Conflicts in South Asia - Managing Water Disputes within and between Countries** (from [Abdul Qadir](#), Pakistan)

edited by Toufiq Siddiqi and Shirin Tahir-Kheli. Honolulu 2004. (ISBN 0-9759663-1-6).

*This book is recommended for readings in water management conflicts for South Asia*

**Tackling the issue of rural-urban water transfers in the Ta'iz region, Yemen** (from [Khalid Riaz](#), UNDP Yemen) by,

Khalid Riaz, Natural Resources Forum, Vol 26, 2002, (subscription required), abstract available at, [http://www.ingentaconnect.com/search/article?journal=Natural+Resources+Forum&journal\\_type=exact&year\\_from=1997&year\\_to=2005&database=1&pageSize=20&index=122](http://www.ingentaconnect.com/search/article?journal=Natural+Resources+Forum&journal_type=exact&year_from=1997&year_to=2005&database=1&pageSize=20&index=122)

*This paper deals with the issue of rural-urban water transfers also providing background on water problems in Ta'iz, region of Yemen*

**Contested waters: Conflict, Scale and Sustainability in Aquatic Socioecological Systems** (from [Uygar Özesmi](#), UNDP, New York) by,

Sneddon, C et al, Society and Natural Resources, Volume 15, 2002, (subscription required), abstract available at,

[http://www.ingentaconnect.com/search/article?journal=Society+and+Natural+Resources&journal\\_type=exact&volume=15&year\\_from=1997&year\\_to=2005&database=1&pageSize=20&index=14](http://www.ingentaconnect.com/search/article?journal=Society+and+Natural+Resources&journal_type=exact&volume=15&year_from=1997&year_to=2005&database=1&pageSize=20&index=14)

*Paper focuses on the multiple causes of conflict over water presented through various cases researched in Bangladesh, Pakistan, Thailand, Turkey and the United States*

From [Illia Rosenthal](#), International Fund for Agricultural Development

**Negotiation and mediation techniques for natural resource management**

By Antonia Engel and Benedikt Korf. FAO (2005)

<http://www.fao.org/docrep/008/a0032e/a0032e00.htm> For further information:

<http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=1760&sitetreeId=8308&langId=1&geold=0>

*The FAO document is recommended for its background information and negotiation methodologies for natural resource management*

**Conducting conflict assessments: Guidance Notes**

By Mukesh Kapila. DFID 2002 (PDF Size 161 KB)

<http://www.dfid.gov.uk/pubs/files/conflict-assess-guidance.pdf> available at DFID website

*This DFID guidance note on conflict assessment has been recommended as background information on the issue in question*

**Benefits-Harms Handbook and Facilitation Manual**

By Paul O'Brien. CARE (2001) available at CARE website

<http://www.careusa.org/getinvolved/advocacy/index.asp>

*The Handbook describes the Benefits-Harm approach that may be used by relief and development organizations to assess the actual impact of their work*

***Related Past Consolidated Replies***

**Considerations for sharing of catchment pond water resources/ from Jal Bhagirathi Foundation, Rajasthan/ Advice**

[Consolidated Reply](#)

*This Consolidated Reply on SE-WES seeks advice, experiences or models for sharing catchment pond water resources between villages while allaying their security concerns.*

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**Responses in Full**

**[Shir Ranjit Kr. Maiti](#), Joint Secretary P&RD Dept, West Bengal**

According to Mahatma Gandhi, Water is of Gopal – God incarnate. When we extract water from underground there is a usual tendency to exploit it in a limitless overuse or relentless misuse. In

an Action Research project undertaken in Salboni Gram Panchayat of undivided Midnapore district, we followed a unique method of certain water budgeting systems wherein every household will come out with their water budget – for agriculture, animal resources and domestic purpose. After that tentative budget received we sought for a participatory discussion on the actual water available and how far that can be fit to the demands. By this way we also experimented with alternative sources of water for use in agriculture – like surface water being wasted otherwise. After detailed deliberation such conflicts could be sorted out amicably.

The same process we have undertaken in case of a semi urban area also. But the experience is a mixed one. >From my experience it may be said that the process depends wholly upon the facilitator in this process and his/ her capability to attract the political leaders is also important.

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### **Vinod Kumar, Maithri, Palakkad, Kerala**

I am writing this on the background of Grama Panchayaths situated in the Palakkad Gap region, a rain shadow area in Kerala (with rainfall varying from 2300 mm to 700 mm).

There are dozens of cases to substantiate the three categories but very few of problem solving nature. There is only one case of positive fallout and another of promising nature.

There were about 16,000 thousand ponds in this district. Most of them are in private hands. They were the backbone of traditional irrigation systems before the advent of post independence irrigation schemes. But the modern irrigation schemes failed to recognize their importance and many were filled or neglected. The Land reforms in Kerala also adversely affected the ponds. The land became fragmented, owner of a smaller plot can not maintain the pond alone nor need it's services. Worse the ownership of the pond is shared between a number of persons, some of them already migrated to other places. Any Government funding for revival stipulated that the pond should be public. All of these made renovation of a pond an improbable one.

But the drought of 2003-04 offered a break through. A new formula was floated. The owners of the pond and the land owners in the command area of the pond ( on an average 7+10) formed a beneficiary group. The owners ceded all water rights to the beneficiary group. They formed a bye laws and got registered in the Grama Panchayath. The bye laws stipulated the water use or guidelines for the water sharing. Grama Panchayath is the guarantor of these agreements. This initiative was actively supported by the then District Collector and the Grama Panchayaths.

When the campaign started the target was 500 ponds and the achievement was around 100. This reduction were due to the stiff resistance offered by the vested interests who opposed the community contracting and the role of GP s along with early onset of monsoon. Maithri and Kudumbasree were the two agencies supporting the initiative. Lot of skills like taking levels, measurement, keeping of measurement books, account books etc were imparted to the community. But the campaign lost its momentum in 2005 ( due to lack of funds, hurdles placed by the opposition and the transfer of the dynamic DC) there are signs of hope for 2006 ( new funds are coming,there is a demand from the public and Grama Panchayaths and most of the hurdles are cleared). Farmers were able to cultivate two crops in hundreds of hectares of paddy fields in 2004 and 2005 in the command area of renovated ponds and the formula of sharing water is holding well in almost all of the cases.

To expand the gains another initiative was launched in Vadakarapathy and Eruthenpathy Grama Panchayaths (average rainfall 1200 mm, usual depth of bore well 800 feet) with the support of CapDeck (a programme to strengthen decentralization in Kerala, supported by SDC). Here

Neighbourhood groups were formed in micro watersheds under the auspices of Grama Panchayaths with the mandate of Natural Resource management. Over the last one and half year, the NHG s have conducted socio economic survey, an analysis of water shortage by conducting problem tree, conducted the participatory resource mapping and combing the above three conducted a water balance study for their area. Now a digital interactive model regarding water usage and expenditure is being created for each locality and is made available at a resource center situated in the Panchayth office. People now easily recognize the impact of heavy bore well pumping, silted/absence of ponds, channels, the difference between drip and flood irrigation etc. In many communities there are offers of land to dig new ponds. The NHG s based on their studies and experiences prepared projects and submitted it in the Gramasabhas. In Vadakarapathy alone the GP earmarked 10 lakh rupees to these groups for implementing their projects.

In short, a grass root level community set up is being capacitated to manage the natural resources of their immediate vicinity on sound scientific principles. They are now trying to sort out some of the issues raised here (basically c category), like over exploitation of ground water etc in a quite manner. For a confirmed result we have to wait further.

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**S Janakarajan, Madras Institute of Development Studies (MIDS), Chennai  
(Response 1)**

This is with reference to Prema's query on conflict resolution experiences in water management.

First of all, it is necessary to understand *what is Conflict?* Conflict occurs when two or more parties perceive that their interests are jeopardized, and, that their interests are incompatible; express hostile attitudes; pursue their interests through actions that damage other parties. These parties may be individuals, small or large groups, caste or community, states or countries.

*Conflicts are of two types:* They are (a) passive conflicts and (b) more aggressive or violent conflicts. Often, passive conflicts also turn aggressive or even become violent in the absence of appropriate mediation.

*What is the root cause for conflicts?* The root cause is the systematic violation of bottom line rules and regulations or norms; Yet another reason or the cause for conflicts is the persistent contradictions between individual rationality and collective rationality in a society; For instance, an individual well owner thinks that he could go to any depth to extract water, sell and have merry life as long as water is available. In this case, he never bothers about his neighbours or the future generation. This is his individual rationality which goes against the collective rationality which aims to achieve some kind of equity and sustainable use of resources. This is precisely why the wells are deepened in India in a competitive manner, resulting in secular lowering of water table.

Outcome of unchecked and unmediated conflicts; but, conflicts eventually will destroy the whole society if not resolved wars between nations for instance, if unchecked, can trigger off even nuclear war, which can destroy the whole world. Therefore conflicts need to be mediated.

*Conflicts in water*

There are conflicts in the process of sharing of limited water resource. Conflicts in the use of water occur at all levels -

between individual well owners

between head and tail reach farmers

between villages  
between communities / irrigation groups and societies  
between sectors - due to competing demand for water across uses and users  
between urban - peri-urban - and rural areas  
between states (inter-state disputes)  
between nations and so on.

Yes, there is a great need to resolve or minimize these conflicts. Before answering these questions, we need to understand and address following questions:

1. What happens if these conflicts are unresolved?
2. Why these conflicts remain unresolved?
3. Whose responsibility is it to resolve these conflicts?
4. What is the role of government?
5. To what extent 'laws' or legal measures be solutions to these conflicts? What is our experience?
6. Do we have enough laws to resolve or minimize these conflicts? Or do we need more laws?
7. Efficacies of law enforcement and monitoring mechanisms in resolving or minimizing conflicts?

I would stop here and address these questions in my next mail.

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**Rahul Banerjee, Aarohini Trust, Indore, Madhya Pradesh**

I am enclosing a [study](#) I did of an NGO that had successfully resolved a gainer-loser conflict and done some institution building at the local level to sustain the work.

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**D Joshi, University of Southampton, UK**

I would like to point you to the Overseas Development Institute led and DFID-supported SecureWater research website: <[www.securewater.org](http://www.securewater.org)> which includes an indepth analysis of the issues you raise below, especially: competing inter-sectoral water claims and its impact on drinking/domestic water use as well as conflicts triggered by policy incoherence resulting in competing and conflicting demands and use of ground and surface water supplies.

The primary purpose of the research was to assess the net impact of the currently fragmented approaches to managing water as well as recent water policy changes (towards cost-recovery and/or demand-responsive approaches) in relation to poverty and livelihood security.

In the website, you will find full details of the India and Sri Lanka case studies (the 2 research countries), as well as insights from elsewhere which are compiled in a decision-support tool system, designed to suggest practical guidelines for practitioners and policy-makers engaged in this field.

I do hope this is useful. If the website reports are difficult to access, please do get back to me or to Tom Slaymaker ([t.slaymaker@odi.org.uk](mailto:t.slaymaker@odi.org.uk)).

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**S Janakarajan, Madras Institute of Development Studies (MIDS), Chennai  
(Response 2)**

My second installment to Ms. Prema's query on *conflict resolution mechanisms* is the following:

In recent times multi-stakeholders' dialogue (MSD) has emerged as an important tool and as a crucial conceptual framework for possible policy interventions and for a negotiated settlement to arrive at sustainable development of natural resources. MSD is basically a participatory methodology or approach adapted to a particular problem in a situation where resource sharing is difficult and proved unsuccessful by all conventional wisdoms such as legal, economic and other institutional mechanisms. **Most important objective of MSD is to find ways to turn situations of conflict and distrust into opportunities for mutual aid and cooperation.**

I adopted MSD in three cases in Tamilnadu, which has proved reasonably successful.

**Case:1 Palar basin:** Palar is one of the most heavily stressed river basins in India where leather tanneries have played a significant role in contributing to the environmental degradation in general and water pollution in particular. Policy initiatives have failed to deliver goods; there were several concerted efforts to express public solidarity; but the political parties in the State, with one or two exceptions, did not take active interest in the public outrage nor did they make it an election issue; even after assuming power the successive elected governments in the State did not make any concrete efforts to resolve the issue. Judicial activism - through the Supreme Court's intervention - in response to the public interest litigation case filed against tanners was helpful in so far as creating awareness and in pronouncing what tanners have done to the basin is environmental offence. But the remedial measures suggested by the Court could not travel too far due to fundamental flaws in the law enforcement and monitoring mechanisms. It was at this juncture the MSD process was initiated in the basin (in 2003) which appears rewarding at the moment. In the absence of any other alternative solution to the vexed problem of pollution in the basin, the MSD process helps at least to bring together all stakeholders in the basin for a negotiated settlement. We (the multi-stakeholders' committee of water users of the Palar basin) have met over 10 times so far and working on reversal of ecology and on pollution prevention. Already RO plants have been set up in some tanneries. The biggest achievement of the MSD committee is the access that it has gained into the tanneries. But we need to work lot more. We only have begun.

**Case-2 Cauvery basin** - which is the most the most disputed and litigious rivers in contemporary India; Long standing dispute between Karnataka and Tamilnadu which took all violent turns after the 50 year old agreement in 1974 did not get renewed; There were lots of built up mistrust overtime between farmers of both States; A careful analysis of the longstanding dispute between Karnataka and Tamilnadu exposes the sense of distrust that they show on each other: Karnataka, since came late to utilize the Cauvery water, believes that its legitimate entitlement is restricted and questioned although it has successfully constructed several storage reservoirs across the river. Tamilnadu on the other hand has had a much earlier and a more rapid history of development of irrigation command in the Cauvery basin; And, Tamil Nadu being a lower riparian State feels that it is at the receiving end – both literally and metaphorically; the anxiety is caused mainly because the State has to bear the brunt of the burden of floods, drought, and pollution. Tamilnadu therefore finds it devastating and thorny to be at the mercy and goodwill of Karnataka Government during each scarcity year. Tamilnadu therefore seeks through the intervention of the Supreme Court a clear title and definition of its share of the Cauvery water. Cauvery Water Tribunal was set up in 1991 which gave its interm Award which was disrespected by Karnataka govt. The final award is yet to be awarded. All successive governments / political parties made use of Cauvery water dispute for their own short-term political gains, which only contributed to regional chauvinism.

Like in the earlier case, a Committee of farmers' leaders of both States have been constituted. Its called the Committee of the Cauvery Family. Since 2003 June, the Committee has met seven times so far. After the dialogue initiative, farmers of both states have agreed not to resort to

violence in future. They have visited at least two times Cauvery command areas of both states and got the first hand information. The hitherto built up mistrust and communication gap have been wiped out. The distress sharing formula to share water during distress years is being worked at the moment. Former water resources secretary Prof. Ramaswamy Iyer has been one of the active advisers of the Committee of the Cauvery Family.

### **Case 3 Chennai – urban and peri-urban conflicts:**

There has been a tremendous growth of cities, intermediary and small towns all over the world. The growths of towns and cities in particular and, urbanization process in general, have both positive and negative impacts on rural and peri-urban areas in South Asia. The horizontal spread of industries, housing colonies, transport of water from peri-urban villages to cities have severe effect on livelihoods of peri-urban population; On the one hand, due to fast changing life styles in peri-urban villages people's needs have gone up by many folds; but on the other hand, their income levels have deteriorated due to declining agricultural activities and rising unemployment. Have all these resulted in prosperity or deprivation in peri-urban villages? Is it a superficial prosperity or the one, which could be sustained? Since there has been a tremendous amount of transport of groundwater from peri-urban villages to the city, to what extent these villages are affected – economically and environmentally? Has it resulted in serious livelihood problems for different stakeholders in these villages? In other words, water transport from peri-urban area to cities has affected rural livelihoods due to declining agricultural activities and consequent decline in income. But unfortunately this is not adequately compensated by non-farm job creations. This is the source of conflict between Chennai city and its peri-urban villages. There are two extreme points of view: One no water can be transported from peri-urban villages to the Chennai city; The other view is that groundwater from peri-urban villages should be utilized to the city's needs (since city is the center of growth!!). At the moment, peri-urban villages lose and city gains – a kind of win-lose situation. But how to make it a win-win situation? This is precisely the point where one has to think about multi- stakeholders' participation to negotiate and to deliberate upon for finding solutions in which both urban and peri-urban areas could benefit – a win-win situation!

A MSD committee of water users of Chennai and peri-urban villages has been constituted and is moving forward. At the moment we are documenting and digitizing local water bodies in peri-urban areas in GIS.

More after hearing from members.

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### **[Devendra Dhapola](#), Key Resource Center (WATSAN), Uttaranchal Academy of Administration, Nainital, Uttaranchal (Response 1)**

I am working in the water sanitation sector and have been involved in capacity building of 25 states of India as the project director in the Key Resource Center (WATSAN) Swajal dhara and TSC. Before that, I was one of the founder team members of the Swajal project as a project manager. We are working in one village, where the villagers had split in two parties. We made all our efforts to solve the problem and help them to have the Swajal project. Both the parties however did not agree due to their personal conflicts. At last we left the village saying that we will not come back again. After 7-8 months, the villagers came back saying that they were sorry. Both the parties solved the conflict, and then we worked in the village. Now the village is running their water and sanitation scheme without any outside support. I want to say in some cases, time can solve the conflict. Project staff should leave a positive message and in between the problem may get solved.

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**S Janakarajan, Madras Institute of Development Studies (MIDS), Chennai  
(Response 3)**

The difficult job, however, is to bring together all stakeholders or groups or water users from different sectors such as industries, urban drinking water users and so on. Farmers, though not a single homogeneous category, could be called one stakeholder. This is because, urban and industrial water users, in many cases, are a powerful lobby often supported by political groups. This is precisely what has happened in the case of the Palar basin Tamilnadu and water transport from peri-urban villages of Chennai city.

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**V. Kurian Baby, Socio-Economic Unit Foundation, Thrissur, Kerala (Response 1)**

As stated in the query, we have conflicts that are (i) micro-macro (rural-urban); (ii) micro-micro (inter sectoral conflicts out of competing uses); (iii) macro-macro (inter state/national); (iv) policy induced conflicts. This categorization is useful in finding sustainable solutions.

Generally, water conflicts are the fall out of scarcity and competing uses. Real or perceived causes, fueled by externalities make the situation rather worse. Though there are no universal solutions, however, adequate care in programme design would minimize the risks. We have excellent models of conflict management at community level in a desert state like Rajasthan, where the water resource budgeting, *anga* system of cost sharing in water development and community action of extradition of excess cattle during lean periods. While taking advantage of the prevailing social capital, one should not loose sight of the dynamics of social change. Overall, the effectiveness of conflict management is linked to the water governance, availability of institutionalized platforms, scientific inputs for informed decisions, decentralized regulatory framework and effective intermediation in consensus building to create win-win partnerships around water. Water is both a potential instrument for bonding and disruption. Specifically my reflections are:

**Conflict management - Policy level:** Design should have a **programmatic approach** addressing policy reforms (eg. Comprehensive ground water legislation, water sector policy, incentives /disincentives for sustainable water use and management); **Programme level:** (i) **Integrated approach:** (IWRM, harmonization of investments, co-ordination); (ii) **Inclusiveness:** (design through Stakeholder/ risk and sensitivity analyses, conflict mapping. eg. watershed programmes incorporating the riparian rights); (iii) **Facilitate informed decisions:** (scientific information on water resources, transparency and water budgeting); (iv) **Institutional subsidiarity/social capital** (decentralized water governance and conflict resolution platforms created at the appropriate level); (v) **Incentives and disincentives:** (dismantling market distortions like procurement prices, energy subsidy for water incentive cropping pattern, encourage water saving techniques, community management of water resources, accountability); (vi) **Empowerment:** (capacity building programmes on conflict resolution, basket of conflict management strategies, multi-stakeholder negotiations, developing tool kits for practitioners-resources, principles and processes); (vii) **Participatory M&E** (horizontal/ community based M&E, information flow and feedback at the appropriate levels with in the community to enable discussions and dialogues.

Methodologically, any design to facilitate conflict management should address the supply, demand, regulatory and institutional process. Strategically, sustainable conflict management process should desist from compromise, withdrawal and force formulae (as there could be stake

losers) and the preferred path would be the one of **consensus building to create win-win scenarios**. A critical ingredient for successful conflict management is credibility and love, which are indeed process oriented and qualitative and strengthen collective realization, divided we stand united we fall.

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**[Prabhjot Sodhi](#), UNDP GEF SGP, New Delhi (Response 1)**

I fully support that we should not always see ourselves as **'problem solvers'**, we should only act as **'catalysts of change'** – facilitators. We had a similar experience in a village when we approached the communities through participatory rural appraisals and drafted a three-five year development priority vision (sharing costs, decisions and roles etc.) in the tribal regions of western India.

The communities, in the three-day long exercise, which was held after a series of meetings leading to rapport and trust building over a period of six months, agreed to share as to how they wanted their development needs addressed. Next day we had the so-called 'gate keepers' of the village – the power structures (**who could understand that this local empowerment processes would weaken both their political and economic conditions**) lashed out at us saying that we should leave this village.

After series of meetings with the community's and with the so-called power structures, we had no choice but to leave (for 3 of our staff, including myself were threatened). Finally we left and only after one year when they saw how the facilitation processes had addressed the issues in other villages..... and that they were being left out on the benefits the project is facilitating.... did they rise to the occasion and wanted the same process to be executed in their villages. Such situations sometimes work as stimulants to development and enthuse a new feel of social structures and systems. We of course ended up doing the village development but only on clear terms and could negotiate better and affective ways of management and operations of assets created in terms of check dams, lift irrigation systems and deciding on delicate issues of water charges etc.

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**[Sara Ahmed](#), Ahmedabad, Gujarat**

I have been reading with interest the replies to your query on water conflicts and how to 'resolve' them through either specific project design options or community-based methodologies.

Are you familiar with the Forum for Policy Dialogue on Water Conflicts in India c/o SOPPECOM,Pune? Over the past year they have been compiling a Compendium on water conflicts case studies in India with the support of WWF-International (based at ICRISAT). You can contact K.K. Joy at [soppecom@vsnl.com](mailto:soppecom@vsnl.com) and Biksham Gujja at [b.gujja@cgjar.org](mailto:b.gujja@cgjar.org) for more on the work that WWF-International is doing. The IWMI web-site has details on their initiative: [Dialogue on Water, Food and the Environment](#) with some useful tools outlined.

Over the past two and a half years I have been coordinating an IDPAD supported action-research project on negotiating conflict through multi-stakeholder processes and dialogue in two river basins in India: the Jholapuri River in south coastal Gujarat with Utthan and the lower reaches of the Palar in Kancheepuram district with GUIDE. You could visit our web-site - [www.riverdialogue.in](http://www.riverdialogue.in) Its not yet 'linked' as we are still developing resources, but it will give you an idea of how we have approached this issue and I can send you a copy of our (Utthan-

Jholapuri case) contribution to the Compendium mentioned above. Utthan has also made a very good docu-drama film (in Gujarati with English sub-titles) outlining the various stages in their approach to what I call 'conflict transformation' as opposed to conflict resolution or management. We could share this with you and some of your project partners when its finalised.

I would agree with Janak's contribution on the role of dialogue and multi-stakeholder processes, but I would add that you need to consciously address power dynamics (gender, caste, class, etc.) otherwise MSPs can become meaningless. There is a growing body of work on social learning (reflection action) both in the context of conflict negotiation and MSPs. But again this needs sensitive and systematic facilitation - in fact there are now workshops being offered on negotiation skills in the context of water conflicts. Check with Cap-Net on this if interested.

Hope some of this is useful - please get in touch if you want anything else.

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**[Ramit Basu](#), Social Watch, New Delhi**

I fully agree and would like to add to Prabhjot's observations that many a times we do need to change our initial plans / strategies on interaction with communities as their views and aspirations should reign supreme and we should not hesitate even if we have to make drastic changes in our implementation mechanism.

Communities take time to absorb changes and ideas many a times through paying a price, which also helps the PIA learn through the process. This contributes towards ensuring long-term benefits of the project / program.

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**[D S Dhapola](#), Key resource Center (WATSAN), Uttaranchal Academy of Administration, Nainital, Uttaranchal**  
(Response 2: In Response to S. Janakarajan, [Response 3](#))

I agree that this is not a simple task but all cases are not like Chennai city. Capacity building is a regular task and long lasting can change working as well as policy.

This is one of the methods of doing change in the sector.

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**[D S Dhapola](#), Key Resource Center (WATSAN), Uttaranchal Academy of Administration, Nainital, Uttaranchal**  
(Response 3: In response to [Prabhjot Sodhi](#))

Yes I agree. In my experience with around 300 villages in the water and sanitation program of Uttaranchal hills, I found

1. Villagers living just near to any water body are more receptive than villagers living in a more water scarce area. One has mostly no conflict and others have conflicts in each step. This is basically an environmentally easy and tough condition.
2. Conflict and type of conflict also depends upon the need of the project. I found if people have a need for the project then mostly there is no conflict but if the project is forced to them by an outsider, more conflict is to be found in this case. But its not possible to

- select all the villages on a need basis. In this case if the project staff are able to create need among them through other interventions such as, entry point non formal education, creation of self help groups and demonstration to motivate them. If you have seen Johari's Window concept; this can help project staff look and find solutions in a similar way.
3. I have seen that villagers are not interested in providing space for stand post, tank, etc to link the department working in water and sanitation (top down approach) but some villagers agreed to donate good amount of land to project approached in bottom up approach. This needs skilled staff and a watch and work method.
  4. These styles of working can help any type of project to improve viz. disaster management, road construction, livelihood development, water and sanitation and climate change etc

Many experiences in this regard I will try to share in due course.

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**S Janakarajan, Madras Institute of Development Studies (MIDS), Chennai  
(Response 4)**

I entirely agree with [Sara](#)'s viewpoint that MSP's should integrate the social realities and social dynamics such as power relations, caste and class configurations etc. But this should / could be done only as one makes a progress in MSD process. Thanks Sara for pointing it out.

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**Prakasam Tata, Tata Associates International, U.S.A (In response to Prabhjot Sodhi,  
[Response 1](#))**

Can you please narrate the difference between the approach you took in the first village, from which you were asked to leave, and the other villages where you facilitation worked?

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**Ashok Kumar Paikaray, Mahavir Yubak Sangh, Orissa**

Given my experience with working in the WATSAN activities in Orissa, I agree with Devendra Dhapola. People's attitude and the methodology to implement the project are very important under public private partnerships.

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**Prabhjot Sodhi, UNDP GEF SGP, New Delhi (Response 2)**

Hello. You have made me think and have taken me back to my passion spread – 1994. This all happened in the undulated, risk prone tribal regions of western India (Jhabua, Ratlam, Banswara). As you have read, once we left the village for 2 years we did not entre it. Then when we started working with the communities in the village (we left) we **kept in mind the indicators of success for a project performance more vigorously and we were sensitive, responsive and flexible** to amicably meet and address the issues of 'power structures', i.e. not to say that we agreed to all of what they said but negotiated with them on issues. **The approach otherwise was principally the same in both the places.** All actions were broad-based than small groups based alone. All the agreements of expenditure, ways of expenditure and the commodities were agreed in the communities in a broader based manner...

### Indicators we focused more sensitively on were –

- PRAs and other participatory methodologies should be done for need identification
- Project/programs to be encouraged implemented through the formation of institutions based on local, kinship, common trade etc.
- Focus more on informal, flexible ways of working rather than formal structures and systems created to deliver. We wanted to share and show that we as an institution are not creating any 'differential treatment' but ourselves were conscious of the facts and realities of the power structures. We never wanted to break the developing rapport and trust of the seniors/leaders/gatekeepers and the project
- Avoided the **reliance on** specific individuals and kept the involvement of the locals involvement/skill building/exposure more broad based, not creating any distinction between socio-economic classes
- Always encouraged to see the **opportunities** that are more broad based in terms of exposure/skill building/access of benefit etc. to all socio-economic groups and class/caste etc.

Therefore there were many other issues relating to the technology uptake etc. We therefore did not have any difference in approach but we were more sensitive and aware that things can go wrong. Therefore, the only difference was that we were slow to begin with and could not be very flexible in our ways, for we were not sure many times how we were taking the decisions. We agreed to adopt a more pro-active approach, open and reflective in our ways of working.

This paid off and I am sure this benefits. Of course we had good relations.

May be you and others have a 'perceptual variance' to what I say.

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### Mihir Maitra, India Canada Environment Facility (ICEF), New Delhi

The discussions particularly the feed back from the UNDP network on this very challenging and steadily growing problem namely "Water management conflicts between communities (intra) and external actors (inter)" are very thought provoking.

Although, I could not look in to all the links suggested so far, but it helped me a take a view that each of the case (conflicts) needs to be approached and addressed differently on a case to case basis. For this reason it will be a good idea to club the conflicts in a few major categories e.g

1. **Trans-boundary conflicts** - between countries or States in the same country. These conflicts are to be dealt at political level and or by International courts.
  2. **Intra-community conflicts within a given boundary** - between users. This is the type of conflict we come across or trigger while launching a project. These are the ones which could be managed (if handled judiciously) through meetings, negotiations, bargaining, stake holders forums, providing alternatives etc. A few examples and cases have already been cited in this discussion by others including that of sharing wetland resources. As per my own experience (Loktak project), stake holder meetings /workshops at the time project launching was very turbulent but eventually helped in the later part of project implementation.
  3. **Conflict related to Priority and mode of use** – Hydro power vs Agriculture vs Tourism, Drinking vs Industry vs Agriculture, Large dam vs farm level water harvesting etc. These are the conflicts where policy level interventions and civil society advocacy are effective. National Water Policy should lay down the foundation for addressing these conflicts. Priority for drinking water is unquestionable and is already laid down in our Constitution.
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**Pascal O. Girot, UNDP EEG SURF LAC, Costa Rica**

A first quick response to your Query on water management conflicts between communities and external actors.

There are several references within the UN system you may be interested in exploring:

1. UNESCO's World Water Assessment Program and its International Hydrological Program have been working on water management issues for years. They have developed a programme on Conflict Management over Water resources called CP-PC – "From the Conflict Potential to Potential for Cooperation". They include capacity development materials and other useful sources of information. Their website is <http://www.unesco.org/water/wwap/pccp/>
2. Linked to the UNESCO Programme is the Transboundary Freshwater Spatial Database TFDD-developed by Aaron Wolf at Oregon State University, who has researched international conflicts over shared water resources for a number of years. They are an interesting source of georeferenced information and relevant bibliography. [http://www.transboundarywaters.orst.edu/projects/spatial\\_database/](http://www.transboundarywaters.orst.edu/projects/spatial_database/)
3. The Global Water Partnership has also developed an online Toolbox on Integrated Water Resources Management which you may find useful. Their website is: <http://gwpforum.netmasters05.netmasters.nl/en/>
4. University for Peace, with support from IDRC has developed its Conflict and Cooperation Program, which documents conflicts over natural resources, including water. They have compiled an important number of case studies which you may find illustrative: [www.upeace.org/cyc](http://www.upeace.org/cyc)

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**Lenni Montiel, UNDP Viet Nam**

1) For a good international review of legislative frameworks, their application in the water sector and their impact in water management and water-related conflicts have a look at the following resources at the Natural Resources Institute - The University of Greenwich, UK

International workshop on '*African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa*', 26-28 January 2005, Johannesburg, South Africa.

<http://www.nri.org/waterlaw/workshop.htm>

Legal Pluralism & Integrated Water Resources Management. <http://www.nri.org/waterlaw/>

Community-based principles for negotiating water rights: some conjectures on assumptions and priorities.

<http://www.nri.org/waterlaw/AWLworkshop/BRUNS-B.pdf>

2) Some papers....

Conflict Management in Community-Based Natural Resource Projects: Experiences from Fiji and Papua New Guinea. Overseas Development Institute

[http://www.odi.org.uk/publications/working\\_papers/wp135.pdf](http://www.odi.org.uk/publications/working_papers/wp135.pdf)

Conflicts and Conflict Management in Watershed Management

[http://www.gbf.ch/Session\\_Administration/upload/huggins\\_agriculture.doc](http://www.gbf.ch/Session_Administration/upload/huggins_agriculture.doc)

Water resource scarcity and conflict: review of applicable indicators and systems of reference.  
<http://unesdoc.unesco.org/images/0013/001333/133307e.pdf>

3) Some relevant portals where you will be able to search for additional info in this subject:  
Web Pages on Community Management Links, from the IRC International Water and Sanitation Centre, Netherlands <http://www2.irc.nl/manage/partners/refsites.html>

International Water Management Institute, Sri Lanka <http://www.iwmi.cgiar.org/>

Water, Engineering and Development Centre (WEDC), Loughborough University, UK  
<http://wedc.lboro.ac.uk/>

Water Resources Management. Delft University of technology, Netherlands,  
<http://cms1.tudelft.nl/live/pagina.jsp?id=6b71092c-a2dd-488d-a0e0-88b60a13729b&lang=en>

Transboundary Waters and Crisis Prevention, Bonn International Centre for Conversion, Germany  
<http://www.bicc.de/water/>

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### **Aslam M. Chaudhry, UN DESA Division for Sustainable Development**

I know of a very similar rural-urban conflict situation in the Taiz area of Yemen. The methodology to resolve is: definition of water rights in rural areas. Our consultant is currently in Yemen working on these aspects. So from your network point of view best thing to do would be to contact either UNDP Yemen or Mr. Khalid Riaz (our former CTA and present consultant). His email address is: [kriaz100@isd.wol.net.pk](mailto:kriaz100@isd.wol.net.pk) I understand that a former UNDP Yemen colleague (Mr. Moin Karim) is now in NY. He might be able to advise as well. Needless to say that I will always be pleased to assist.

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### **Emilie Filmer-Wilson, UNDP Oslo Governance Centre**

This is an area where introducing a human rights-based approach (HRBA) has a useful role to play: while human rights are not able to avert conflicts between interests and rights, a HRBA does provide a useful framework in which to acknowledge and address the issue of competing rights and interests. It can also help to negotiate solutions and prevents inevitable grievances spilling over into conflict. Integrating human rights principles into the decision-making process over the use of water resources and the design of projects ensures that all decisions over the use of shared water resources are made in a participatory, transparent and non-discriminatory way. Where trade-offs between rights have to be made, human rights standards specify the essential minimum level of water access that must be protected. For example General Comment 15 on the human right to water, of the International Committee on Economic, Social and Cultural Rights, specifies that priority must be given to meet basic human needs, over water use for agriculture or industry. Where rights are violated, inadvertently or otherwise, a HRBA requires that mechanisms for accessible and effective redress are available.

A HRBA is particularly effective in the India context where there are strong civil society organisations and legal frameworks able to take the rights-discourse forward.

For further information on how to implement a human rights-based approach to programming, please see the *[UNDP reference note on integrating human rights into energy and environment programming](#)*. Included in the note are useful examples of where the rule of law has help resolve

grievances over water disputes in India. An example of the UNDP Karachi water project in Pakistan, see below, may also be helpful.

Lastly, the Centre on Housing Rights and Evictions has done a lot of work in area of water from a human rights perspective and may have useful documentation to share. See <http://www.cohre.org/>

**Citizen Report Card for Karachi Management, Karachi Pakistan:** UNDP's Urban Governance Initiative, a regional project based in Kuala Lumpur, addresses a number of urban governance issues. The following project, 'the first field test of a Report Card on Water and Sanitation', aims to improve the capacity of authorities to meet local water needs through community participation in decision-making. Karachi's water system is under tremendous pressure and poorly managed. As a result many people have to resort to taking unclean water or getting their supply of water illegally: over 60 percent of the water supply in this area is obtained through informal means. The principal reason for why the system does not work well is the absence of dialogue in Karachi between the service providers and the people who use the water services. In April 2002, The Urban Governance Initiative decided to bring all the various stakeholders together to start discussing the issues. The main stakeholders were the local government authorities, development authorities, bulk consumers, katchi abadis (informal settlements) residents, civil society organisations, the private sector and support agencies such as the Asian Development Bank and the World Bank. At the end of the exercise, both citizens and authorities acknowledged that many useful and concrete lessons were learned. The authorities learned that they needed to be more inclusive and transparent in their decision-making process. The process of bringing together the key stakeholders to the table helped clarify the different interests that were at play. Consequently, the stakeholders were able to remedy actual and potential conflicts that existed: the government learned why it was important to bring the *informal settlements into the formal system*; and the citizens helped emphasize the need for *rights-based laws* as compared to rule-based laws regarding water. Moreover, the stakeholders were able to take a first step towards *participatory decision-making* regarding water services.

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#### **Khalid Riaz, UNDP, Yemen**

The paper entitled "**Tackling the issue of rural-urban water transfers in the Ta'iz region, Yemen**" (Natural Resources Forum, Volume 26, Number 2, May 2002, pp. 89-100; see [abstract](#)) deals with the issue of rural-urban water transfers also provides background on water problems in Ta'iz, region of Yemen, which I believe is an emblematic case for Yemen in general.

Let me add that the National Water Resources Authority (NWRA) of Yemen has adopted a basin co-management approach whereby it would work with local communities to manage water resources at catchment level. NWRA with technical support from UNDESA, is going to implement a pilot program in Ad-Dhabab sub-catchment in Ta'iz that would aim at defining ground water rights, registering them and allowing for voluntary inter-sector transactions in water rights. This pilot would (i) create a social mobilization team, (ii) launch an awareness campaign aimed at not only enhancing stakeholders knowledge of water resources systems but also of options for tackling resources sustainability and resource allocation issues, (iii) help create a community-based organization that would become a partner in basin co-management, (iv) define ground water rights along with a system of regulating groundwater regulations, (v) create consensus within community on modalities of voluntary transfers of water rights both within and between sectors, (vi) introduce supporting agricultural technology package that would help demonstrate high productivity agricultural technologies coupled with water conserving irrigation technologies.

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## **Uygar Özesmi, UNDP GEF SGP, New York**

The paper entitled "[Contested Waters: Conflict, Scale, and Sustainability in Aquatic Socioecological Systems](#)", which I am a co-author of, focuses on the multiple causes of conflict over water presented through various case studies.

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## **Jaime Echeverría Bonilla, UNDP, Costa Rica**

In Costa Rica we have had similar issues, and our experience could be useful and or relevant to your situation. Being a country with plenty of water resources there have been conflicts amongst and within different sectors of society: Hydroelectricity generation vs. agriculture, domestic consumption vs tourism, and many others. Although related issues and their interactions are very complex, you might find similarities and experiences that help your case. In terms of your 2 specific requests and assuming there is a will from ALL the parties involved to make a rational, equitable and efficient use of water resources:

In Costa Rica we have had interesting experiences with the development of tourism projects in the northwest pacific, the country's driest area, by private consortiums. Unfortunately these have not been systematically documented. Here I try to summarize that experience.

It may sound obvious but sometimes transparency is neglected throughout project design and implementation. This refers to simple things such as making public the true rate of future consumption, providing information about the project and its impact over water resources. In order to achieve this, there should be a clear public relations strategy, and water issues should be a part of it.

Tourism development projects in the Costa Rican Northeast neglected water management issues, and implemented an strategy, basically ignoring local communities and their worries. Having underestimated the communities' response (which was fueled by some NGOs), these companies found themselves in the midst of a public relations disaster. By the way, some even had interesting environmental and social responsibility programs. But these were totally obscured by the allegations of impropriety. Implementation plans were delayed and a lot of time and effort spent to mitigate the situation. A lot of the accusations were not based in scientific facts, but on rumors, misconceptions and so on. However, in these cases perception is even more important than reality.

The tension was eliminated once companies and communities started talking face to face, sharing their positions and finding common interests. Companies even agreed to fund water projects for neighboring poor communities, improving access and service levels. The costs to the companies were marginal when compared to the overall investments they were doing and the benefits to the communities very big.

The lesson here is that private companies, which by the way were making much-needed multi-million-dollar investments in an economically depressed area, could have avoided the situation by simply adopting a different approach. Engagement of stakeholders, as opposed to ignoring them, transparency in their behavior, including the release of studies and information, would have reduced the communities' suspicions. And opportunist NGOs wouldn't have been able to profit from the situation (without solving anything).

Another important lesson in these cases is that project development managers need to be trained in water resource management. Only by understanding the inter relations amongst the different components of the water cycle they will be able to engage in a productive discussion and comprehend the importance of an integrated approach. However, in order to have a meaningful

discussion basic information is needed. Thus, project developers should make all the necessary investments to acquire adequate information on sustainable water yields from the different sources, expected impacts from the project, etc.

Summarizing, project design and implementation should give emphasis to transparency issues, communication, information generation, and even funding or leverage of community public water infrastructure.

Finally, there is also a case study about IWRM in Costa Rica that can be found at:

[http://gwpforum.netmasters05.netmasters.nl/en/content/case\\_58D8657D-4E5a-11D7-8F33-0002A508D0B7.html](http://gwpforum.netmasters05.netmasters.nl/en/content/case_58D8657D-4E5a-11D7-8F33-0002A508D0B7.html)

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### **Abdul Qadir, UNDP, Pakistan**

There is a 2004 publication that cover water management conflicts for South Asia. The title of the publication is "[Water Conflicts in South Asia - Managing Water Disputes within and between Countries](#)" edited by Toufiq Siddiqi and Shirin Tahir-Kheli (ISBN 0-9759663-1-6). I am sharing the scanned copy of table of contents of the report where Section I deals with Managing Water Conflicts within South Asian Countries and Section II covers Managing Water Conflicts between Countries. The case studies presented in this publication come from India, Nepal, Bangladesh and Pakistan. To acquire this publication you may like to contact Global Environment and Energy in the 21st Century, P. O. Box 25517, Honolulu, HI 96825-0517, USA; e-mail - [gee-21@att.net](mailto:gee-21@att.net); Fax - +1-808-394-0814.

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### **Paul Paryski, Blue Ribbon Water Task Force, New Mexico/US**

I am a semi-retired UNDP CTA and now work on water issues in New Mexico, primarily on Governor Richardson's Blue Ribbon Water Task Force. New Mexico is using its scant water resources on a totally non-sustainable basis due to uncontrolled development, inefficient water use and mining existing aquifers. This situation is creating considerable conflict between cities, the developers, the agricultural sector (which uses 75% of the water very inefficiently), the first nations and the traditional Hispanic Acequia communities. In effect, the old saying "whiskey is for drinking; water is for fighting" is coming true. Developers and municipalities are trying to purchase water rights from Acequia members and first nations, destroying the successful community based stewardship of water in these communities. In addition, the first nations claim and have good legal reason to do so, most of the state's waters. And New Mexico water law is archaic, based on frontier, "cowboy" principles.

In this situation of conflict, attempts are being made to find negotiated settlements through consensus stakeholder processes such as state sponsored town halls and through water basin active management. These initiatives meet with initial success, but usually only on abstract and broad principles and real agendas are often hidden. We are now trying a problem based problem solving solution based on the common agreement that water is necessary for sustainable human development and that it must be managed as a limited resource linked to healthy ecosystems. Establishing water resources policy boards with members from government agencies, professional hydrologists and watershed scientists, and stakeholders, is another solution being proposed.

So perhaps the Acequia model which is also used in Haiti and has been affected by violence, where I also worked, is now unfortunately breaking down.

Hope this adds to your dialogue.

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**Illia Rosenthal, International Fund for Agricultural Development**

In response to the query, you may wish to consult an excellent publication, recently published by FAO "**Negotiation and mediation techniques for natural resource management**":

<http://www.fao.org/docrep/008/a0032e/a0032e00.htm>

For further information, you may also have a look at the FAO site:

<http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=1760&sitetreeId=8308&langId=1&geoid=0>

Other background documentation, which I have found most useful:

DFID - Conducting conflict assessments: <http://www.dfid.gov.uk/pubs/files/conflict-assess-guidance.pdf>

CARE: Benefits-harms handbook and facilitation manual at the bottom of the following page: <http://www.careusa.org/getinvolved/advocacy/index.asp>

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**Many thanks to all who contributed to this query!**

**Moderators' Note:** This is the **first joint Consolidated Reply of the Solution Exchange Water and Environmental Sanitation Network and the UNDP Energy and Environment Network**. The idea is to combine our efforts to bring both the *national* and *international perspectives* on the issue in question. Judging by the range and the number of responses on both Networks, we feel that the effort has been quite fruitful. We will continue this exercise as and when required for the relevant queries. **We also request your reactions to this joint Consolidated Reply.**

**Disclaimer:** In posting messages or incorporating these messages into synthesized responses, the UN accepts no responsibility for their veracity or authenticity. Members intending to use or transmit the information contained in these messages should be aware that they are relying on their own judgment.



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