

Urban water conflicts in Indian cities: Man-made scarcity as a critical factor

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1. Introduction

This paper discusses two important issues: The first one relates to the resource base itself– its availability, use and abuse and the second pertains to conflicts which have surfaced in the process of service provision in cities in India.

Most cities in India are facing severe water 'scarcity'. The problems and concerns of city water supply pertain to quantity and quality, equity – across different segments and different sections of population, poor sanitation, ineffective and obsolete wastewater management practices and lack of long-term vision, planning and motivation. At the same time cities continue to expand at a rapid rate and eat into resources (such as land and water) available in peri-urban areas. While land in peri-urban villages is grabbed for urban housing, industrial establishments and for dumping urban wastes (both solid and liquid) very little is ploughed back by way of developing these areas. Urbanisation process cannot be blind. It should ensure sustainable use of natural resources, in particular land and water – more so groundwater. Indeed, very little attention is paid to investigate the role of groundwater in the process of urban development. The available groundwater is exploited in an unplanned and unregulated manner resulting in ecological degradation. The surface and groundwater and land use should be an integral part of the urban and peri-urban development. In India, not only that water is never a part of the urban planning, the peri-urban issues are completely ignored and given the least importance in the overall planning process.

This has resulted in serious livelihood problems in these areas. Furthermore, such unconcerned and unplanned urban expansions have triggered off conflicts between urban and peri-urban interests.

Resource scarcity is certainly one of the reasons for such conflicts; but resource scarcity is not just the consequence of hydro-geological factors but most often it is man made (Janakaranjan, 2004). Regardless of causes, the consequences imply that water supply (both quantity and quality) are very much part of the concerns such as urban water environment, water supply and sanitations. Secondly, as indicated earlier, the looming threat of serious conflicts in resource sharing between cities and their peri-urban and rural areas is something which needs due attention. This question is of growing importance in the ongoing context of Indian urbanisation¹. Keeping these two elements, this paper highlights the resource dimension in urban water conflicts.

The paper is organised into four sections. The first one aims at refining a definition of urban water conflict while the next two deal with case studies of Chennai (ex-Madras) and Delhi. A study of Chennai looks at the most critical conflict opposing the city to the peri-urban villages, as continuous water transport, in order to supplement the city's drinking water needs,

¹ Very few articles can be found on peri-urban areas (see Kundu and Annapurna Shaw on the specific dynamics of peri-urban zones).

have drained water resources in peri-urban villages. The case of Delhi will focus on conflicts linked to water access and the compensatory strategies associated with it. A final section aims at considering the rather not successful results of existing conflict resolution mechanisms in place. This socio-economic analysis will enable us to point out the main reasons that explain why conflicts are emerging. It will open the debate on the solutions that could be implemented at best or at minima, what could be ways to devise place for deliberation.

2. Our acceptance of urban water conflicts

A conflict always implies, irrespective of its origins, its objectives or its progress, an opposition between at least two categories of actors, whose interests are temporarily or fundamentally divergent. We shift from a tension to a conflict when one of the parties implements a credible threat. There are several indicators. For instance, one can use the media, or bring the other party before the courts or produce some signs (like a notice) or finally, both parties can enter into a direct confrontation (verbal or physical).

Conflicts can generate debate, fights, but they can also lead up to new arrangements. Therefore, we want to underline that a conflict does not necessarily constitute the last step of the degradation of a relation, neither a market failure. A conflict is a modality of coordination, like another and it can contribute to a change, which can be both 'positive' and 'negative'. In our present context, the word 'conflict' need not be understood as the one, which refers to physical violence. It should be rather seen as a potential force for competition and change. This competition could lead to stagnation or advancement of an economy depending upon degree of cooperation among stakeholders.

In the particular context of Indian cities, water conflicts take place due to one critical factor, namely, scarcity. The scarcity in turn is caused due to imbalance between supply and demand, as service provision is inefficient² and groundwater is depleted and/or polluted. Excessive unregulated pumping is resulting in secular lowering of water table (in some cases, the damage due to depletion is irreversible) and groundwater pollution is caused as a result of discharge of industrial effluent, the use of chemical inputs in agriculture and due to domestic and municipal sewage. In both these cases, scarcity occurs. While in the case of the former scarcity occurs due to over-extraction, in the latter, it is due to contamination. Yet, aquifers are damaged in both cases and in some areas, the damages are permanent.

This man-made scarcity increases the degree of competitiveness between water users – both present and future. *We assume that a situation becomes conflicting when the existing conventional mode of supply does not suffice to provide water.* Actually, urban water conflicts in India can be divided into three main categories and more often, it is a mix of them:

1) Conflicts linked to the quantity (conflict arise between sectors or users, like municipality vs. industries, connected vs. unconnected people, urban vs. peri-urban, present and future generations),

² We usually enumerate the following failures: wastage, bad maintenance, low service recovery, irrationalised expenses, lack of skills, lack of integrated management, no interest in sanitation leading to environmental problems and so on.

2) Conflicts linked to the quality (unsafe water reduces the availability of potable water and causes water borne diseases. Poor people are the more affected as they do not have any device to treat water. It is too expensive. Domestic users complain to the municipality), and

3) Conflicts linked to water access (legal -water rights-, economical -price- or physical barriers prevent access to water and their unfair settlements generate conflicts). For instance, all the compensatory modes of provision are equivalent to a sign that reveals the conflict (see the Delhi case).

In all the cases, the protagonists have unequal bargaining powers and there are winners and losers. It is rare that a conflict generate a win-win situation, mostly in regard of sustainable criteria. We shall analyse this in the cases of Chennai and Delhi in subsequent two sections.

3. Expanding needs of cities and emerging conflicts between urban and peri-urban users: The case of Chennai

In Indian cities, there are two main institutional set-ups for provision of water supply. Specific urban water bodies are in-charge of water supply and sewerage. According to their size and their level of autonomy, they can take responsibilities of water source development as well as distribution. For smaller towns, the role of the State apparatus (state department or state promoted agencies) plays a major role, especially in water resource development and distribution. In the case of mega cities (where population exceeds 4 million) supply is either under the Municipal Corporation or remains under the control of a separate water supply and sewerage board. Supposedly, these boards are financially and organisationally more autonomous.

3.1 The central role of groundwater in Chennai's mode of supply

The Chennai Metropolitan Water Supply and Sewerage Board takes the sole responsibility of augmenting water supply and sewage management in the city as well as ensuring service provision. This Board was formed in 1978 via a legal Act of 1978 and the Chennai Metropolitan Groundwater (Regulation) Act 1987 to meet out the challenge of supplying huge amount of water and even larger amount of domestic sewage disposal in the city. The city of Chennai suffers from an acute water scarcity, in particular during low rainfall years. The Board supplies less than 50% of the requirement of the city population, that too in a irregular fashion. (Ruet et al., 2002). But, groundwater plays a crucial role in filling the gap³. Reliance on groundwater resource at one's own source was more predominant in most Indian cities. (see Zérah, 2000). However, the city's groundwater level has reached an alarming low and in many places intrusion of seawater has been reported because of over exploitation of ground water. This has affected the potability of groundwater in many places as indicated by a battery of indicators (Janakaranjan 2005).

The Chennai Metro Water Board, since past two decades has depended heavily on transport of water from public wells and agricultural wells located in peri-urban villages. These measures not only have impact on the groundwater table and socio economic life of people but also resulted in conflicts because of imbalance in the water equity between the city and peri-urban areas. The Metro Water Board supplied water through 10000, 12000 and 20000 litre capacity tanker-trucks numbering around 6000 every day throughout the city till October 2004 in addition to the supply through the pipeline network. The present supply to Chennai is about 103 million litres a day. The water is pumped from the well fields at Minjur, Panchetti and

³ Footnote on the estimation given by Suresh Rohilla for Delhi (around 50%).

other places into the system. Plans are also there to hire about 125 field wells around Poondi to pump 30 million litres of water per day into Red Hills water treatment plant. This recourse to groundwater extraction from village common lands is not new. In 1969, the Metro water dug 10 wells in the common lands of a near by village to solve water crisis in Chennai and transported water through pipelines. Metro Water compelled farmers of many villages to sell water from their irrigation wells. Many farmers agreed to sell water from several villages in the region.

It is interesting to note that a large share of this water is actually provided to a small number of industrial users (Gambiez and Lacour, 2003). Although, arguments that were put forward by the Water Board to convince reluctant farmers to provide water highlighted the needs of the thirsty urban dwellers. In fact, Gambiez and Lacour, through a rapid cost assessment based upon a study of two villages, made the point that profits were made by the Water Board by selling groundwater to these industrial users at a higher rate. Indeed, these industries, especially a cluster located in the north of Chennai, contribute a considerable share of the Chennai Metro Water Board revenues (Ruet, Saravanan and Zérah, 2002). Even though, these figures should be refined, it highlights the distorted allocative process of water resources, further leading to intra-urban redistributive conflicts. This is likely to be because consequences are heavy in terms of cost. Against about 6000 private tankers that were in operation daily during last summer, not to mention those hired by the Chennai Metropolitan Water Supply and Sewerage Board, less number of private tankers are supplying water to the city's residents now. At the peak of summer last year, a 12,000 litre tanker of water would cost as much as Rs 800 Rs 1,000. Even though a number of apartment buildings were prepared to pay the money, the quality of water was not assured. As industry sources point out, a number of fly-by-night operators, most of them with just one tanker got into the business sensing good fast money. But, with groundwater levels also going down, the water quality is suffering. According to industry sources, a 12,000-litre tanker of water is now available for Rs 450 to Rs 600, depending upon the area of supply and the periodicity with which water is required.⁷ Last year a well owner was paid Rs.3.30 per 1000 litres of water by the Metro Water Board, water consumers paid as much as Rs.80 per 1000 litres to Metro Water Board and even more to the private lorry owners. For purified mineral water the amount is as high as Rs.50 per 25 litres or Rs.2000 per 1000 lts of water. Rs.2 is being charged for 250 ml of polythene water sachets. Apart from this CMWSSB spends around Rs.500 million to buy 3.7 billion litres of water each month. With summer fast approaching the amount is expected to go even higher.

3.2 A distorted allocation process but does this lead to a conflicting situation: a study of the impact on poverty and livelihoods?

Purely seen from a resource perspective, the existing system looks more like a stopgap policy. Groundwater resources are under threat and there is a consensus to consider Tamil Nadu⁴ as one of the worst State in terms of underground resource degradation. Clearly, the actual manner in which urban requirements for more water are met conflict with environmental sustainability. Notwithstanding this fundamental dimension, we shall focus here rather on the socio-economic tensions generated by overuse of peri-urban groundwater resources.

What are the effects on the rural economy and the sustainable character of this arrangement from the point of view of the resource? In one of the villages affected by this agreement,

⁴ Chennai is the capital of Tamil Nadu State in Southern India

fieldwork carried out by Gambiez and Lacour (2003) has produced very interesting results. The authors distinguish three types of farmers. The first type possesses wells and sells its water to the *Water Board*. The second type does not have wells and depends on the former to buy water and irrigate its fields. The third does not give its water to the *CWSSB* and is not affected by the tripartite agreement. The authors assumed the task of assessing the evolution of agricultural practices and their consequences in terms of income. Firstly, the results show that the independent farmers, who serve as a reference group, suffered a slight fall in their income consequent to the reduction of the cultivated area. We can now put forward the hypothesis that this trend is explained by the growing influence of the city, as can be seen from the transformation of the peri-urban zones. We note in fact a steady decline of agricultural employment, which had already been recorded in the last census. On the other hand, for the two other categories studied the evolution both of the cultivated areas as well as of incomes is very marked. The farmers who have a contract with the *Board*, between 2000 and 2001 reduced their cultivated area by 43% (Gambiez, Lacour, 2003). Out of the approximately thirty farmers selling water only three, owners of several borings, have maintained their previous level of agricultural activity. All the others have chosen to reduce their cultivated area, as the sale of water is much more lucrative than agriculture. Their revenue, according to the authors, thus increased by 80% between 1999 and 2002. It is not so, on the other hand, for the farmers to whom they supply water. Whereas 15 farmers supplied water to the dependent farmers before 2001, only two of them have maintained this relationship. For the others, the contract with the *Water Board* has meant the complete cessation of sales to other farmers. This has resulted in a considerable reduction of the irrigated area and, in consequence, a substantial drop in income in the case of the dependent farmers. This arrangement initiated by a public undertaking highlights certain crucial issues of urban growth. Following the example of other metropolises (Kundu *et al.*, 2002), the city of Chennai is expanding and developing by imposing new social and environmental costs.

In-depth research carried out by Janakarajan (2005) substantiates and reinforces the preceding results (see for details in Appendix 1). A comparison of present with that of occupation that people engaged with 20 years ago in the selected villages clearly shows that there has been a huge shift from agricultural employment to non-agricultural employment. Similarly, Appendix 1 also highlights inter-village variations. On the whole, one of the villages studied, although the worst affected in terms of lack of agricultural activity, is doing better mainly because of availability of better alternate employment opportunities. This is correlated to locational advantage (proximity to Chennai) and connectivity factors (the village is on an express way).

The close look at these conflicts between city's requirements and agricultural activities are very important in the Indian context particularly because of rapid urban expansions. The conventional notion that cities are regarded as engines of development needs much closer examination. After all, there is a vicious cycle: Declining agricultural activities and ecological and environmental degradation compels people to migrate to cities; this in turn results in stress on urban infrastructure- growth of slums and pollution- serious problems for drinking water and sanitation. In order to cope with this pressure city gets again expanded into an unplanned manner and this process goes on indefinitely (Janakarajan, 2005).

3.3 A controversial process despite the reality of conflict resolution mechanisms

These tensions occur despite a stringent regulatory system, with specific laws designed to curb over-extraction of groundwater. However, in a sharply polarised political arena the laws are twisted. The main example refers to the groundwater legislation in place in Tamil Nadu.

By mid 1980s, when the available sources of water supply to the Chennai city started dwindling, an Act was deemed necessary for proper regulation. Thus the Chennai Metropolitan Area Ground Water (Regulation) Act, was passed in 1987. Its main features are : (i) the Board is the authority to grant / not to grant of permit to sink well in the scheduled area and to grant /not to grant license for extraction, use or transport of ground water, (ii) a data base has to be maintained showing the number of wells that were in existence in the scheduled area, (iii) no person shall extract or use ground water in the scheduled area for any purpose other than domestic purposes, no person shall transport ground water by means of lorry, trailer or any other goods vehicle.

Though this Act was legislated with a view to regulating and controlling extraction of ground water and unmindful transport of ground water for other than domestic purposes, after almost two decades we find the Government agency as the main violator of Act. Metro Water Board has been mainly responsible for over exploitation of groundwater in many peri-urban villages. The Metro water Board not only draws ground water from the identified areas but also from surrounding peri-urban areas as far as 50 km away from the city limits. As far granting license/ permission for a well/borewell is concerned the procedure is mere eyewash and stays only on paper. Many private lorry, tankers are operating / in the city and drawing water from a radius of 50 kms from the city without any licence. Some of the private lorry drivers complain that even after submitting applications seeking permit or licence long back they have not received any licence. Many of the Metro Water lorries also run without license. The water drawn from these areas are supplied mostly to the industries. Government itself blatantly violates the rules and regulations made under this Act. Many industries are not only drawing groundwater violating the norms of the Act but also degrade the quality and quantity of the groundwater. All of them have never paid any penalty nor the Board has taken any stringent action against them. There is no systematic procedure in function to penalize the lawbreakers, be it any individual or any industry. The Act has been thoroughly violated by both. But hardly there is any report of penalty for these violations. A more recent act has also been passed as well as government resolutions. However, loopholes and weakness of implementation remain the same (Geetalakshmi and Janakaranjan , 2005). Indeed, India has a powerful set of legislation but enforcement remains a major issue. Similarly, other conflict resolution mechanisms, such as Public Interest Litigation (see section 4) are not leading to policy implementation.

In the specific case studied here, even though situations are not always totally conflicting (in some cases villagers are eager to sell water), the tension level between rural and urban interests are strong. It can even lead to real conflict (see Appendix 1). But mostly, the shape that these tensions take is clearly an asymmetry of bargaining power among actors. The local opposition raised by some villagers is not credible enough to prevent powerful actors, backed up by the priority given on drinking water by the National Water Policy, to implement short term measures to supplement their water requirements.

To conclude, the main question that emerges in the specific case of water starving Chennai is whether there is a way out for Chennai population? The solutions to water crisis are quite closely associated with integrated view of water governance – which encompasses issues such as long-term perspective and planning and a broad based partnership and dialogue among all key stakeholders. The same conclusion would most probably valid for most Indian large urban centres. Indeed, this man made scarcity is a question of urban governance and the study of Delhi highlights the redistribute tensions related to failing water governance structures, despite the creation of urban water markets

4. Do we have a way out for peri-urban problems?

The prevailing conditions in Chennai city is such that one cannot take extreme positions: An ideal situation is one in which both the Chennai city and peri-urban villages co-exist in a conflict-free state, cooperating with each other for each other's benefit - a state where one can anticipate a win-win situation – from conflicts to cooperation.

Nevertheless, the critical question is how to reach this point from conflict to cooperation? It is neither easy to define this path nor can one define the time frame to travel through the path of conflict to cooperation. After all, conflicts occur primarily for reasons of prevalence of free riders that are also politically and economically powerful; this group will lose if cooperation is attained. Whereas, *gainers* due to cooperation are vulnerable *fatalists*, who are losing any way. Therefore, this group will only be willing and be more than happy to participate in dialogue and reach the level of cooperation. Precisely for these reasons, it is not going to be easy to involve these diverse groups in a meaningful dialogue; that is why it is rather complicated to define this intermediary path between conflict and cooperation. However, it must be stated that until one reaches a *threshold level of crisis* the hitherto gainers may not be interested in dialogues because of operation of markets and the support that they benefit from the State; but it does not mean that one should not start the dialogue process before. This is precisely where multi-stakeholders platform (MSP) and multi-stakeholders' dialogue (MSD) play a key role (see Janakarajan 2005a). In the case of Chennai city and peri-urban villages, it must be said that conflicts have reached an intense level but the threshold level of crisis is not yet reached unlike the cases of Palar and Cauvery basins⁵.

4.1 MSD / MSP Processes – Some methodological Issues

MSP and MSD are important tools for achieving sustainable development where individual rationality is in great contradiction with collective rationality. While initiating a MSD process, it is important to remember that that dialogue is not a one-off phenomenon: it is a process and therefore the facilitator of the dialogue has a big role in sustaining the dialogue. In other words, dialogues are not always smooth – there will be ups and downs – people involving in dialogue may lose faith at some stage but may reaffirm faith after some time. Some people may look for instant results of dialogue which is not possible – it is time consuming; it is not possible to define any finite time to end the dialogue process; but it does not mean that one should work with a finite time frame; facilitator should have patience, be sufficiently motivated and be emotionally stable besides having some access to resources. And most of all, a MSD initiative will be successful only with the support of the democratically elected government (for details on some methodological issues relating to MSD process see Appendix 2)

4.2 MSD experience in the context of negotiating Chennai and peri-urban water conflicts

Research, followed by stakeholder analysis and then multi-stakeholders' dialogue process was initiated in the context of Chennai peri-urban area. Research helped to identify various

⁵ One of the authors of this paper, namely, S.Janakarajan, has initiated MSD initiatives in conflict-ridden river basins of Palar and Cauvery in South India. In these river basins, conflicts have reached a threshold level of crisis in which even the highest judicial authority of the country could not travel too far. When *everything has failed* the MSD among all stakeholders is the only option for arriving at some kind of consensus and cooperation.

dimensions of city and peri-urban water problems; to document and analyze conflicts; The survey of 64 villages in different segments of the Chennai peri-urban area, helped not only to collect data but also to build contacts with various stakeholders within villages; Thus, research, together with stakeholder analysis have helped to identify various stakeholders, degree of stakes that they enjoy and conflicting positions among various stakeholders. Finally, the MSD process was initiated with a view to negotiating and finding solutions to the city and peri-urban water conflicts.

A series of multi-stakeholder meetings have been held during July 2004 to February 2005. More meetings have been planned for the forthcoming months. First, an inception workshop was organized during April 20-21st April 2004, which was attended by researchers, NGOs, farmers from peri-urban villages and some Government officials. Subsequently, two regional stakeholder meetings were held, one in the Palar basin (at Chengalpattu on 13th July 2004 and the other at A-K basin (on 15th July 2004 at Red Hills). The basic motivation of these regional stakeholders' workshops is to get to know different view points of stakeholders in the peri-urban areas, identify potential members of the community who can serve the formal Multi-stakeholders' committee when it is formed and also to understand and examine the depth of conflicts in the peri-urban catchments. The regional stakeholders' workshops have been planned only after completing the meso-level survey in 64 villages. Therefore these workshops have helped us to take stock of the situation and build on contact and data base created. As stated earlier, one of the main objectives of the project is to start the multi-stakeholders' dialogue process in the peri-urban areas; this workshop is the beginning of this process. Furthermore, the regional meetings have helped understand more about socio-economic and political status of peri-urban stakeholders, extent of water transport and on the livelihood implications.

On September 6, 2004, a Round Table meeting was organized in Chennai with a view to constituting a multi-stakeholders' committee. At the end of the meeting, a Committee of water users of urban and peri-urban areas was constituted with 65 members; farmers from peri-urban villages (both water sellers and non-water sellers), landless agricultural labourers, women self-help groups, NGOs, researchers, lawyers, urban water consumers and a few government officials, represented the Committee. It was decided to include more members into the Committee later. The first Committee meeting was held on November 26, 2004 in Chennai with full – active participation of all members. A few invited government officials also participated in the meeting but refused to talk. The Committee met again on February 4, 2005 at Tiruvallur (A-K basin). The Committee deliberated upon several key issues such as declining groundwater levels, declining agricultural activities and emerging serious livelihood problems, seawater intrusion and deteriorating water quality problems, water and soil pollution, drinking problems, sand mining and people's growing unrest. Committee has agreed to work on the specific agenda within a given period.

4.3 Solutions to Chennai city

So far, solutions to overcome water crisis in Chennai city has been on ad hoc basis. There were mega projects (which also involved inter-basin transfers), which have not met with any great degree success. First and foremost, before launching on mega projects like bringing water from other basins (such as Telugu Ganga) or Veeranam, it is absolutely necessary to examine what is locally available. This question is in particular important because Chennai city's rainfall is quite substantial (over 1200 mm); over a period of past 100 years no declining trend in rainfall could be observed. But one witnesses cyclical fluctuations as anywhere else.

Therefore, first one ought to start examining the availability of water resources from within the city: Do we have resources available within the city? This question may appear irrelevant to many, and people even laugh at this question. But this is an extremely relevant question: Let us take the case of Chennai city. It is true that the city is neither located on the banks of any perennial river nor has any big perennial reservoirs from which water can be drawn. But consider the following options:

- There are at least 70 temple tanks and ponds located in different parts of the city, which used to get filled during monsoon months. Now most of them are silted up and supply channels have disappeared because of civil constructions all over. Need of the hour is to restore all these tanks to their original condition and restore flow of rain / flood water during monsoon months. Simplest way would be to link storm water drains with these tanks; otherwise, huge amount of floodwater will wastefully flows into sewage drains or into the city's polluted rivers.

This particular measure would not cost much compared what is spent on big projects. The potential benefits that it may produce are remarkable. Potential benefit: This will not only improve groundwater levels in the city (which is at present declining at the rate of 3 meters per year) but also improve the quality substantially. This will help mitigate the city's water problems to a large extent because, at present 60% of the city's water needs are met from groundwater.

Second, the city generates about 700 mld of sewage water which is at present not properly utilized. Except around 100 to 150 mld, which is supplied to Chennai Petroleum and to a fertilizer company (MFL) after the primary treatment for industrial uses, the rest is unutilized. The sewage water is let into the city's rivers either untreated or after primary treatment. There is huge scope for recycling this water even for domestic uses. At least 80% of the sewage water can be recovered and recycled and sludge could be used as bio-manure after proper treatment which has got a very good commercial value. This means at least 500 mld of water can be retrieved and supplied to the city population which constitutes 70% of city's domestic water requirements. Environmental engineering experts point out that the cost of sewage water treatment is cheaper than seawater desalination.

Thirdly, let us examine the available resources around Chennai city in the peri-urban areas. There are 3600 tanks in Tiruvallur and Kancheepuram – adjoining districts of Chennai city, as per the original tank memoirs (old records), which are at present only partially used for agriculture. Many farmers have left their villages or land is sold out for urban use. These tanks are mostly silted and encroached. There is an urgent need for revamping them, restore inlet channels, desilt them, strengthen bunds and restore water supply during monsoon months. After that provide gravitational link of all tanks and connect them to the city's reservoirs wherever possible. In other words, rainwater should be harvested in these tanks which will not only help the city but also augment groundwater supply in the peri-urban villages and ensure livelihoods through rejuvenated agriculture. Right now farmers in peri-urban villages are agitated mainly because of steady decline in the groundwater table and resulting seawater intrusion in several villages located close to the coast. Furthermore, since tanks are defunct, agriculture as an occupation is slowly eroding. But if tanks are restored, groundwater levels in these villages will improve considerably; tank water can be used for agriculture and surplus water (unused water since many farmers have left village) can be diverted to city's requirements. This is a clear win – win situation in contrast to the present arrangement, which is a win-lose situation, where city benefits but peri-urban areas lose.

Fourthly, construct a series of check dams in Araniar and Kosathaliar to save rain water

And, finally, decentralize water treatment and supply in order to cover both city and peri-urban areas more effectively and efficiently.

4.4 Way forward

In the MSD Committee meetings several measures are discussed with a view to providing solutions to Chennai city as well as to the peri-urban areas. The key measures that are being discussed are restoration of tanks within the city, recycling of wastewater generated in the city, restoration of tanks in the peri-urban villages, construction of a series of check dams in Palar, Araniar and Kosathaliar and banning of sand mining from these rivers.

This requires a separate research, which involves survey of all water bodies in and around city, study on economics of wastewater treatment and feasibility studies of check dams. This phase would necessarily require the State's cooperation, in particular the support of the agencies such as Metro Water Board, TWAD Board, farmers, NGOs etc). The MSD process might point out the necessity of these measures but we need to think seriously ways to implement them. The relevant questions to ask are,

- Whether one should think of the second phase of the ongoing research?
- If yes, who would fund the initial research project?
- Who will implement the findings and suggestions of this research?
- How to get the State's support?
- What will be the time frame of the research project and implementation phase?

5. Conflicts linked to the question of the water access in Delhi

One of the new millennium's goals for the coming decades is the priority given to the access to safe drinking water and its financing. The failure of policies inviting investment from the water multinationals was discussed at the Johannesburg summit. Two opposing viewpoints emerged: that of the advocates of the private sector who, following the Camdessus report, are trying to work out ways of reducing the risks for operators, and that of those challenging the water multinationals, who are castigating the disparities created in relation to water access in the cities of the developing countries (Lobina, Hall, 2003).

In India, it is only with difficulty that this debate can be grounded in the observed reality until recently, as it is noticeable through the very controversial Delhi water sector project (see below). More generally, with the exception of short duration contracts for the construction of water treatment plants, attempts to initiate large-scale projects with the international private sector have failed⁴ (Zérah, 2001). Private operators are not wholly absent, but they are small in size and undertake contracts at the local level that have a limited number of operations and in which there is no clause calling for investment on their part (Zérah, 2003). Nevertheless, in the context of urban water supply, largely dominated by the public sector, the restrictions on access (complete or partial) are no less real, mostly because of the inefficiency of the public service (Zérah, 1999; Llorente, 2002).

⁴ Different factors explain the absence of contracts delegating the service: among others, the absence of a political will, civil society opposition, very low tariffs - which make it impossible for the concession to achieve economic equilibrium, insufficient returns on investment, the lack of guarantees on the part of the federated States and the Union.

In Delhi, the public undertaking (Delhi Jal Board, DJB) is unable to meet the water and wastewater needs of the nation's capital, and provides its citizens with an erratic and unequally distributed water supply that is well below international standards. The mismanagement of water particularly affects the urban poor: the volume of water available in slums is around 27 lpcd (Llorente, 2002). On the other hand, ground water is depleting very fast as people get water from private wells to fulfil their needs. Until now, the solutions adopted by the municipality consisted in supply-oriented partnerships such as the construction and management of water treatment plants, and just resulted in adding more capacity to a derelict network. Low quality of service delivery is endemic and in is getting acute. The situation is very conflicting among users and there are sharp contestations of the existing conventional mode of supply, e.g. water supplied through a centralised network.

The Government of India (GOI) and the Government of the National Capital Territory of Delhi (GoNCTD) recognize the urgent need for reform. They have therefore requested the World Bank's support in helping DJB improve the reliability, sustainability, and affordability of Delhi's water supply and sanitation services. But the proposed water project that is resulting from an advisory work is actually postponed and it is much criticised by NGO's⁶. The story reveals that water delivery as a basic service is inextricably entwined with ideology and politics, which are doing nothing more than exacerbating conflicts.

The materialization of the conflicts linked to water access is also observable through the alternative provision modes (or compensatory strategies) and all the inequities that are generated. The limitation of access is less rigid for the better off households but on the whole, all these arrangements appear unsustainable (Llorente, Zérah, 2002).

However, we observe some exceptions that illustrate the potential force of the conflict for sustainable change, that depend largely upon degree of cooperation among stakeholders. New forms of collective action offer new perspectives outside the inadequate trinomial public service, individual compensatory strategies and private lucrative niche markets. On the basis of several of these practices, we must especially question their impact with regard to access and their ability to prevent conflict in the long run.

5.1 Ideological debate on the Delhi's water reform project favours business as usual

The overview of the proposed Delhi water supply and sewerage project is as follow. The World Bank has been approached by the Government of India and the Government of Delhi (the National Capital) to support a program that would improve the reliability, sustainability and affordability of the water supply and sewerage service provided in Delhi by the Delhi *Jal* Board (DJB).

This is planned to be achieved by gradually implementing a reform that would improve the management of the service⁷, extending the infrastructure to underserved parts of the city and financially strengthening the water utility through recovery of the efficient cost of operations. GoNCTD and DJB have initiated a consultation on the proposed program. This is in fact the starting point of the controverse that crystallised all the attentions, more than the project in itself.

Stakeholders have requested clarifications on the role and position of the Bank in this process. In late July, the Bank has been accused to have pressured the Indian government to select

⁶ Later, some resident welfare associations and opportunistic politicians have joined the contestation movement.

⁷ The objective is to achieve a 24x7 water scheme, first in some pilot zones.

Price Waterhouse Coopers (PwC) for advisory work undertaken as part of the Delhi Water Sector Project. Indian anti-corruption group Parivartan used national freedom of information laws to gain access to the correspondence between the Delhi Jal Board, which oversees water supply in the Indian capital, and World Bank officials (Parivartan 2005). World Bank country director for India Michael Carter said "the insinuation that the Bank attempted to favour PwC is completely unfounded." But the details given by Parivartan put the Bank in an awkward position.

The project is currently in a preparation stage: that is, DJB is still in the process of designing and studying various aspects and preparing final documentation. The Bank's Board of Executive Directors will consider approving the loan only after this process is complete and has been appraised by the Bank. So far the Bank has provided a sum of US \$ 2.5 million under a project preparation facility to enable DJB to prepare the project.

As the controversy surrounding the bank's role was expanding, a campaign against the project in itself has also come to light (fear of a hike in tariffs increase, unequal access, etc.). Some resident welfare organisations and opportunistic politicians have joined the contestation movement, which is probably more an expression of a general discontent. But misinterpretations and the use of rhetoric in both sides make everybody lose time and direction, and business as usual continues. The case of Delhi illustrates how politically sensitive is the water sector to reform, even more so given that the power sector is also facing a crisis and residents are fed up with inefficient public services.

The first priority is to focus on public action reform and to redefine the role of the different institutions involved in the governance of the water system. The key question is thus to find out the incentives that would lead the government and public agencies to perform these new roles and become accountable. It is certainly the main issue underlying the largely misleading public vs. private debate...

5.2 Responses to Inadequate and Unreliable Supply: an emerging conflict between present and future generations

We will focus on individuals' responses to the unreliability of water supply. Individuals do play an important role in the architecture of the water system. Through their own arrangements, what we call "decentralized governance structures," they provide alternative modes of supply. However, the social, economic and environmental sustainability of such individual strategies is questionable.

In most Indian cities, the distribution system is discriminatory, in the sense that many areas are not served. Such areas include peripheral neighbourhoods (both rural and newly constructed dwellings) and many slums settlements⁸. This is due to discontinuous spatial development and will probably persist along with the growth in the urban population. Both poor and well-off people are therefore affected by the lack of infrastructure or by inadequate supply, but of course not in the same proportion to their respective revenues.

In this context of highly inefficient public supply, people have developed compensatory strategies and alternative modalities of supply have emerged. They can be divided into two categories: formal and informal strategies.

⁸ Some of these have legal status while others result from illegal land occupation (squatter settlements).

Formal strategies consist of relying on private operators, which sell water in large quantities via water tankers (containing around 12,000 liters).¹³ Many people also buy bottled water and water in jars, however such strategies are affordable only to high-income households. The major problem with these sources is that water quality is not guaranteed, and some opportunistic firms simply resell public water or sell untreated groundwater. The absence of any regulation in this sector has enabled the emergence of small companies with a short-term strategy. Such companies have taken advantage of a booming market without investing in quality equipment and operate at a low cost of production.

On the other hand, companies that set up sophisticated production lines with a view to establishing themselves in the market on a long-term basis have complained of this unfair competition. They were also dissatisfied with the high taxes imposed by the State government in Delhi (bottled water is considered a luxury item) and favored stricter regulations, which, as of 2002, have not been approved. So far, these private ventures, which are a direct result of the inefficiency of the public sector, have not been able to come up with innovative solutions to provide services at affordable prices and to guaranty the safety of water. The solutions they offer are only peripheral and temporary ones.

Informal strategies are strategies, which are external to any market structure. Poor and well-off households alike develop such strategies. Most of the time, the poorest people still rely on public water via illegal connections onto which they install cheap devices to pump water from the network. This behaviour can be described as “free-rider” behavior.¹⁴ Higher income households adopt more expensive strategies: some install electric pumps in order to pump more water from the network thanks to better pressure; some store water in rooftop tanks; some dig tube-wells and rely on groundwater.

5.3 The Unsustainability of Current Arrangements

All compensatory strategies generate direct investment costs (storage facilities, motors, filters, etc.). In Delhi, the total expense incurred by households for such strategies is 6.5 times higher than what they pay directly to the public undertaking.

The aggregate cost of water unreliability at city level is equivalent to almost twice the amount of the annual expenditure incurred by the former Delhi Water Supply and Sewerage Disposal Undertaking (Zérah 2000).

However, these private arrangements (formal and informal) also generate indirect costs for society as a whole as they contribute to the deterioration in the existing infrastructure through unauthorized water connections. During breakdowns, contaminated water enters the network and exacerbates the risk of waterborne diseases. Regarding groundwater, multiple unregistered private tube-wells deplete the water table. Finally, private arrangements aggravate the water shortage and congestion phenomena. In other words, a system of negative externalities becomes self-sustaining with a harmful impact on the environment and on users’ health.

From an economic viewpoint, these decentralized strategies for dealing with the inadequate service are not the most efficient in view of the additional costs that they generate, and they are clearly not sustainable. However, storage solutions, rainwater harvesting and water supply via tankers may offer acceptable temporary solutions provided that a well-defined regulatory framework is implemented and enforced.

Community participation in the management of decentralized infrastructures could also be promoted. Our work and other research suggest that the institutionalization of community

participation mechanisms is desirable for at least three reasons. First, this would allow the additional costs of compensatory strategies to be internalized and enable a more equitable redistribution system to be set up. Second, householders would be provided with an effective means for ensuring that the infrastructure is properly maintained. Third, water resources would be more effectively managed, thanks to a demand-oriented approach and by facilitating leak detection. Thus, access rights to water would be secured.

However, this would require major institutional changes and, in particular, the democratic representation of all interests, the setting up of agreed-upon negotiation procedures and the abandoning of patronage relationships (Haider 1997; Llorente 2002). Current strategies are a response to an inefficient service administered by an incomplete institutional environment that is unable to provide suitable incentives. They are affected by the absence of formal rules and this results in a chaotic allocation of the resource. Although they are not sustainable, the existence of such arrangements suggests that reform of the sector should be analyzed in a systemic way and that consideration should be given to the opportunities offered by decentralized governance structures. By a systemic approach, we mean analyzing all interaction between the agents, the resource and the institutional environment. In the case of water, this analysis reveals huge differences between developed and developing countries that preclude the mere transposition of a contractual model without any other kind of consideration.

5.4 The conflict as an adjustment tool: cooperative action initiated by slum communities

In this situation, aggravated by the lack of public financing, the new approaches stress the role of participation modalities, which involve community-based organisations, especially in the poorer districts. They are subject to several underlying assumptions. First, these much more flexible and innovative modes of organisation can better meet the demand in the poorer areas. Subsequently, when some of these initiatives are taken within the context of public projects, it is more effective to let the users themselves take the financial and technical responsibility for maintenance of the infrastructures (Nitti, Sarkar, 2003). In both cases, there is a positive feeling that the communities are more capable of managing the problems of access at their own level. As a result, we can attest to the appearance of new forms of collective action, initiated by private individuals from the disadvantaged communities, by the communities themselves, and by the public operators. These modes of service are still at the experimental stage in Indian towns, but offer new perspectives outside the inadequate trinomial public service, individual compensatory strategies and private lucrative niche markets.

Some recent works (Raghupathi, 2003) give an account of certain rather innovative practices in a few Delhi slums. The mechanism is as follows. In an area where the municipality's water service is erratic, a resident of this area digs his own well, installs a powerful motor and lays a not very sophisticated system of pipes through some nearby alleys. This "network" can service about 200 households for which the cost of individual connections amounts to the expenditure incurred on the necessary plumbing. The household also pays a monthly subscription, six or seven times higher than the cost of municipal water, but in return gains the advantage of a home service and neighbourhood service. In the area under study, such initiatives have multiplied and this new type of service reaches a large section of the slum. In fact, the sums invested, often by taking a loan, are recovered in two years. Such an arrangement confirms that households, even those that are the most impoverished, are capable of generating funds to pay for the water, as many international and Indian studies have demonstrated. In this case, the process of commercialisation emanates from within the civil

society itself, for the enterprising players transform an individual solution into a common alternative.

Other modes of supply owe less to private initiative than to genuine collective action. These are the *gali* or alley taps described by Tovey (2002) in a very detailed analysis of three slums. The users contributed jointly for the installation and maintenance charges. A simplistic vision would be to view these *gali* taps merely as the action of residents who have organised themselves to dig channels and lay pipes for supplying water to a particular alley. This would normally result in the proliferation of illegal connections, which is condemned by the authorities. However, when conducting a chronological analysis of the connections, the author highlights the role of political patronage and/or of local leaders as the trigger for the system. Once the mechanism is operational, informal relationships come into play that sanction and maintain these connections. These relationships can take different forms depending on the type of area and the relationships developed by the local leaders. In every case, they involve different players (the police, local elected representatives, parliamentarians and employees of the *Delhi Water Board*) and mobilise a certain form of collective action. We are specifically concerned with the manner in which the norms and rules regulating the functioning of the *gali* taps are instituted at the residents' level. Tovey (2002, pp. 200-226) decodes the arrangements made by the slum dwellers. The *modus operandi* which all concerned have implicitly accepted varies to a large extent according to the local context of the resource⁵ and applies to the distribution of the resource and the mode of management of the service. It is at several levels rooted in a hierarchic system of the attribution of rights. The households that contributed financially to the *gali* taps have first right to the service. Residual rights are then granted to the tenants, then to households situated in the vicinity of the water points. The ultimately complex system of *gali* taps demonstrates the usage value of water. But at the same time, and especially, when there is no shortage, all the players involved recognise the social value of water, which is not monetarily calculable. This explains the attribution of residual rights to households not having contributed financially. In the same register, the police authorities, the elected representatives and the municipal employees generally justify their indulgence on humanitarian grounds, which is clearly highlighted by the author (Tovey, 2002, 273-286).

6. The analysis of the transformations affecting the resource and the water services in the Indian context is rich in lessons

We should especially note that a rationed water supply and an often inefficient service in the cities, coupled with the disregard of formal rules (that are moreover vague), lead the various users to the excessive exploitation of the resource, through the medium of individual or joint initiatives. Although imperfect, they are however the only ones to have a potential for improvement subject to several conditions.

All these decentralized solutions have a fairly high cost, despite water being apparently free. One of the solutions mentioned concerns the institutionalization of community participation mechanisms that are good for at least three reasons: it would enable these costs to become endogenous and facilitate the organization of a system of transparent redistribution ; the residents would actually be able to ensure the up-keep of the decentralized installations ; it would facilitate a more effective management of the resource through the detection of leaks

⁵ The soundness of the system (capacity to negotiate, settlement of disputes) is significantly correlated to the absence of water problems. When water is scarce, the rules and conventions fall apart more quickly.

and better management of the demand. The rights of access would be ensured. This requires considerable institutional improvements in the different localities studied, and in particular the setting up of mechanisms for consultation, negotiation and above all of regulation.

On their side, private markets for the resale of water are not sustainable in the long term given the present state of affairs. The lax regulatory framework offers scope for strategic action to private operators, who are now in a position to supply a private commodity at an excessive price, but whose quality is not guaranteed. Only the most affluent households can take advantage of this service, which ultimately only contributes to the segmentation of the different categories of the population. These are provisional solutions that do not really meet the overall requirements of urban management, nor of the resource. Moreover, these systems make it impossible to set up territorial equalization systems or any other unifying mechanism, specific to a public service monopoly. They are in keeping with a sectoral approach that ignores systemic effects. The continuation of these solutions is thus not desirable, as the transfer of rights that accompanies this private transaction extracts a high social and environmental cost.

These modes of organization reveal the weakness of the institutional environment to the extent that in no way does it restrain agents from carrying on, as most of the rules can be circumvented. In return, it evolves very little as a result of major malfunction and growing discontent. We note a marked hiatus between the demeanour of agents and the arrangements that they set up, on the one hand, and the institutional environment, on the other. Each of these factors is governed by internal dynamics, without definite interaction between them, which emphasizes the magnitude of the institutional deadlock. Thus we have a situation of tacit *laissez-faire*, which contributes to the depletion of the resource and the degradation of the infrastructures.

The role of the institutional environment is, among others, to lay down the rules enabling transactions to take place and at a lower cost, i.e. to ensure the transfer of rights that accompanies these transactions. In most Indian cities, several problems combine to exacerbate the bad management of water and infrastructures: poor coordination between various agencies, both vertically and horizontally, which results in erratic planning; political instability, which constitutes a permanent threat, holding the public to ransom; the problem of corruption ; the judicial system, independent but overworked and unable to hold the agents in check.

All these problems are, of course, very difficult to resolve and we can only indicate the goals that should be kept in view. This confers a very normative character to our propositions. The first goal should be the simplification of the institutional framework by redefining responsibilities in order to better coordinate the various decision levels, avoid the overlapping of tasks and limit the intervention capacity of discretionary powers. The second stresses the concept of a democratic decision-making process in which all the interest groups in the system would be represented (from the infra-local level to that of the whole area), which would act like a broad-based regulatory framework. Lastly, the third proposition considers it essential to redefine the constituents of the public service and its articulation in operational terms. It especially implies a reversal of the perspective, in the sense that the service should not be conceived in a technocratic top-down manner by imposing arbitrary norms, but in terms of the fundamental needs that should be met, taking into account the different systemic effects.

Appendix-1 Analyzing water conflicts in the peri-urban areas of Chennai city – A story of two villages

Village –1 Palayaseevaram

This village is located at a distance of 50 KM distance from Chennai city on the National Highway. Total population of the village is 5285 (as per 2001 census). The village has witnessed a sharp increase in land value.

Main irrigation surface sources and their Command areas:

A series of tanks, spring channel and 5 Kulams (small tanks used by villagers for non-irrigation purposes such as washing etc. and 4 kuttais (ponds used for washing cattle)

Wells

In 1980, there were 71 wells and depths were in the range of 24 to 27 feet. Now there are 150 wells and the depth is in the range of 60 to 100 feet. Out of 50 are bore wells and the rest are open wells. At present 20 wells are in use. Quality of water is reduced as water table dropped.

Drinking water

In 1990 drinking water supplied for 5 hours / day and in 2002 only one hour per day is supplied

Backdrop to conflicts:

Originally, it was planned to pump water from the Palar river bed to supply to the adjoining areas of Chennai city. The estimated demand for this region was 22.5 mld in 1979. This must have at least doubled since then.

The people of Palayaseevaram village opposed this move on the grounds that it would affect the groundwater availability in the region. A memorandum was also submitted to the District Collector. The matter was taken to the then Chief Minister, who took a decision in favour of the city and against the village population. And the CM sought the support of the village people who also eventually gave their consent to pump and transport the Palar water. The work was executed. Originally in 1972, the TWAD Board dug 5 wells in the Palar bed and subsequently 6 more wells were dug. Basically these wells are collection points of water in the riverbed. For the past 5 years, supply of water in these wells is reduced drastically. Six more wells have been dug in the year 2004 in the other side of the river bank. The main reason for the reduction of water supply in these wells is substantial and illegal sand mining in the riverbed much beyond permissible limits. This has drastically reduced the water withholding capacity of the river or drastic reduction in the riverbed aquifer yields.

Sources of Conflict:

- Twelve wells dug by the TWAD Board for supplying to the City's adjoining areas
- Continuous pumping of groundwater from the river bed has reduced considerably over time groundwater availability in the village even for drinking; Agriculture is badly hit due to water scarcity
- Sand mining which has reduced the water yields in the Palar riverbed aquifer
- In the entire stretch in this region, groundwater was pumped in the years 2003-04 to supply water to the city – water was transported to the metrowater Board through tanker-trucks.

Everyday at least 2500 loads were sold from these areas (1 load = 12,000 litres). This has also affected groundwater supply in the Palayaseevaram village

- Sugar mill which was constructed in the year 1987 was severely opposed by people of this village. At present, the sugar mill generates good deal of effluent and discharge them into a tank untreated which is supposed to irrigate 423 acres

- The sugar factory has not only occupied / purchased land irrigated by the spring channel, the mill has blocked the water flow which eventually was supplying water to the Al Kondan tank

Dimensions of Conflicts

Metrowater wanted farmers of many villages to sell water from their irrigation wells to the Metrowater Board. Many farmers agreed to sell water from several villages in the region. In the same way, the Metrowater Board wanted farmers of Palayaseevaram village also to sell water; But the TWAD Board objected to this proposal since they claimed larger stake as the early-comers who already have 12 wells of their own. Therefore, the farmers of this village were requested not well water. It was conceded by farmers except one who sold water for one month.

How the conflict was represented?

Several petitions / memorandums have been sent to the government; a group of NGO organizations organized a series of demonstrations and issues notices to public. They also organized a public hearing on the issue of illegal sand mining in Chennai which attracted considerable attention of the civil society and the media. The jurists condemned severely the illegal sand mining and suggested to the Government to appoint a Committee to go into the details of damage done to the river and to suggest ways to protect it.

Mediatory / legal process : Nil

Outcome of conflicts: Nil

Present status: Passive struggle, people are absorbing the shock created due to water depletion or leaving the village for urban employment, many have sold their lands and many more are planning to sell lands

If there are no conflicts despite water transport and its adverse impacts, reasons for lack of peoples **mobilization / uprising**

Location of the village on the main corridor linked to Chennai

Sand mining as a lucrative activity

Growing absentee landlords

Very powerful sugar mill lobby having highest political connections and threatening local people

Growth of non-farm employment

Non-availability of farm labourers who find more gainful employment in non-farm activities

Responses

The responses from media and civil society are encouraging. But the political parties are seemingly not interested in this issue.

Village 2: Velliyur

This village is located at a distance of 50 KM from Chennai city with a total population of 4379. Very high increase of land value.

Main surface irrigation sources and their Command areas:

2 Tanks, 2 Kulams and 1 kuttai

Wells

In 1980, there were 280 wells and depths were in the range of 50-80 ft. Now there are 220 wells and the depth is in the range of 130-160 ft. Quality of water is bad compared to 10 years ago. Until mid 1960s, there existed only dug wells and bores have become common after the introduction of the HYV technology in the region. Since 1990, dug wells have become literally useless; since then, at least 60 dug wells were abandoned.

Drinking water

In 2000 drinking water was supplied round the clock from 4 bore wells. In the year 2004 only 2 hrs per day is supplied from a total of 12 bore wells.

Backdrop to conflicts:

In 1969, 11 bore wells were installed to pump water from the common land of the village in order to supplement water supply to Chennai city and to supply to nearby industries. The estimated water supplied from this village was 16 mld in 1969. In 2000, out of 11 bore wells, 9 had failed; since then water is purchased from farmers.

Total number of water selling farmers / wells in the village is 75 from whom 40 mld is collected. Of the 75 bore wells, which originally supplied water, only 55 were working in the year 2004. Furthermore, the TWAD Board was planning to install 7 bore wells in the common lands of Velliyur in order to supply water to Thiruvallur town; But due to the resistance from farmers only 4 were actually commissioned.

Sources of Conflict:

Originally the MW Board dug 11 wells in the common lands of this village in the year 1969. Continuous pumping of groundwater for a long period of time for almost 35 years has reduced the groundwater availability considerably in the village even for drinking; Agriculture is badly hit due to water scarcity; Subsequently water sales from 75 irrigation belonging to individual farmers made things worse; landless labourers were forced to migrate; Extensive and intensive sand mining activities also drastically reduced water yields in wells; Additionally 4 new bore wells were installed in 2004 by the Tamilnadu Water Supply and Drainage Board (TWAD board) to supply water to a nearby town called Thiruvallur. This has triggered-off conflicts.

Narration of conflict:

The people of Velliyur village were quite passive who did not oppose water pumped from the common lands of the village for more than 3 decades. However, when groundwater table decreased progressively, farmers had to spend quite substantially on deepening activities. Agriculture as an occupation was very badly hit resulting in reduced farm income and employment. The livelihoods of small farmers and landless agricultural labourers were affected. This prompted the NGO, which worked in the area to motivate the Self Help

Group's (SHG) and other landless population. Subsequently, SHGs started opposing water sales since April 26, 1995. SHGs insisted that the Panchayat should pass resolution banning water sales from Velliyur village; But the Panchayat did not do so since groundwater is pumped only from Government land. But since 2000, water is purchased from the farmers; this led to severe water crisis, impacting on agriculture and creating serious livelihood problems in the village. This was precisely the reason why SHG's and the SC, ST population of the village prompted by the local NGO got themselves organized to oppose water sales and pressed for passing a resolution in the Panchayat against water sales again. This time also the Panchayat refused to pass a resolution on the grounds that it is individual farmers who sell water from their own land. Since the property rights on groundwater are undefined nothing much could be done.

Some of the village residents filed a case in the court to ban water sales from the village. They were successful in getting the stay but soon it was vacated through an appeal petition filed by a water-seller who was supported by the MW Board. Under such duress, in the year 2003, almost all the agricultural land was left uncultivated and the labourers out-migrated in search of employment.

Meanwhile, there was sand mining by government from the river Kosathalaiyar, which drastically reduced the groundwater table. The farmers who were selling water took the sand mining issue to the Metro water and informed that water sales would be stopped if sand mining was allowed. Metro water took the issue to the government and stopped sand mining. So the labourers who were working in sand mining got affected and started opposing water sales severely. Though the conflict was fuming between the sellers and non-sellers it broke out on 15th August, 2004. The entire village apart from the sellers asked the Panchayat to pass a resolution to ban water sales and resorted to road blockage. The Metro water officials, RDO, Thasildar and some other officials arrived at the scene and tried to solve the issue. Since the entire villagers were against water sales a peace committee was formed consisting of water-sellers, non-sellers, SHG's and officials. During the peace committee meeting it was decided to stop the water sales from farmers to MW Board after 15th September 2004. Everyone including the MW officials, sellers, non-sellers and all other villagers agreed to abide by this decision. After the peace committee decision entire issue was put into cold storage until 14th September 2004. On the 15th of September, MW officials reported that water purchase will not be stopped since the higher authorities MW officials did not agree for the agreement arrived at the Peace Committee meeting; water-sellers were also willing to sell water. In the mean time water sellers tried to move the court and tried to obtain stay from the court against the decision taken during the peace committee meeting. Since the non-sellers had a doubt that the sellers might seek legal protection, they also moved the court to get a stay on water sales; It was an unsuccessful move for both sellers and non sellers. On the evening of 15th September 2004 a notice was issued to the villagers by the sellers stating that the non-sellers who were objecting to the sales are rich enough and they were trying to fool the poor people; and that they had encroached upon the common lands and were cultivating them which could have been given to the poor people if the non sellers had real concern for the poor. But this notice had no effect.

Since water pumping was not stopped even on 16th September 2004 till 11.00 AM the entire village was gathered near the sump from where water was pumped. The road was blocked. Though the officials (including the RDO, Thasildar and MW engineers) arrived they did not agree for stopping water purchase; At this point of time, some people from the agitating group broke the pipeline structures which belonged to the MW Board; After this violent protest from people, police arrested 47 people belonging to Velliyur and filed a FIR. They were booked under Public Property Damaging Act. The MW Board demanded through the court of law a

compensation of Rs.30,000 towards compensation for breaking the structure belonged to them. The court also instructed the arrested farmers to pay the compensation but the case was never withdrawn. But, they were let on bail and the case is pending in the court.

Dimensions of Conflicts

First and foremost, groundwater depletion, which has resulted in serious ecological and livelihood problems in the village. Sand mining has been a lucrative activity in the Kosathathaliar river which is one of the main contributing factors for groundwater depletion; but this activity has given livelihood options for some landless population of the village. However, for water-sellers sand mining is a menace, which has reduced water, yields in their bores. Therefore, water sellers demanded with the MW Board that water sales is subject to the banning of sand mining in the riverbed. The MW took it positively and acted accordingly. However, banning of sand mining in the riverbed has united landless population with non-water sellers of the village.

Mediatory / legal process:

Non sellers went to court and got a stay for water selling but the sellers with the help of Metro Water officials got the stay vacated and started water sales in 2001. On August 15, 2004 panchayat passed a resolution to stop water sales and resorted to road blockade and the officials intervened and formed a peace committee consisting of sellers, non-sellers, SHG's and officials to evolve a solution and it was decided in this meeting to stop water sales from 15th September, 2004.

Outcome of conflicts: 47 people were arrested and are on bail. Water sales stopped.

Present status:

Water selling was stopped. Again MW officials are asking the farmers to sell water and some of the farmers are willing to sell. MW has pasted a notice and even circulated it among the farmers stating that whoever is willing to sell water can approach the MW to have an agreement for one year and the tender should be submitted before 22/2/05. But till date water sales has not been started.

Responses

The responses from media and civil society and the political parties are encouraging. The present MP (DMK) of the Sriperumbudur constituency visited the village and asked the police to release the arrested persons immediately stating that the public has rights to question and that the government had failed to keep the promises made in the peace committee meetings, which compelled the people to resort to such violent reactions.

Appendix 2 Some methodological issues relating to MSD

Who should constitute multi-stakeholder group?

- First and foremost, the multi-stakeholder group should be more inclusive than exclusive
- Make sure that all interest groups are represented including government agencies– in particular those stakeholders who are problematic
- As far as possible, interest groups should be allowed to choose their own representatives
- Members of various interest groups should have power and voice in their respective constituencies; they should have recognition among the people
- Pick-up those members from various interest groups who are willing to listen, who have the mind to give and take, who are willing to talk and negotiate and who are willing to communicate, cooperate and compromise

Basic principles on which multi-stakeholders' group or Committee should function

- Democratic means for achieving common goals and in decision making
- Accountability, transparency, flexibility and mutual aid
- Ultimate aim of any MSDs should be to achieve good governance based on sound democratic principles – a true bottom approach for water governance
- MSPs should be more inclusive rather than exclusive
- MSDs should ideally work within a time frame which by itself depend upon the agenda of a given multi-stakeholder group
- MSPs should strive to contribute to overall policies and governance
- MSDs should not be viewed as an alternative or substitutes to the democratically elected bodies or other democratic institutions such as judiciary; At best, MSDs can contribute or harmonize or strengthen these institutions

Agenda of the Committee

- It is extremely important to identify key problems or issues that needs to be addressed and handled by the Committee; in other words, the precise agenda of the Committee needs to be discussed and finalized collectively; in the absence of the precise set of questions, the Committee will tend to waste time and may waffle or engage in a futile dialogue
- Set the tentative time frame and stick to it as for as possible; but do not conduct dialogue under compulsion or in a hurry

Responsibilities of multi-stakeholder group Committee members

- Members responsibilities should be more clearly defined
- Members should be more responsible, forthcoming and should take active interest in the Committee meetings
- Should not waste time and should always center around the core issue of conflict; but all other relevant issues should also discussed in a specified context; but more importantly the Committee should avoid discussion of all issues which are out of context

- Members should assume primary responsibility of taking the agenda and the essence of discussion to their respective constituencies
- Members should attend the meeting with commitment, with a determination to contributing to resolution of conflict and most of all attend each meeting looking for a positive outcome
- Be in constant touch with all fellow members; keep the communication channels wide open; participate in all functions – private and public – develop a good friendship
- Make it a point to speak in every meeting but only relevant points / issues which can take the group a step ahead
- Focus only on relevant issues and data; never ever open a debate on personalities or personal matters of members or any others. Such an effort will be extremely counter productive even if such issues are found relevant
- All members should share whatever information they have in the best interest of the Committee
- All members should strive to uphold collective rationality rather individual rationality which is the most important principle for any conflict resolution
- Members should have enormous patience and listening capacity; should give chance to others and should avoid interrupting others
- Members should not resort to voting under any circumstances; decisions should always be arrived at by consensus
- Confidence building measure is the most important task of the Committee; all members should contribute to such confidence building measure
- Finally, members should trust the mediator or the facilitator who assumes primary responsibility of convening meetings

Responsibility of the facilitator / convener

- Facilitator should be untiring, be committed and socially responsible; should be ready to face ups and downs
- Should be agreeable to all members of the Committee
- Should always be open-minded, neutral and impartial and should have the capacity to carry forward dialogue process under all circumstances
- Should be qualified to mediate on any said issues; He / she should have credibility and be trust worthy
- Should be able to design the initial phase of MSP and MSD
- Should be able to mobilize resources when needed
- Should always be alert while conducting meetings so that all bitter and irrelevant arguments can be avoided
- Should be able to contribute a great deal to documentation process
- Should ensure that meetings are held in a cordial atmosphere
- Should facilitate meetings in respective areas of members of the Committee and should also facilitate field visits in all contending areas
- Should ensure that members take active interest in arranging Committee meetings and field visits
- Should always drive home the fact that the Committee's mandate is to arrive at a consensus and find ways forward and not merely to argue, present facts, present history and geography and accuse each other or the government
- Should always promote the feeling and welfare of the Committee - as a family – rather than individuals

- Should never interfere in internal matters of members and their associations; but at the same time should make sure that such differences do not interfere in proceedings of the Committee
- Should be in a position to delineate key and important issues from unwanted and irrelevant issues; should promote discussion on all relevant issues if they are time consuming
- The best strategy for the facilitator is to capture the common points of agreement and build on them; should postpone all issues on which agreements are deficient
- Should never impose or force any view point on members even if they are extremely relevant and important
- And, finally, the facilitator and convener should project himself / herself to be a positive person and never ever give any grounds to negative thinking

Lessons from the MSD experience

- A sound research is a necessary condition for undertaking and carrying forward MSD
- Degree of success or failure of dialogue initiatives depends upon active and sustained state support
- A threshold level of crisis will make dialogue initiative more sustainable and will ensure active participation of all contending stakeholders; otherwise, only one set of stakeholders will participate
- Need for an untiring facilitator who can carry on with the job of facilitating and arranging a platform for the dialogue to continue
- Dialogues are never smooth; there will be lots of ups and downs; this should be expected
- Final outcome is uncertain; difficult to judge; But in the absence of a viable alternative there is a case for pushing the dialogue initiative as far as possible until one reaches any where near a viable solution

Critique of MSP or MSD

- Who are multi-stakeholders? What kind of legitimacy do they have?
- Would government see MSD as a challenge to their democratic right and sovereignty? Will govt. help the process or hinder?
- How would political parties view MSP?
- What are the responses of corporate sector? Positive or negative?
- Responses of NGOs
- Acceptability from civil society and media

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