

Scarce Water, Plenty of Conflicts?

Local Water Conflicts and the Role
of Development Cooperation

Annabelle Houdret

3/2008



Institute for Development and Peace

Introduction: Water scarcity and power politics increase conflict potentials

Water management is increasingly a question of distributive justice and political legitimacy

Growing water scarcity, an increasing water demand and still insufficient management of the resource provoke a rising competition over its allocation. As technical measures can rarely mobilise significant additional water resources, the political scope of action mainly lies in demand management. This results in sometimes conflictive decisions for or against the promotion of certain economic sectors, regions or population groups. Conflict potentials might escalate, especially if the groups penalised in water allocation are also marginalised socially, economically or politically. Policies of water management are therefore increasingly confronted with questions of distributive justice and political legitimacy.

Water allocation structures reflect social and political disparities and may reinforce them

Especially in countries where water is scarce, water resource allocation often reflects social, political and economic inequities. In times of increased competition over the allocation, interests of political power can easily emphasise these differences and are therefore significantly relevant for the emergence or escalation of conflicts. The intrastate level is specifically affected by this phenomenon as – especially in agrarian countries – influential positions in politics and society are often linked to the access to water. Lucrative export products, for example, can only be produced with sufficient water supply, and investments in the tourism sector are also closely linked to the resource availability. Nevertheless, urban water allocation structures, especially in developing countries, also mirror social disparities, such as those between rich and poor districts. Restrictions in resource availability therefore often have direct social and political consequences, as the hostilities following increases in prices of drinking water services have shown.

Development countries are more affected by the politicisation of the resource competition because of their lower adaptive capacities to the effects of scarcity. The high dependency on water of economic sectors as well as of subsistence farming, lacking social security systems for the population and having deficits in the rule of law, can exacerbate tensions. But water scarce regions of European Mediterranean countries also show increasing conflict potentials as a result of higher competition in resource allocation. One example is the region of Almeria in southern Spain, where rivalry between the interests of the agricultural sector and the tourism industry is extremely high.

Considering the effects of climate change on the resource availability as well as the increasing water demand, competition between users will continue to grow in the near future. These developments urgently require an open debate on intrastate conflict potentials and perspectives of cooperation. Development cooperation faces specific challenges in this regard, as it is involved directly and indirectly in the sector through development projects and policy advice.

Growing competition for access to the resource, lower adaptive capacities and higher economic dependence may increase conflict potentials

In its first part, the present Policy Brief summarises the causes of the emergence of water conflicts and draws the attention to specific challenges for development cooperation. The second part focuses on a typology of possible water conflicts that identifies the main actors and specific solution approaches. The third chapter elaborates policy options for the international development cooperation in order to improve conflict prevention in the water sector.

1. Water conflict potentials within states – a challenge for development cooperation

Increasing water demand and shrinking supply enhance resource competition

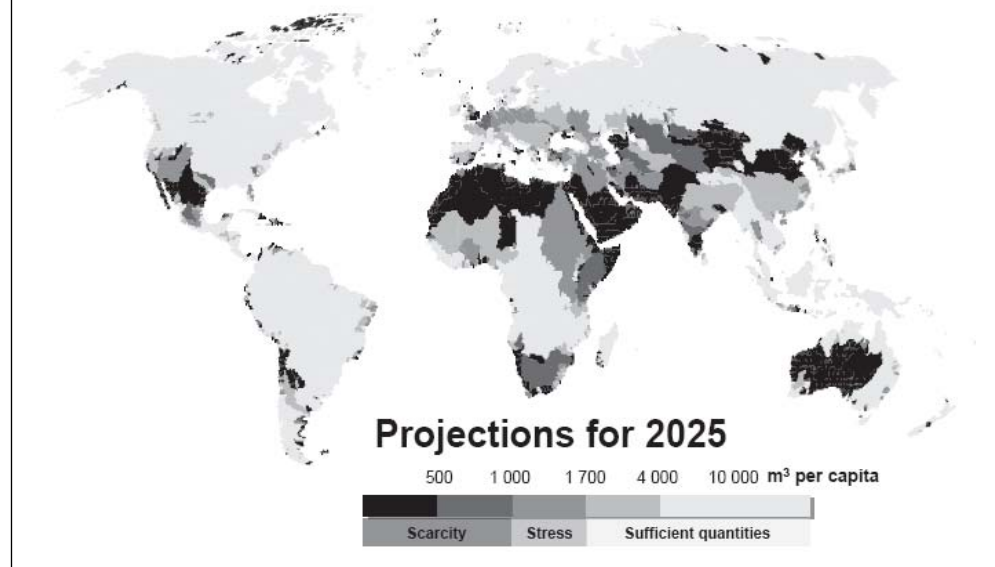
Growing needs for food production, urbanisation and changes in consumption patterns are responsible for higher demands for fresh water worldwide. While the demand in industrial countries is expected to increase by 18% by the year 2025, it will rise by 50% in developing countries in the same period (WWAP 2006). Food production, with an expected growth of 67% in developing countries within the same period, represents a high proportion of these rising needs. In many countries, water use already exceeds the rate of renewability of the resource. This so-called *overuse* of surface or groundwater resources has already provoked ecological and social catastrophes in many parts of the world. Massive extraction of groundwater often causes saltwater intrusion into soils and drinking water and renders whole regions uninhabitable. The consequences are the loss of livelihoods for resident fishers and farmers as well as migration. The latter might in turn cause increased pressure on resources such as land and water when refugees migrate into already densely populated regions. In China, Yemen, Iran, but also in Central Asia and many Sahel countries as well as in the region of the Middle East and Northern Africa these consequences are already palpable in different areas.

The overuse and pollution of water as well as inequitable distribution threaten livelihoods and cause migration

As in other regions, water scarcity is expected to grow in these countries (see box 1). Climate change causes higher evaporation of water resources because of increasing temperatures and it is responsible for declining precipitations and extreme weather events. Droughts are expected to increase both in density and frequency, while on the other hand heavy rainfalls cause floods that destroy harvests, water infrastructure and living space. At the same time, increasing water pollution further diminishes the resource availability.

Box 1: Worldwide availability of freshwater resources, yearly renewable resources per capita and river basin in the year 2025.

Source: UNEP/GRID Arendal 2002.



Competition over access to water within states provokes different types of *conflicts*. They are not necessarily caused by the ecological evolution of the resource: even in countries where enough water is available, lacking infrastructure or the politicisation of allocation can cause tensions. But whether water scarcity is conditioned by ecological, financial/technical or political evolutions: the competition between users is rising and has far-reaching impacts, mainly on the intrastate level.

Until today, violent conflicts over water between states have rarely occurred. Studies have shown that the highly controversial hypotheses of wars over the *blue gold* prominent in the 1990s have to be revised (Wolf/Yoffe et. al. 2003). So far, cooperation prevails in most cases, as the conflict parties fear that material and immaterial cost of a war over the resource would exceed its gains. Nevertheless, this does not mean that the control over transboundary resources might not play an important role in interstate relations, as is obvious in the basins of the Mekong, the Nile or the Euphrates and Tigris today.

Increased competition over the scarce resource provokes sometimes violent conflicts within states. But water conflicts, because of their high potential for social destabilisation and the far-reaching implications of their allocation, are an extremely sensitive political topic. Policy-makers often perceive the acknowledgement of the existence or the threat of water conflicts as an implicit sign of policy or project failure. Conflict prevention, by definition depending on early warning and early action, is complicated by this attitude. However, the complexity of water conflicts also offers an important opportunity for structural changes, as they often reveal conflict lines that are equally relevant in other policy domains. The typical implication of a wide diversity of interests can facilitate the negotiation over other issues than resource allocation as well as the building of new alliances for cooperation. Conversely, the disregard of conflict potentials might have severe consequences, not only for water management but also for policies in other domains.

Water conflicts are also a chance for structural changes and the balancing of interests in the long term

Demand management can enhance root causes of conflicts and contribute to escalation

In order to meet the increasing water demand, water scarce countries followed a policy of increasing supply through the mobilisation of additional resources by dams and the exploitation of groundwater resources. Today, because of increasing droughts and other factors, these measures are rarely sufficient. Beside the recycling of used water and the still relatively expensive conversion of saltwater demand management remains an important measure of water policies. Demand management aims at a better use of the resource by reducing losses in distribution and a change in allocation to prioritise certain users. However, this prioritisation reflects a certain understanding of what is meant by efficient use or societal gain, a definition closely depending on social and political norms. Today, the question whether investments in the tourism sector promise more societal

Demand management can reinforce social disparities and trigger conflict if not accompanied by appropriate measures

gains than water allocation to agriculture is implicitly answered in many countries in favour of hotel compounds and golf resorts. The fact that many farmers lose their livelihood when they do not have sufficient irrigation water at their disposal, and that migration of mostly non-qualified workers and their families into the already-crowded cities is a probable consequence, is seldom debated in this context.

The political sensitivity of decisions in water management complicates necessary debates over the use of different policy options for the entire society

The struggle against losses due to deficient infrastructure is an important element of water demand management, as they amount to up to 60% of the mobilised resource in many countries (WWAP: 117). However, as the individual economic, ecological and social conditions of water-users are very diverse, measures to improve water economy are a sensitive issue and not only a matter of objective improvement in efficiency. It is a widespread hypothesis that higher cost for water is automatically linked to a more economic use of the resource. However, investments in water-saving irrigation techniques, for example, are too costly for many farmers, and even the provision of specific credits for small farmers only partly resolves this problem because of overly complicated administration or unclear property rights. Furthermore, numerous studies show that – at least in irrigated agriculture – improvements in water supply management contribute more efficiently to water economy than higher prices for consumption (Molle/Berkoff 2007). Demand management is therefore often susceptible to affecting users unequally and contributing towards reinforcing socio-economic disparities. This does not mean that demand management, which is urgently needed to protect the resource, should be avoided. Decisions in this regard should rather be more sensitive to direct and indirect impacts and joined by adequate accompanying measures.

The implementation of the Millennium Development Goals is threatened by water scarcity, water allocation problems and water conflicts

Water scarcity and conflict potentials call the implementation of development goals into question

The impacts of water scarcity are so far-reaching that the implementation of certain development goals and strategies are put into question in many countries. These links are particularly obvious in the case of the Millennium Development Goals (MDG) which summarise the current priorities of the international development cooperation. Water plays an important role in the eradication of extreme hunger and poverty (goal 1). Especially in Sub-Saharan Africa and Southern Asia, water scarcity correlates with the spread of hunger and poverty and hampers the implementation of the MDG 1. The achievement of universal primary education (goal 2) as well as gender equality and

the promotion of women (goal 3) are also linked to a more equal water distribution and the improvement of water service infrastructure. Still, many woman and children are discriminated against in education and other domains because of time- and energy-consuming water provision. Furthermore, the goal of reducing child mortality (goal 4) as well the improvement of maternal health (goal 5), the combat of HIV/AIDS, Malaria and other diseases (goal 6) are conditioned by improvements in the infrastructure and allocation patterns of water. Improved drinking and sanitation water services as a part of the MDG 7 (ensuring environmental sustainability) are directly dependent on a sufficient and affordable water supply. According to the last evaluation of the MDG implementation, this goal will not be met in 55 countries, meaning that 234 million people will not have access to improved drinking water and sanitation infrastructure (UNDP 2007). Last but not least, the MDG 8, the implementation of a *global partnership for development*, is closely linked to the question of water service provision. Improved water allocation and sustainable resource management need high technical and financial investments, which, when certain social and ecological standards are secured, can also be provided by non-state actors.

The international development cooperation (DC) is concerned in various ways by the crisis over water allocation:

- First, the growing scarcity of the resource (either caused by ecological, technical, financial or political developments) threatens the implementation of development goals, as the example of the MDGs shows.
- Second, conflicts between water-users have an impact on DC because the project implementation might be endangered by hostilities or tensions. Even development projects that are not directly linked to water allocation can be affected. The local level, where many projects are located, is considered to be specifically vulnerable to water conflicts.
- Third, DC projects in the water sector as in other domains might contribute towards increasing structural causes of conflict, for example when contributing to marginalisation. Beside the local projects, regional and national policies might trigger such developments for example when institutional reforms or changes in sector policies insufficiently represent or include certain actors or fail to provide compensation for losses.

- Fourth, empirical evidence shows that problem-solving in water management, even if initially reduced to technical aspects, often provides an appropriate approach to broader negotiations over issues of governance, participation and rural development.

A conflict-sensitive design, implementation and evaluation of development projects in the water sector contributes to political stability

In the present context of higher awareness about sustainable water resource management and of the MDGs, international development assistance in the water sector is expected to significantly increase in the coming years. However, considering the above-mentioned challenges, conflict-sensitive policy and project design, implementation and evaluation in the water sector are not yet sufficiently developed. New approaches are especially needed in the early detection of conflict potentials, the identification of cooperation possibilities among water-users and the organisations concerned, and for the strengthening of institutions in charge of conflict resolution. Apart from the improvement of socially acceptable water allocation and the achievement of development goals, this would also contribute to enhancing political stability.

Different evolutions and forms of water conflicts

In addition to the “classical” competition between agricultural and urban water use, disputes over water allocation today increasingly occur within sectors. For example, financially strong farmers may compete with poorer ones, or different urban investors may compete in allocation patterns. These developments call for new policies of water management that explicitly take conflict potentials into account. The complexity of water conflicts requires detailed analyses of the respective interests and positions at stake and cooperation possibilities between the actors involved. As we have argued above, water conflicts are rarely linked to the mere question of resource allocation (see box 2). Conflict-triggering factors such as the marginalisation of population groups regarding their income, their social position, or their religious, ethnic or political affiliation mainly already exist before the escalation of a so-called water conflict. The restriction of access to the resource is then rather the determining factor for the escalation, but not for the formation of a conflict.

Box 2: Characteristics of water conflicts**The origins**

- Water conflicts often emerge when restrictions in allocation reinforce already existing socio-economic marginalisation of population groups.
- Unequal resource allocation and lacking compensation for insufficient water supply enhance the consciousness about different types of discrimination and encourage the building of interest groups.
- Water conflicts often reflect and reveal political differences and strategic political interests that might originate in other domains of politics and society. The water conflict itself might therefore be a representative conflict.
- Refugees might enhance pressure on water resources and competition over the allocation in their new whereabouts. Furthermore, violent conflicts often lead to the destruction of vital water infrastructure. Conversely, lacking water infrastructure might also be a factor for new escalations of violence.

The development

- Conflicts are mostly first articulated verbally and by referring to public or private authorities or institutions for conflict resolution.
- In a second stage, sabotage (such as the destruction of water infrastructure) is often employed for achieving interests. Furthermore, the parties deploy informal means for securing water supply (such as illegal appropriation through pumping, diversion or corruption). At the same time, groups build alliances and develop strategies for the pursuit of their interests. Only then the conflict parties, in an interplay with the institutional, social and political environment, decide on the use of violence.
- The rapidity of escalation of the conflict depends on its history and antecedents of violence, on the building of efficient coalitions of interest as well as on the availability and legitimacy of institutions for conflict resolution.

Non-violent conflicts over water can also have severe consequences on the development and the polarisation of social groups and institutions

Water conflicts can be expressed in many different ways. They may trigger violence, as the social unrest following the privatisation of drinking water supply in Bolivia or the hostilities between nomads and settlers in Kenya and elsewhere have shown. Many water conflicts are also firstly carried out without violence, for example when water supply is secured through corruption. Conflicts may further find their expression in competition between government institutions to secure their part in the allocation process. They may also be expressed in the political influence exerted by a private investor securing his individual supply. Another typical form of non-violent water conflicts is the bypassing of state regulations through informal means, such as the exploitation of groundwater resources without permission. Finally, conflicts may also result in constructive cooperation. They may facilitate the articulation of interests and of deeper causes of conflict and thereby create new perspectives for negotiation. This enables new solutions to old problems that often reach far beyond the mere question of resource allocation. For example, the introduction of participatory structures for decision-making in irrigation water management can fundamentally alter power relations and thereby contribute to conflict prevention (Mathieu et. al. 2001).

2. The identification of conflicts – a typology as an analytical framework

Statistics of water scarcity are of limited use for identifying conflicts

Existing indicators on water scarcity are insufficient for identifying conflict potentials

The identification of potential water conflicts – and their prevention – often fails because of lacking political awareness, but also because of the lack of specific indicators and methods. At the national level, the threshold of 1000 m³ of water per person and year is generally referred to as the level below which a country is water scarce. Nevertheless, this figure does not provide information about the geographical, seasonal or social distribution of the resource within the country. Furthermore, the means needed to be deployed by the state or end-users for making use of the water are not part of these statistics. The examples of China or India show that even in the case that the national average water availability is higher than the threshold of scarcity, numerous people can be living below the vital supply level. However, the individual means for making use of the resource are very different and often informal and therefore difficult to assess. Besides this, even a relatively good knowledge about the individual resource allocation is not a sufficient indicator for conflict potentials.

Such indicators would have to take into account all relevant actors as well as the distribution of other material and immaterial resources among them in order to assess the practical impact of water availability.

Identifying actors to detect conflict potentials

Considering the lack of area-wide and at the same time detailed data on water conflict potentials, a typology proves to be an appropriate tool for identifying potential tensions. More specifically, it is an actor-centred typology that facilitates the early detection of conflict potentials. A categorisation according to the object of the conflict (such as the cost of water provision, the time of allocation, the quality or quantity of the resource) or a typology focusing on the geographical constellation (such as cities versus rural areas or upper versus downstream riparians) are not sufficient to identify all relevant users and interests.

The *actor-centred typology* focuses on the parties directly involved in a water conflict and analyses the social tensions, the social networks as well as material and immaterial resources and possible external actors involved. At the same time, the approach explicitly also considers non-violent forms of negotiation over differing interests that might escalate into violence but that might also provide opportunities for cooperation. Conflict constellations identified with the help of this analytical framework can then, in a second step, be completed through specific local studies (see Houdret 2008). These include the perceptions, norms and values of the actors concerned, because they are of primary importance for the peaceful or violent evolution of the conflict. Finally, this method might be complemented by specifically adapted methods of conflict research, such as the *conflict tree*, the *onion model* or the drafting of *scenarios*.

The typology below is based on empirical evidence in different countries. It presents every type of water conflict regarding its main actors, possible structural causes and policy options for prevention. The concrete constellation of the actors, the evolution of the conflict and further direct or indirect interests then depend on the specific situation and need further explicit analysis at the local level.

Conflict analysis requires the identification of social tension and networks, of the resources involved as well as of directly and indirectly concerned actors

Different tribal or religious affiliations are an important factor of conflict and cooperation

Type 1: Water conflicts among nomads or between nomads and settlers

In many countries suffering from droughts, nomads do not find enough pasture land and water points for their animals any more. Furthermore, farmers have settled on land formerly used by nomads. Besides the resource scarcity, unclear property rights, widespread droughts and the often weak social status of nomads in the respective society contribute to these – often violent – water conflicts. Differing tribal or religious affiliation can further enhance group-building and mobilise other interests. Regions where these conflicts have been observed are, among others, Kenya, Namibia, Benin, Niger, Mali and Central Asia.

Policy options for DC exist for example at the local level by strengthening institutions for conflict resolution (such as local assemblies with legitimate leaders) as well as the improvement of the legal environment (clear allocation of precise regions to certain uses and the development and implementation of sanctions). Group identities and interests may be mobilised for cooperation initiatives. The creation of alternative sources of income and security systems for drought periods as well as a better political integration of nomads provide further points of entry for structural conflict prevention.

Illegal resource exploitation by big farmers is often insufficiently sanctioned because of their strong financial and political position

Type 2: Water conflicts between farmers

Water conflicts occur between economically stronger and weaker farmers, for example if the former are responsible for the sinking aquifer due to deep drilling that dries out less deep wells. Farmers not able to invest in deeper wells as well as drinking water users are marginalised by these often artesian drills. Additionally, financially strong farmers are often also more influential on the political level, they have more technical and economic means at their disposal to optimise their production, and they often have good relationships with state institutions. Weaker farmers, whose water supply is less secure, are therefore simultaneously marginalised in different domains. This conflict constellation is already occurring in many of the agrarian regions of Northern Africa, China, Iran and Yemen.

Policy options for DC lie in a strengthening of water management institutions and their possibilities for sanctioning contraventions. Furthermore, information campaigns for water-users about the ecological impact and the legal consequences of the overuse of the resource can contribute to rising awareness. Participative methods provide interesting approaches in this regard, for example for developing voluntary commitments by water-users across all sectors of use. One ex-

ample is the so-called *aquifer contract* signed by numerous water-users in 2007 in Southern Morocco. Finally, DC can accompany structural economic changes at the macro-level and be involved in the implementation of adequate compensation mechanisms and income-generation activities of small farmers in water scarce regions.

Type 3: Conflicts between urban and rural water-users

Especially in peri-urban areas, i.e. around the expanding medium-sized and big cities, competition between urban investors, drinking water users and farmers is growing. One example of highly controversial investments are large tourism compounds within and beyond the cities. They mostly rely on private drills and contribute to a sinking of the aquifer, as is already the case in many of the Mediterranean countries. Private drills for irrigation use may have the same effect. Another aspect of this conflict constellation is the degradation of water quality by industrial sewage water or fertilizers. Low water quality can then affect agricultural or drinking water use and provoke conflicts.

Policy options for DC consist in strengthening the national and regional water management and the enforcement of consultative structures in this regard. The development of recommendations and regulations for investors of the private sector provides numerous possibilities for action, as the establishment of a culture of *Corporate Social Responsibility* in other sectors shows. Especially in the tourism sector, such an approach may consist of effective publicity in the context of increasing ecological concern. Finally, the formulation and implementation of specific laws is a point where DC can at least provide advice. Professional training for employees of judicial institutions may further improve implementation of the laws.

Type 4: Conflicts between users and managers of drinking water services

Conflicts over drinking water have become particularly prominent in the context of service privatisation (see also Houdret/Shabafrouz 2006). Rising prices, coupled with lacking investment in infrastructure, deficient maintenance and the discrimination of poor population groups, have led to sometimes violent protests in many, countries. The conflict parties are the water-users, often backed by civil society organisations, government institutions and private companies. The most well-known conflict of this type escalated in Bolivia, but other cases occurred in Africa, Asia and Europe. However, defi-

Obligations to the private sector and the enlargement of consultative structures can reduce and prevent urban and peri-urban water conflicts

The implementation of social and ecological standards can help preventing conflicts in drinking water management

cient public supply is equally responsible for social unrest, as the case of Algeria shows, where every summer season is accompanied by violent protests against insufficient supply in many cities including Algiers.

Policy options for DC, similarly to the ones mentioned for type 3, consist in giving specific policy advice for the design and implementation of social and ecological norms to be respected by public or private drinking water providers. Loans by foreign development agencies for the investments in the water sector should also be subject to similar conditions. Ideally, such norms can then result in laws and respective sanction mechanisms. The enforcement of the local private sector through training as well as financial support can further help to prepare these companies in the implementation of requirement specifications. An additional option to prevent conflicts linked to new investment projects lies in the early integration of all concerned population groups. This allows an assessment of different water management options and their possible side effects *before* the project implementation.

Type 5: Conflicts between proponents and opponents of dams and large projects for water transfer

The most publicised conflicts in this category are certainly protests against the building of large dams, which are rooted in the lack of compensations for the expropriation of land, forced resettlement and ecological concerns. China and Turkey are two of the currently concerned countries in this regard. Additionally to the above-mentioned claims, village populations in the immediate surroundings of dams may protest even violently against water pipes passing right in front of them to supply the resource either to urban drinking water users or more rich farmers paying for irrigation water. The transfer of significant amounts of water from one region to another in countries such as Mexico, Mauritania or Libya is often the only option for water supply to expanding cities or for the development of new agricultural land. The resulting water scarcity in formerly served areas provokes new conflicts.

Policy options for DC lie firstly in the implementation of the well-known guidelines by the World Commission on Dams. But even when implementing smaller projects at a local or regional level, with or without foreign loans, DC can lobby for the respect of subsequent norms in order not to disregard claims by local water-users. Cost-benefit analyses should be based on an assessment of the direct and

Compensations for the consequences of water transfer projects and dams as well as prior consultations of users contribute to conflict prevention

indirect effects on the whole of the society, the local and the national level. The cooperation with civil society organisations is promising in this regard in order to assess the different needs and possible consequences of projects.

3. Strengthening cooperation, preventing conflicts

In its involvement in the water sector, the German public DC relies to a high degree on the sector concept elaborated by the German Federal Ministry for Economic Cooperation and Development (BMZ) (BMZ 2006). The orientations for water policy mentioned in this paper provide a good basis for combating structural causes of water conflicts. The poverty-orientation of water sector reforms and the integrative approach of management of the resource are steps in the direction of a cooperative negotiation of different stakeholder interests in the water sector. The explicit mentioning of water conflicts in the concept paper as well as the aim of strengthening institutions for conflict resolution are positive aspects. Nevertheless, the concept remains rather vague concerning the concrete action to be taken in order to achieve these goals. DC needs specific principles, methods and instruments in order to assess conflict potentials related to water management, to improve early warning and early preventive action. The following suggestions for strengthening conflict-sensitive project design and implementation in DC therefore go beyond the goals mentioned in the BMZ concept and explicitly refer to government and non-government actors involved in drinking or irrigation water management projects at the local, regional and national level.

Identify overlapping socio-economic and ecological marginalisation processes

The identification of manifold marginalisation processes affecting the same population groups is a key condition for the assessment of conflict potentials. In a second step, poverty-orientation of DC in the water sector should be accompanied by specific measures for the integration and/or the compensation of minorities identified as being marginalised. However, such an orientation of DC firstly requires adequate capacities and methods of analysis in order to locally assess the simultaneous occurrence of ecological marginalisation (such as unequal access to drinking or irrigation water or fertile land) and

Development cooperation in the water sector needs specific methods and instruments to improve the identification and prevention of conflicts

Other social, political and economic marginalisation processes can aggravate the impact of insufficient access to water resources

discrimination in other domains (i.e. in the agricultural context: access to markets, subsidies and credits, representation in decision-making processes etc.).

Such overlapping marginalisation processes are expected to increase in many developing countries in the context of the implementation of the free-trade agreements. Increased competition on the agricultural markets combined with lower subsidies and falling prices are expected to threaten the income of small farmers in the near future, which may create conflict potentials. Specific targeted measures for economic support and income generation may avoid the increase of marginalisation processes linked to this phenomenon.

Strengthen the capacities for analysis and for the implementation of “do-no-harm” in the water sector

Development cooperation needs to assess the possible impact of its projects on conflict potentials at the local, regional and national level

DC projects in water management, be it in the context of agriculture, drinking water, tourism or industry, need specific sensitisation for possible conflict-generating or conflict-escalating components or side effects. This refers to the macro-political level where conflicts may arise or grow between user sectors or institutions. And it refers to the regional and local level, where conflicts linked to development activities may emerge within user groups of the very same sector. In the sense of the above-mentioned overlapping of marginalisation processes, socio-economic consequences of DC projects should not only be assessed in all phases of water-related projects. In addition, the interlinkages between different DC projects (for example in rural development etc.) as well as between these and governmental or other initiatives should also be part of the assessment.

Take into account conflict potential within sectors and user groups

While growing competition for water between different sectors is mentioned more and more often in the DC context, conflict potentials within the same user groups are less taken into account so far. However, it is especially here that disparities between water-users are on the rise and this may increase conflict potential between farmers, among urban water-users or between different villages.

Mitigate conflict-triggering effects of climate change

Climate change has an important impact on the availability of water resources and fertile land. In order to prevent insecurity in the food supply and income of mainly rural families, which could potentially be destabilising and lead to conflict, specific adaptation measures for securing livelihoods are needed.

Conflict prevention through improved data collection and exchange as well as higher attention to the effects of climate change

Reinforce the collection and exchange of data

The availability of data on water resources and their use as well as of scenarios on their future development has to be improved particularly at the regional and the local level. With regard to conflict prevention, the assessment of data concerning water distribution and use is equally important. Closer exchanges between different DC projects would permit the compilation of knowledge, for example in collective maps, in order to assess conflict potentials. Furthermore, the exchange of data and their dissemination can be used in the interest of conflict prevention, for example as a confidence-building measure and to improve cooperation between potential conflict parties. This may also help raise awareness on ecological processes and their socio-economic impacts among water-users on all levels. Integrating education institutions, media and NGOs in these processes has proven to be a successful approach.

Improve conflict-sensitive water management at the institutional level

On the level of governmental institutions, a higher sensitisation towards and open debates about conflict potentials are urgently needed. The influence of strong lobbies and possible effects of water-saving measures on social and political stability complicate such discussions. But from a long-term perspective of social peace and political stability, raising these issues and developing new approaches for dealing with them is inevitable. This includes a reform of the institutions, for example when the boundaries of political administration and water management organisations are not identical. Rather than further enlarging the multitude of institutions competing in water management, reform should focus on a clear sharing of responsibilities and competences as well as conflict awareness. With this goal in mind, sensitisation of the institutions' employees is needed for detecting local conflict constellations and the respective effects of political decisions.

Strengthen sensitivity for conflict and cooperation potentials within national and local institutions

Successful communication of national-level decisions at the local level can significantly improve conflict prevention

Improve communication on water policies and enhance transparency in decision-making processes

Transparent communication and improved information is extremely important for conflict prevention. Decisions on water management taken at the national level are rarely sufficiently communicated to the local level. Furthermore, compensation claims in the context of infrastructure projects as well as access to subsidies or credits and the subsequent procedures for application are often not well-known at the local level. Public platforms for the discussion of water infrastructure projects and of conflicts integrating a large representation of users could help in this regard. But at the institutional level as well, priorities in resource allocation and the distribution of competences between institutions should be clear, in order to negotiate interests and financial compensations within the framework of these conditions.

Identify and strengthen institutions in charge of conflict resolution

This aspect concerns the enforcement of formal conflict resolution mechanisms, on the one hand by implementing respective laws and by specific training and information, for example of water user groups. On the other hand, especially in rural areas, traditional institutions for conflict resolution are still very influential. The integration of such authorities into local water management programs and participatory decision-making processes, in which other governmental and non-governmental users are also involved, can help to balance interests.

At the same time, existing coalitions in the water sector and beyond may be strengthened and integrated in negotiation processes. Their identification and involvement at the local and regional level is therefore promising.

Policies of conflict prevention and sustainable resource management urgently need to integrate the private sector

Improve the integration of the private sector

Especially with regard to the growing integration of the private sector into development cooperation, for example in financing and/or managing drinking and sanitation or irrigation water projects, the design and implementation of ecological and social terms of reference are urgently needed. DC needs to develop standards for ecological and social sustainability of private sector investments. It can also contribute to monitor their compliance and sanction disregards. In the interest of conflict prevention, existing social standards have to be revised

and extended. A minimum amount of free drinking water for poor population groups is one example of such a social standard. Especially in the irrigation water sector, where private investments are expected to grow in the near future, no general social or ecological standards have been applied so far, which creates sometimes violent conflicts.

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Annabelle Houdret, Dipl. Pol., Researcher at the Institute for Development and Peace (INEF), University Duisburg-Essen, and member of the joint Research Unit Water Management, Actors and Uses (UMR G-Eau), Montpellier. Her topics of research include environmental security, development, water conflicts and social, political and ecological trends in North Africa.

Contact: a.houdret@inef.uni-due.de

Scarce Water, Plenty of Conflicts?

Local Water Conflicts and the Role of Development Cooperation

Growing water scarcity increases competition for the access to the resource and subsequent conflict potentials in many countries. Water management and related conflicts are increasingly a question of distributive justice and political legitimacy. The Policy Brief analyses the causes of intrastate water conflicts and introduces the main challenges for international development cooperation. By typologising water conflicts and showing corresponding policy options the paper provides an overview of possible strategies to cope with water conflicts. Finally, the Policy Brief offers recommendations on how to better identify, resolve and prevent conflicts in the water sector.

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Editor:

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Geibelstraße 41 D - 47057 Duisburg
Phone +49 (203) 379 4420 Fax +49 (203) 379 4425
E-Mail: inef-sek@inef.uni-due.de
Homepage: <http://www.inef.uni-due.de>

Layout design: Sascha Werthes, Jeanette Schade
Coverfotos: Jochen Hippler, Ulf Terlinden, Jeanette Schade



FACULTY
OF SOCIAL SCIENCES

Annabelle Houdret: Scarce Water, Plenty of Conflicts? Local Water Conflicts and the Role of Development Cooperation.

Duisburg: Institute for Development and Peace (INEF Policy Brief 3/2008, February)

ISSN 1863-9909