Water Management Issues in the Hadejia-Jama'are-Komadugu-Yobe Basin: DFID-JWL and Stakeholders Experience in Information Sharing, Reaching Consensus and Physical Interventions

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Abstract

The Hadejia-Jama'are-Komadugu-Yobe Basin (HJKYB) is an inter-state and transboundary basin in Northern Nigeria. Covering an area of approximately 84,000 km^2 is an area of recent drama in water resources issues. Natural phenomena combining with long time institutional failure in management of water resources of the basin have led to environmental degradation, loss of livelihoods, resources use competition and conflicts, apathy and poverty among the various resource users in the basin.

Unfortunately, complexities in statutory and traditional framework for water management has been a major bottleneck for proper water resources management in the basin.

The Joint Wetlands Livelihoods (JWL) Project, which is supported by the United Kingdom Department for International Development (DFID), has been designed to address increasing poverty and other resources use issues in the basin. Specifically, JWL is concerned with demonstrating processes that will help to improve the management of common pool resources (CPRs) - particularly water resources - in the Hadejia-Nguru Wetlands (HNWs) in particular and the HJKYB as a whole as a means of reducing poverty.
This process has brought together key stakeholders to form platforms for developing and implementing strategies to overcome CPR management problems. This is being pursued at three levels, i.e. basin, wetlands and community, but as an integrated programme. To facilitate the work of the platforms JWL is promoting improvements in information generation and exchange, mechanisms for communication flow, co-ordination of activities between the key stakeholders, and execution of pilot projects that demonstrate best practices and influence policy.

During the last two years, consensus have been reached by stakeholders in the basin over many issues in the basin and in some cases, collective intervention measure for overcoming some of the problems have been proffered and implemented.

Introduction

The Hadejia-Jama'are Komadugu-Yobe Basin (HJKYB) drains a catchment of approximately 84,000 km^2 in northeast Nigeria (Figure 1) before discharging into Lake Chad. Politically, it covers five northern states, (Kano, Jigawa, Bauchi, Yobe and Borno states). Over 15 million people are supported by the basin through agriculture, fishing, livestock keeping and water supply.

The two major rivers of the basin are the Hadejia, the Jama'are, the two of which meet in the Hadejia-Nguru Wetlands (HNWs) to form the Yobe. The Hadejia river rise from the Kano highlands while the head-waters of the Jama'are river are in the Jos plateau.

Within the Hadejia river system, the natural pattern of runoff has been modified by the construction of dams and the associated large-scale irrigation schemes, most notably Tiga and Challawa dams and the Kano Irrigation Scheme (KRIP), in the upper basin, and the

Hadejia valley irrigation project (HVP) in the middle of the basin. The Jama'are river is (at the moment) uncontrolled but plans to construct a dam at Kafin Zaki have been under discussion for a considerable time.

In general, potential demands for water in the basin far exceeds the available supply, albeit, local variations in the quantity of demand and supply may occur. In 1998, studies by The World Conservation Union (IUCN) managed Hadejia-Nguru wetlands conservation Project (HNWCP) indicated that estimated demand for surface water in the Hadejia river system exceeds available supply by 2.6 times. Estimated potential demand for water in the Hadejia river system has been calculated as 4,528 x 10^6 m^3/y while mean available water supply to the system is 1,739 x $10^6 m^3$/y (IUCN/HNWCP, 1999). Climatic downturn, inappropriate water management caused by conflicting responsibilities and lack of legislation over water use, increased demand due to population increase and urbanisation, etc have been implicated for this shortfall. Contribution of surface flow by the Yobe river into Lake Chad has been reduced to less than 1% since 1998. Silt ations in some of the river channels and proliferation of invasive weeds (particularly typha grass) in some channels (which now carry water all-year-round) have further compounded the problem.

Furthermore, absence of an integrated approach to water resources management in the basin coupled with high water demands, competition for water by a wide range of users in the basin has degenerated into various degree of conflicts.

In the last two years, the stakeholders (as explained in section 1.1) in the HJKY basin through a forum of their representatives have, with the facilitation of the UK Department for International Development (DFID) sponsored Joint Wetlands Livelihood Project (JWL) (see section 1.2), come together, shared understanding on the issues and problems in the basin and in some instances reached consensus on interventions needed to address some of these issues.

This paper examines these issues and problems and how consensus were reached among the various stakeholders in the basin in identifying what the problems are, their roots causes and in taking decisions on what interventions are needed to solve them.

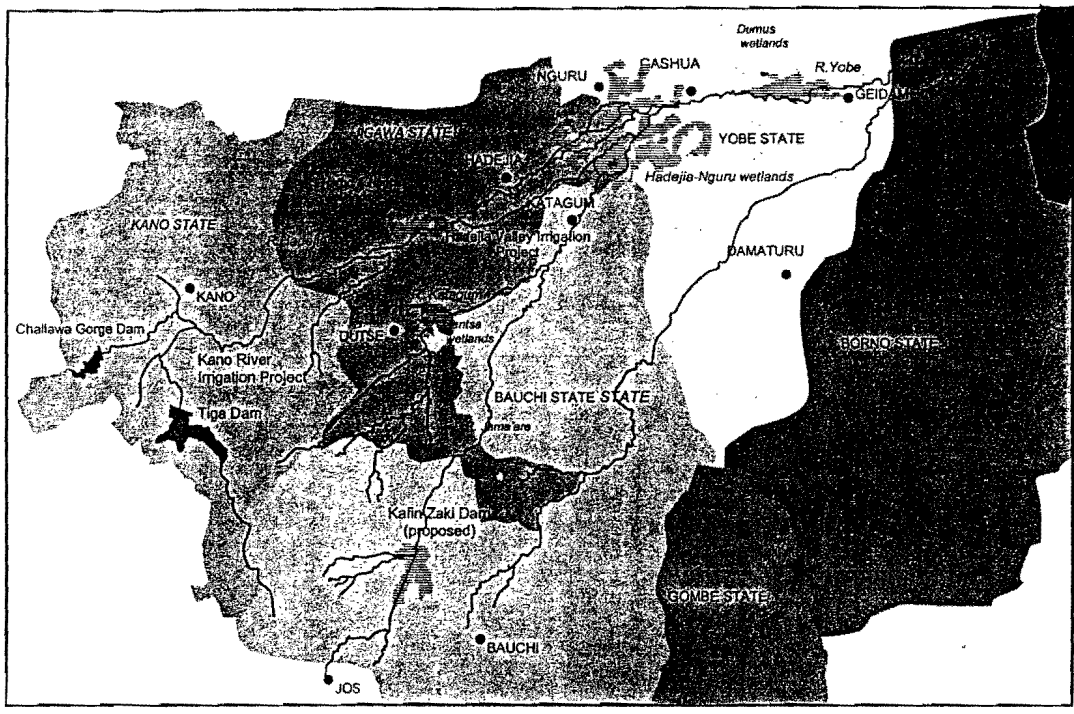


Figure 1: The Hadejia -Jama'are Komadugu-Yobe Basin

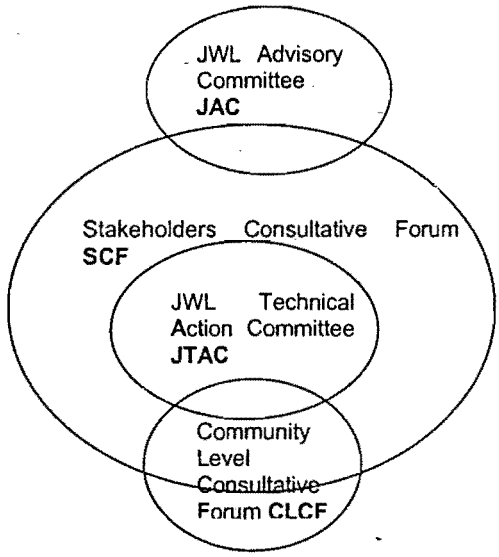
The Stakeholders Forum

The Stakeholders consultative forum which comprise of over 60 representatives drawn from mainly government organisations and a few non-governmental organisations across the entire basin has been in existence since early 1990s. During most of its early life, it was supported by the IUCN managed Hadejia-Nguru Wetlands Conservation Project (HNWCP). It became inactive with the closure of the HNWCP in 1998. This was mainly because the forum was not institutionalised and hence no budget has been allocated to its activities. The forum was however reactivated in December 2002 by the DFID-JWL project with the aim of facilitating the forum to set up an independent mechanism for addressing resources management and use issues in the basin. The forum is intended to be more self sustaining this time around.

During the last two years, a section of the forum, made up mainly of technocrats from line Nigerian State Ministries of Agriculture, Water Resources and Environment, have been engaged in three capacity building/baseline data collection workshops aimed at further understanding the Common Pool Resources (CPR) situation, conflict management issues as well as the relationships between organisations responsible for use and management of these resources in the basin. The forum has also been subdivided into smaller committees in order to facilitate its work with the JWL project. These are the JWL Advisory Committee (JAC) made up of 18 members mainly top level government officers at state and federal line ministries of Agriculture, Water Resources and Environment, the Technical Action Committee (JTAC) made up of 24 members mainly directors in line ministries of Agriculture, Water Resources and Environment and agencies (such as State Water Boards) from riparian states ministries and the Community Level Consultative Forum (CLCF) made up of mainly community representatives and local government officers within the wetlands. The different sub committees have gone through series of capacity building trainings in PRA techniques, Integrated Water Resources Management (IWRM), Satellite image interpretation etc. in the last one-year.

A schematic representation of the relationships between the Stakeholders Consultative Forum (SCF) with all the sub-divisions of the forum is presented in figure 2.

Figure 2: Schematic Presentation of the Stakeholders Consultative Forum of the HJKYB.



The DFID-JWL Project

The Joint Wetlands Livelihoods (JWL) Project, which is supported by the United Kingdom Department for International Development (DFID), has been designed to address poverty by improving the livelihoods of poor people who depend heavily on CPRs in the HNWs. It is doing this mainly through improving water governance, as better water management has been agreed as the single issue that will have the greatest impact on this diverse group of people.

Specifically, the project is concerned with demonstrating processes that will help to improve the management of common pool resources (CPRs) in the HNWs in particular – falling within Bauchi, Jigawa and Yobe States – and the Hadejia Jama'are Komadugu-Yobe Basin (HJKYB) in general – covering parts of Borno and Kano states in addition to the above mentioned states – as a means of reducing poverty (see figure 1).

In attempting to do this, the DFID-JWL Project has brought together key stakeholders to form platforms or fora such as the various stakeholders committees (described in section 1.1) for developing and implementing strategies to overcome CPR management problems. This is being pursued at three levels, i.e. basin, wetlands and community, but as an integrated programme. To facilitate the work of the platforms the project is promoting improvements in information generation and exchange, mechanisms for communication flow, co-ordination of activities between the key stakeholders, and execution of pilot projects that demonstrate best practices and influence policy. DFID-JWL project is also working closely with other initiatives in the basin in order to achieve the above outputs. These include initiatives such as GEF/IUCN/ FMWR's Water and Nature Initiative (WANI) Project on implementing water governance and water audit for the HJKY Basin, GEF/LCBC's project on developing Integrated Wetlands Management for the HJKY Basin, and WB/ADB/FGN/Fadama 2 (NFDP II) Programme on assisting small scale irrigation farmers with loans and technical assistance to develop *fadama* lands in the basin.

At the community level, the project is working with village communities along the river channels affected by siltation and infestation with aquatic weeds, to catalyse resource use planning for conflict management, with a focus on planning the equitable use of the shared waters in the channel. This entails assisting communities to systematically plan ways of utilizing such resources so that each resource user is given the opportunity to use a particular resource at a given time and place without conflicts with other resource users. DFID-JWL is also assisting communities to organise themselves and articulate their demands for services from the relevant agencies in support of such planning. To this end, intra- and inter-communal efforts in dyke construction, typha grass control and channel blockage clearance, etc, are being promoted and supported by the project.

At the wetlands level, the project is engaging responsible stakeholders in a process towards the construction of flow proportioning structures at critical positions (bifurcations) in the river system so that water can be proportioned in the various river channels in order to mitigate local water shortages in some channels and control excess in others. This initiative is expected to set the stage for controlling typha grass and arrest potash intrusions – major problems affecting areas with excess water – as well as enhancing channel flow to Yobe River and Lake Chad. Sub-basin land resource use planning/zonation is also being promoted at this level.

At the basin level, JWL is working through the Federal Ministry of Water Resources (FMWR) Technical Advisory Committee (TAC) on the HJKYB, together with other interested parties, (e.g Lake Chad Basin Commission/ LCBC, IUCN, Nigeria-Niger Joint Commission/NNJCC, etc) towards the development of an integrated basin level water management plan, and the promotion and implementation of procedures for managing the upstream dams that reflect and respond to needs of all downstream users.

The Problems of the Basin

Physical problems

Since early 1970s when the Tiga dam was completed, the period allowed for the reservoir to fill up coincided with drought and attendant low rainfall. Sand and silt deposits started to accumulate in the Hadejia river and many of its distributaries thereby blocking and reducing their capacities. The closure of the second dam, the Challawa, in 1992 further exacerbated the problem. At the moment, three (Kafin Hausa, Old Hadejia and Burum Gana rivers) out of the four distributaries of the Hadejia river are silted up (see figure 3). Only the Marma channel now carries all the discharges from the Hadejia river into the non returning Nguru lake.

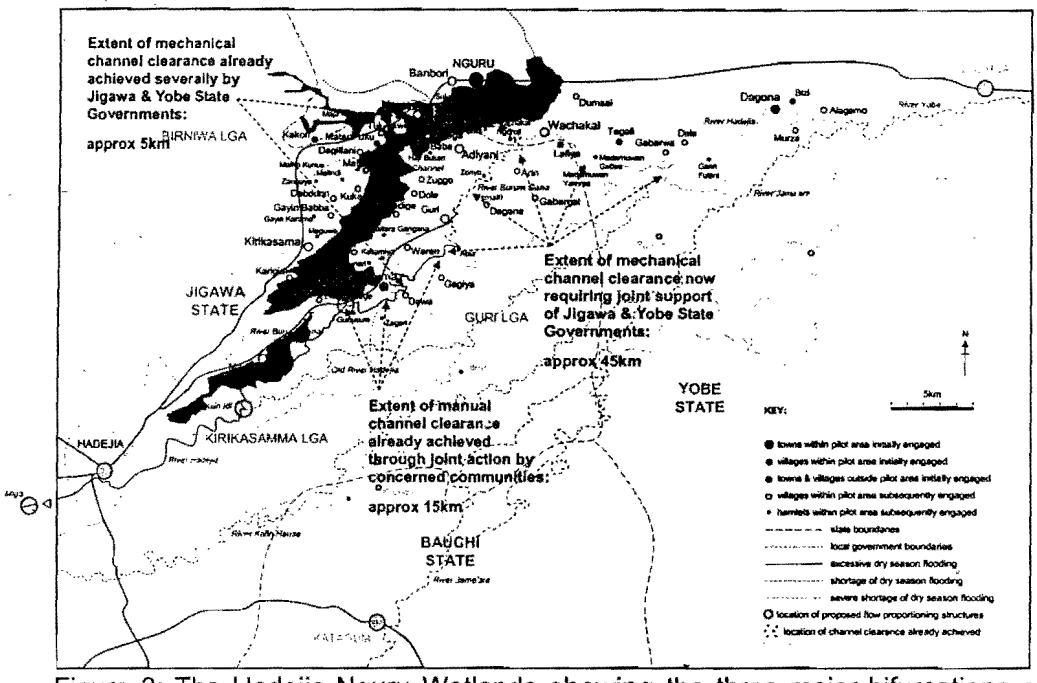


Figure 3: The Hadejia-Nguru Wetlands showing the three major bifurcations of the Hadejia river and locations of stakeholders efforts in channel clearance

Furthermore, the high turbidity of the Challawa river coupled with elevated position of the intake structures of the Kano City Water Supply (KCWS) have caused silt to build up at the mouths of the intake structures for supplying domestic water to the large city of Kano. This means that more water has to be released from the dams in order to fill up the sumps and lagoons at these intakes. Unfortunately, only about 5% of these releases are used by the KCWS. The remaining 95% is released downstream. This obscures the traditional seasonal flow patterns of the Hadejia river, making it perennial, and hence further aggravating the problem of siltation, weed (typha) infestation, and blockages.

Excessive flooding and typha grass infestation has in the last few years taken over part of the Marma channel and the Nguru lake. In the last two years, some of the excess flooding from the lake is moving northwest wards and back-flowing into the Marma channel in a cyclic regime. This 'confused' behaviour of the river has resulted into various unilateral (mostly short-term) intervention measures such as the creation of several offtake channels and closure of water ways by local farmers to mitigate the effect of flood and desiccation. The consequences of these have been, loss of farmlands, fish, grazinglands etc, leading to migration and increased poverty in the basin (JEWEL, 2003). Recent studies indicate that the level or gravity of poverty in the wetlands has increased to about ten folds in the last five years. Further downstream of the basin, the story is the same. Irregular or low flow of the Yobe has affected (many of these schemes now abandon) the over 10,000 ha of small and large-scale irrigation schemes already developed.

Institutional Problems

At the moment there are about six governmental organisations and a few non-governmental organisations concerned with the management of the water resources of the basin. The Federal Ministry of water resources, which is the apex organ of government in the Nigerian water sector, empowered by Decree 101 of 1993 to be responsible for policy formulation and coordination for water resources development in Nigeria has been managing the water resources of the HJKYB through the two River Basin Development Authorities (RBDAs) in

the basin: the Hadejia-Jama'are River Basin Development Authority (HJRBDA) and the Chad Basin Development Authority (CBDA). There is also a coordinating committee supported by a Technical Advisory Committee (TAC) on the HJKYB in the Federal Ministry of Water Resources. This committee was setup by the National Council on water resources to coordinate the management and use of water in the in the basin. Unfortunately, due to under funding of the RBDAs and the coordinating committees their influence for managing the water resources in the basin has been minimal.

During the last 20 years, due to the increased water resource use problems in the basin, particularly in downstream wetlands, many government and international initiatives concerned with the management and use of water in the basin were established. These among others include, establishment of the World Bank Agricultural Development Projects (ADPs) in early 1980s, National Fadama Development Programme (NFDP) phase 1 in the 90s, River Basin Development Authorities (RBDAs), Hadejia-Nguru Wetlands Conservation Project (HNWCP), North East Arid Zone Development Programme (NEAZDP) and more recently the DFID-JWL project, IUCN/Water and Nature Initiative (WANI) and Lake Chad Basin Commission/GEF projects. Other federal government ministries and departments such as federal Ministry of Agricuture (though its various departments like the (National Livestock Development Programme (NLDP) and Department of fisheries). State level the Ministries of water resources and ministries of Agriculture, local government councils and communities have also been variously involved in water use in the basin.

Unfortunately, although all these initiatives are striving towards better use and management of water resources in the basin, there has, until recently, been a lack of coordination among the various organisations with a remit to manage or control access to water, even among major players such as the RBDAs. The jurisdiction of the two RBDAs in the basin; were based on political rather than natural boundaries. This means that, the HJRBDA covers the basin in only Kano, Bauchi and Jigawa states while the CBDA covers Yobe and Borno states. This arrangement makes it difficult for any of the two RBDAs to effectively manage the water resources of the whole basin.

The RBDAs also suffers from the 'poacher-game keeper' problem in their operations. I.e. while the RBDAs are suppose to regulate the use of water in the basin, they are themselves users of the resource. In such case, they are likely to allocate more water for their use and be less concerned with the needs of other users.

There are also problems related to missing and non-functional hydrological data collection infrastructure, and a de factor system whereby planning and operations of water installations and structures in the basin can occur in the absence of hydrological data, i.e. no data is collected, but also no data is demanded. The upstream dams lack adequate operational information and are (in most cases) operated based on the "rule-of-the-thumb".

Hence, the combined effects of the physical problems and institutional weaknesses together with poor funding of many of the regulatory organisations, leads to poor management of water in the basin.

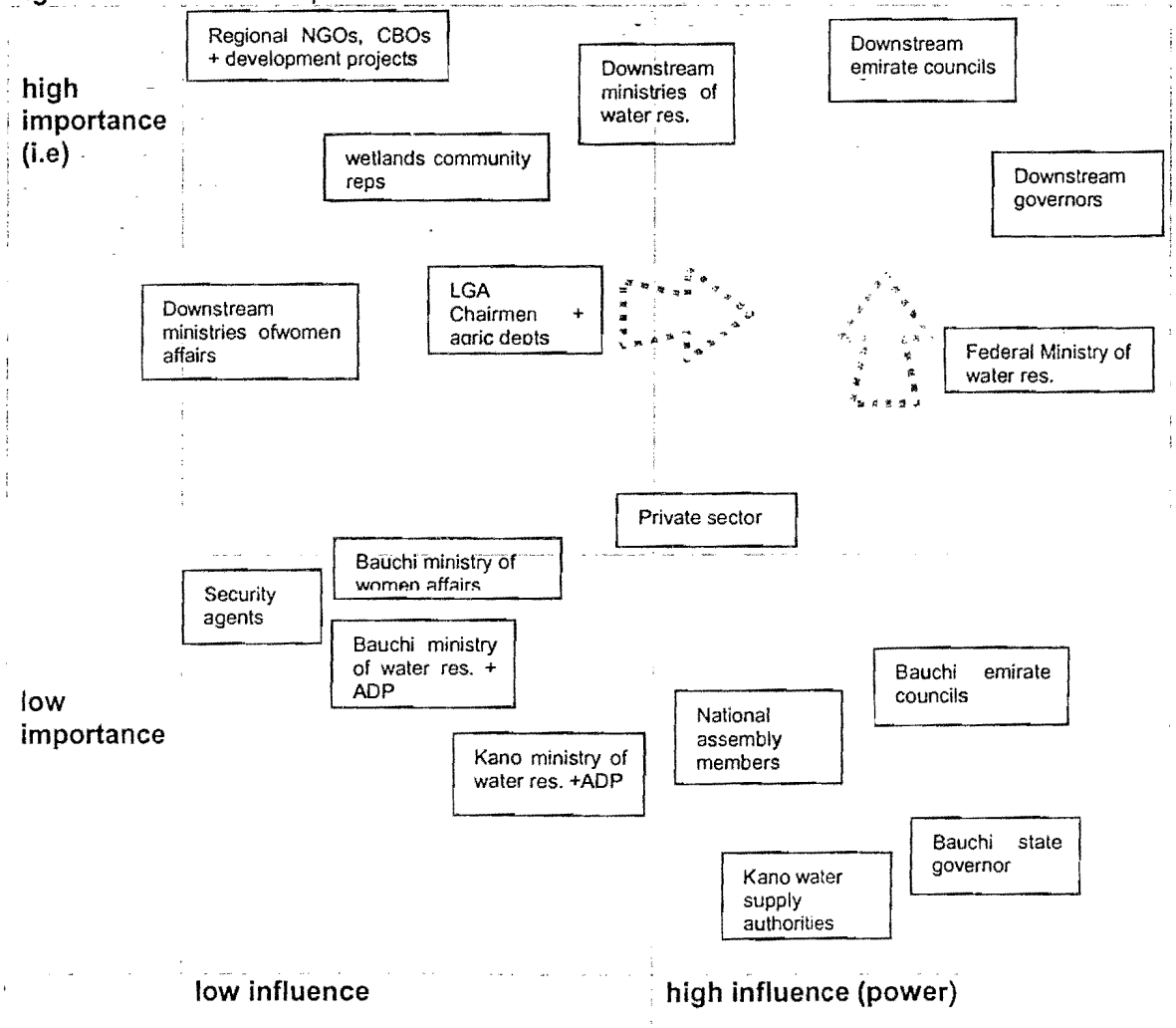
Reaching Consensus

As earlier stated, stakeholders have, in the last two years reached consensus over a number of issues relating the water resources and other Common Pool Resources (CPR) management in the basin. This was achieved through meetings and three separate training and capacity building workshops on Institutional rights and responsibilities, access rights and conflict management and environment, poverty and livelihoods issues in the HJKY basin. In January 2003 it was identified and agreed by all stakeholders that: (1) there is poor coordination between institutions who have the statutory responsibilities for managing water

resources in the HJKY basin, (2) there are gaps and overlaps in the responsibilities of these institutions and (3) there is need for capacity strengthening of stakeholders in order to improve coordination among them. In February 2003 the stakeholders agreed and reached a common understanding on types and frequency of conflicts that exists between the various resources users of CPRs. In May 2003, consensus was reached on the fact that water is most important resource in the basin upon which all other CPRs are dependent and the need to concentrate efforts towards solving the water problem was paramount.

Earlier, stakeholders' analysis was conducted to identify which stakeholders are key to the use and management of water in the basin. An abridged result of the analysis is presented in a matrix in figure 3. The results revealed the disposition of all the stakeholders in the basin based on their influence and importance in water management. The most critically important observation is that there is need to work on stakeholders who are very important but lack influence and those who are very influential but do not seem to regard water management in the basin as an important issue. In other words, there is need to encourage/facilitate movement of stakeholders from the top left hand corner of the box in figure 3 to the top right hand corner and from the bottom right hand corner to the top right hand corner as indicated by the dotted arrows. It was at the end of this exercise that workplan for the various levels of stakeholders involvements were drawn.

Figure 4: Stakeholder importance/influence matrix



At the basin level, it was agreed that involving most influential stakeholders, advocating for Integrated Water Resources Management (IWRM) and helping to develop rational dams operation procedures for upstream dams were to be promoted. These are long term interventions and require work concentrated more heavily at the Federal level. Consensus was also reached that, where necessary, needed interventions will be backed by studies that will help to provide additional information and/or to provide added impetus the intended interventions.

At the wetlands level, consensus was reached to construct a flow diversion structure and at one of the bifurcations of the Hadejia near Likori village (as medium term measure) to enable regulation of river flow between the Marma channel, which has excess flow and Burum Gana which suffers from low flows. This would be combined with channel clearance work on the Burum Gana. This is eventually to be replicated at the other two bifurcations upstream (at Miga - for the Kafin Hausa river - and at Magujin Idi for the Old Hadejia river). Consensus was also reached on the need to carry out studies (such as EIAs, CBAs, channel profiling etc) that will have direct influence on the design and operation of the flow diversion structures and the channel clearance work.

At the community level, consensus was reached on clearing of weeds and silt from the Burum Gana Channel (as short term solution) to improve flow in the river. This would also have the effect of reducing excess floods in the Marma channel, and enabling better management of the typha grass infestation. At this level, such consensus was reached following a series of inter village exchange visits and two summit meetings held to assure the about 60 critically affected communities along these rivers that they do collectively possess the capacity to address the problem. It was at these summit meetings that community representatives were elected and action plans were agreed. This started in February 2004, after initial consultations with some champions such as traditional rulers from the area in January 2004.

Taking Action

In order to address issues upon which consensus have been reached, the stakeholders, with the assistance of the JWL project have developed several intervention measures at the different levels of stakeholders engagements in the HJKY basin. Some of these are as follows:

Interventions at Basin Level

Most of the interventions at this level have been advocacy related. In the initial stakeholders analysis described in section 3, stakeholders who have the influence and are considered to be important in water management in the basin but do not possess the right information to simulate changes are consulted, provided with information and encouraged to act towards addressing the problems of the basin. These interventions specifically resulted into visits to Emirs, riparian State Governors, Ministers of Environment and that of Water Resources. Other important stakeholders such as policy makers in the Senate and in the houses of Representatives and various states assemblies within the basin are also being targeted. Based on these visits, debates have already began on the issue at the house of representatives, while a bill has already been signed in one of the states (Yobe State) house of assembly on the problems of the basin. In addition to visits to engage more influential stakeholders, some studies on the concept of Integrated Water Resources Management (IWRM) in the basin and the status of bulk water intakes such as the Kano City Water Supply (KCWS) raw water intake structures were also done.

Interventions at Wetlands Level

At the wetlands level, interventions are mainly working towards influencing the various riparian state governments to provide funds for the construction of the pilot flow diversion structure at the Likori bifurcation, and dredging of the Burum Gana channel as well as to replicate similar structures at the other two upstream bifurcations and dredging work in the Old Hadejia and Kafin Hausa rivers.

In order to support the pilot diversion structures and channel clearance work this level of intervention have engaged stakeholders in capacity building training in IWRM, hydrological baseline data collection, river profiling and satellite image interpretations. A result of the IWRM capacity building has been the formation of IWRM committees in the riparian states and the development of an action plan for the wetlands level stakeholders.

Another intervention at this level is an advocacy/awareness campaigns in all the riparian states to put in place an integrated water resources management plan in the basin. It is considered that the successful achievement of the goal of IWRM for the basin, should ultimately lead to the resolution of the current problems. In turn this will result in enhanced livelihoods for the population of the basin, particularly the poor who rely on the common pool resources of the basin such as water.

Interventions at the Community Level

From April to June 2004 the community leaders were able to mobilise enough communal labour, and excavators from responsible government agencies, to clear 25 kilometres of typha grass and other aquatic vegetation that had blocked flows at the bifurcation of the two channels and further along the Burum Gana. As a result of this about 1,000 hectares of land that has been lying dormant for the past seven years are now under dry season cropping, and more will be put under cultivation as more flow is assured. Fishermen and farmers who had migrated from the area are now returning. And there is more commitment to take on bigger challenges by more communities and other stakeholders, for example the clearance of two other blocked channels.

The pilot clearance exercise also served as a demonstration of best practices in terms of catalysing joint action across tiers of government and across sectors that can influence policy. It also served as a practical capacity building experience for community leaders, as they were empowered by the process to articulate their demands for service provision from responsible agencies.

Conclusions

This paper has provided a brief information on the experiences over the first two years of operation of the DFID-JWL project and the stakeholders forum of the HJKYB in reaching consensus over issues relating to water management in the basin. Most of the interventions undertaken by the stakeholders are until now only a start to solving the problems, however the process mapped out for tackling issues and the problems is sustaining and will assist the stakeholders to continue after the DFID-JWL project. The key lesson to date is that a development project of this nature cannot and should not try to manage national public goods, but can be effective in building coalitions of interest around shared problems, and then help to catalyse collective action through both filed level pilots and policy level advocacy. With specific reference to river basin management the further lesson is to ensure the widest possible consensus on the nature of the problem, before try to promote a solution and consensus on the solution.

Another lesson is that the attitudes and disposition of technical level decision maker can easily and greatly be changed with little exposure to the issues and problems for which these decision makers are responsible for managing.

Another lesson is that people whose livelihoods are directly affected by the problem are most supportive to any development project which attempt to solve these problems and are hence easy to mobilise as demonstrated at the community level stakeholders engagement in the HJKY Basin. Projects of this nature should therefore exploit this opportunity as a strategy for implementing similar projects.

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