



## Water, Peace and Security

# Water Resources in Mali's Inner Niger Delta: Actions to Promote Peaceful Governance

### ABSTRACT

The policy brief summarizes how increased water stress affects people's livelihoods and its consequences for social relations in the Inner Niger Delta. It analyses traditional and modern mechanisms for managing water-related conflicts and their limitations and takes a critical look at the alternative societal models presented to communities by armed groups. The brief provides decision-makers with information about the challenges of water resource management and offers recommendations on concrete action to promote the peaceful governance of water resources in the Delta.

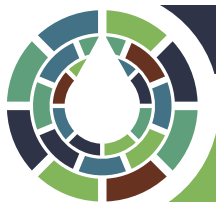
Water and aquatic ecosystems play an important role in most livelihoods in the Inner Niger Delta (IND). The area is home to over two million people (Wetlands International, 2020a) who are engaged in agriculture, livestock herding, and fishing. They are dependent on the water of the Delta for food security, their livelihoods, and their way of life. Climatic stressors such as drought, with the associated decline in rainfall and increased flooding, negatively affect already vulnerable communities. Based on climate projections, in future these populations will be even more exposed to drought, heat waves and changes in the rainfall cycle.

The country's high population growth is placing additional stress on natural resources. Over the 30 years between 1991 and 2021, Mali's population rose from 8.64 million to 20.86 million (World Data, 2022). A lack of capacity for adaptation in the agricultural sector aggravates vulnerability to climate change (GIZ, 2020, p. 12), and the impacts of these changes exacerbate livelihood insecurity and existing competition for water resources. This can in turn deepen existing (violent) conflicts within and between communities.

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Yet if local and national authorities and communities take appropriate measures to address the current problem of water governance, the risks to livelihoods and security can be managed effectively and future tensions and conflicts prevented. The sustainable and equitable management of water resources and their connection with human security and social stability are major concerns which led to the development of the Water, Peace and Security (WPS) program in Mali, the Horn of Africa, and the Middle East. In Mali, extensive research, analysis and direct engagement<sup>1</sup> with relevant stakeholders have been ongoing since 2020 and this work has fed into this policy brief.<sup>2</sup>

#### Water governance issues in the Inner Niger Delta

##### *Water stress in the Inner Niger Delta and its consequences*

Climate change is impacting the Inner Niger Delta both physically and in terms of production activities (Direction Nationale de la Météorologie, 2005). Between 1960 and 2015, the average annual temperature in Mali increased by 1.2°C, or an average of 0.23°C per decade. Projections indicate a further increase in mean annual temperatures of 0.9°C to 1.5°C by 2050, with more significant rises in the southwest and central regions (USAID, 2019). In Mopti, a local temperature increase of 1.7°C was already recorded between 1960 and 2013 (Toure, 2014).

1 The research methodology that fed into this policy brief consisted firstly of a detailed analysis of water conflicts in the Inner Niger Delta, followed by field surveys which involved 204 people, including farmers, herders, fisherfolk, loggers, and municipal and administrative authorities in the three target communities of Djenné, Mopti, and Konna.

2 The WPS has produced various publications that fed into the production of this policy brief, such as: Water, Peace and Security (2022). Water and Conflict in the Inner Niger Delta. Report. <https://waterpeacesecurity.org/files/227>.

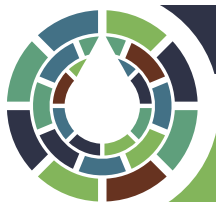
In addition, there has been a decline in average annual precipitation since the 1960s and rainfall patterns have become much more variable, making rainy seasons and dry periods increasingly unpredictable. Projections for Mali indicate an average reduction in annual rainfall by 2080 of 10 mm compared to 2000, and dry and wet periods are expected to become more extreme (GIZ, 2020).

Changing rainfall patterns and variability in flood levels have negative consequences for agriculture, fisheries, and pastoral production. A lower flood level means a smaller area of flooded land as well as a shorter flooding period. In turn, this has an impact on the availability of subsistence crops such as rice, bourgou and vetiver. A flood height of 600 m at the Akka hydrometric station is likely to flood 4,074 km<sup>2</sup> of bourgoutière (wetland pasture) (Zwarts & Hoekema, 2013). However, with a flood height of 300 m at Akka, the area under bourgou production would be almost nil, and rice production would cover an area of just 1,211 km<sup>2</sup>.

In addition to the pressures of climate change on subsistence crops, the area used for cultivation has expanded due to strong demographic pressure and the forced displacement of people fleeing insecurity and drought, especially in the northern parts of the country.

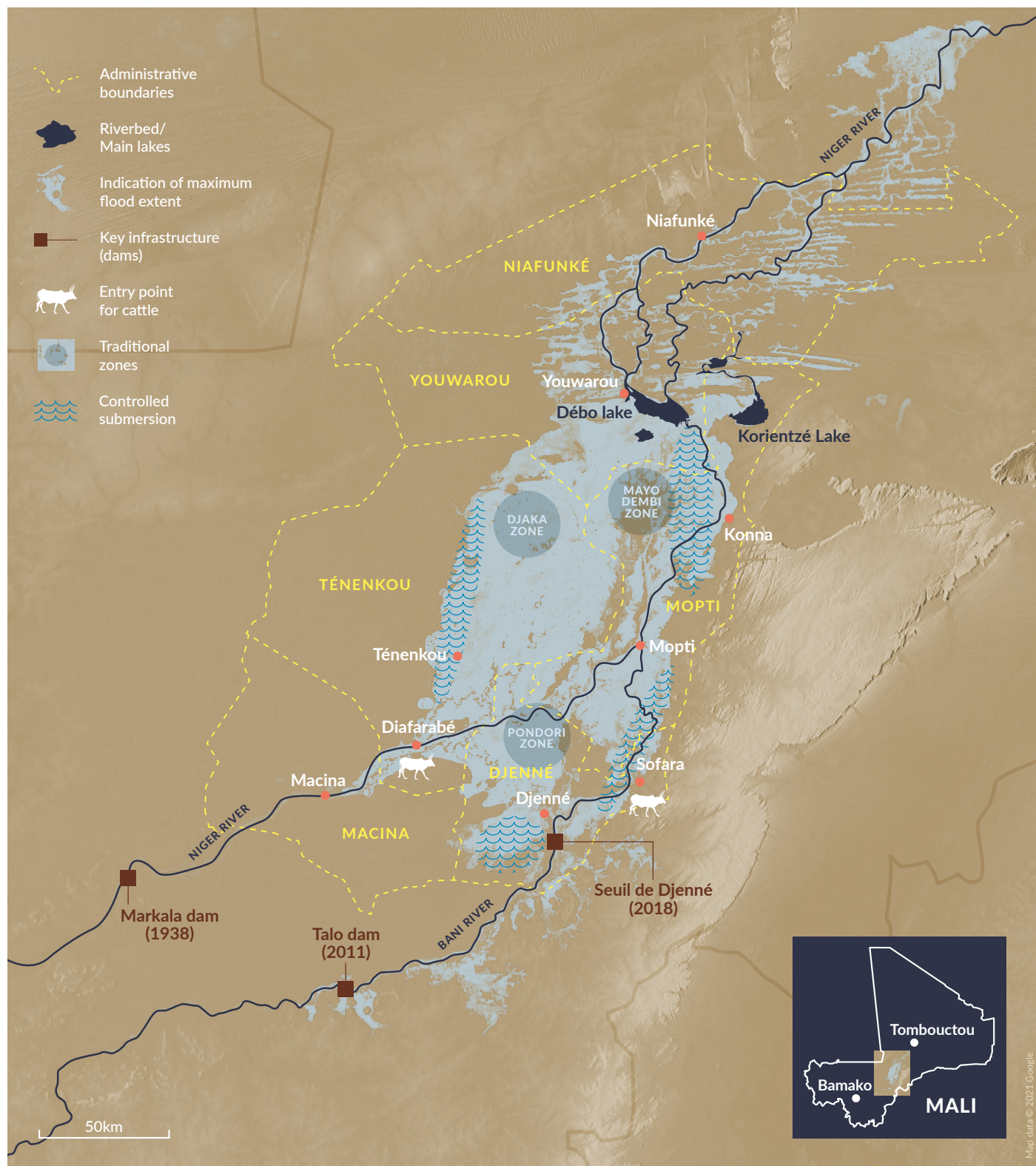
All these factors contribute to the complexity of water governance. The field surveys by WPS show that the most significant impact of water stress on communities is the poor management of water resources, especially in the Djenné area (International Alert, 2021c), and this can cause conflicts over access to water among users. Water shortages and the scarcity of good grazing land have thus contributed to competition over access to these limited natural resources, particularly along the Niger River and in the IND (GIZ, 2020).

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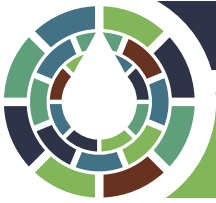
## Water Resources in Mali's Inner Niger Delta: Actions to Promote Peaceful Governance

Figure 1. Map of the Inner Niger Delta



Administrative and resource map of the Inner Niger Delta © International Alert





As well as the effects of climate change, the construction of upstream dams has a substantial impact on water availability in the Delta. Since 1982, the flow of the Upper Niger has no longer been entirely natural due to the construction of the Sélingué reservoir on the Sankarani River (Zwarts, Beukering, Koné & Wymenga, 2005). The management of the Sélingué reservoir leads to a contraction of the maximum floodplain of around 600 km<sup>2</sup>. The Office du Niger, the government agency managing a large-scale irrigation scheme in Ségou, is likely to cause a further contraction of 300 km<sup>2</sup> due to the demand for water for the irrigation of agricultural land (Zwarts, Beukering, Koné & Wymenga, 2005).

The construction of the Djenné and Fomi dams would increase the total loss of floodplains due to upstream dams in the IND to about 15–20% of current levels, or 2,500–3,000 km<sup>2</sup> (Royal Haskoning, A&B & GID, 2010, p. 182). Once completed, the Fomi reservoir will have a significant impact on the Niger River, up to twice that of the Sélingué dam. An impact assessment study for the Fomi downstream project reveals that a dam at a height of 396 m above sea level will reduce the flooded area of the IND by 13% on average, by 22% in a dry year, and by 38% in a very dry year (Wetlands International, 2020b).

The way in which such infrastructure projects are decided on, designed, implemented, and managed is of paramount importance to ensure an equitable distribution of water resources across the river basin (WPS, 2019). The ill-timed release of water from dams can cause harm for users, particularly fisherfolk, who are of the opinion that the releases are poorly coordinated and scare away the fish. These releases are therefore a source of disputes between farmers worried about irrigation and fisherfolk concerned about fish stocks (International Alert, 2021b).

#### *Development of new coping strategies and how they are connected to the conflicts*

The coexistence of different ethnic groups in the Delta has historically been based on three complementary production systems: livestock herding, fishing, and agriculture. Traditionally, the Fulani are herders, the Marka, Songhai, Bambara, Dogon, and Bella are farmers, and the Bozo and Somono are fisherfolk. There are also the Rimaibe who are descendants of slaves and historically not native to the area. They practice agriculture, but their status in society still prevents them from owning land or livestock. Today, the different groups are being forced to adapt due to the combined effects of demographic growth, overexploitation of resources and the decline of fishing resources as a consequence of climatic hazards.

Many communities have therefore diversified their activities in response to the opportunities provided by the environment, depending on the season. The development of survival strategies by local communities has had repercussions for social relations and the local ecology. Competition between ethnic groups arises as, for example, the Bozo, who are traditionally fisherfolk, turn to farming activities (International Alert, 2020). An increase in timber harvesting as an alternative source of income has led to deforestation in some places. For example, in Mopti and Djenné, people who previously made a living from agriculture and fishing are no longer able to meet their needs through these activities and are instead engaging in excessive and unsustainable extraction of timber which they sell for charcoal, construction, and firewood. Logging was mentioned by 41% of interview respondents in Djenné as an adaptive practice that is also a source of conflict between farmers and timber harvesters.

Furthermore, with the development of fishing techniques and equipment, some of which are prohibited, and above all with ever more time spent fishing, the issue of overfishing



is increasingly condemned by fisherfolk as contributing to the destruction of fisheries. This practice is a source of tension amongst fisherfolk on the one hand and between them and livestock herders or farmers on the other. At the same time, herders are adopting a strategy of dividing their herds across different locations in order to minimize the risks of losing all their livestock in the event of drought or contagious diseases. However, this strategy results in increased livestock movements and therefore more conflict because, as demand rises, there is less and less arable land available.

Diversification of economic activities to survive climatic hazards and falling fish stocks due to poor resource management is forcing fisherfolk to turn to agriculture. The resulting expansion of the land under cultivation (both by farmers and by fisherfolk who have converted to become farmers) is encroaching on grazing areas, woodland, and fisheries. These new survival strategies mean obtaining agricultural land is becoming a key issue for a mostly young and rapidly growing population. This is a source of conflict within and between communities engaged in incompatible activities.

Over the past three decades, the IND has seen violent conflicts that have resulted in serious injury and death. The clashes have often been caused by disputes over access to land, *bourgoutières*, and fisheries. Research also shows that more conflicts were recorded after the beginning of the security crisis in 2012 than before. Conflict prevention and management mechanisms exist, but they are beset by challenges.

#### Water governance mechanisms and water-related conflict management in the IND and the limitations they face

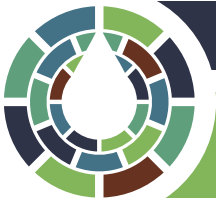
There are two types of mechanism for preventing and managing conflicts: traditional management based on customs and traditions and modern

management based on laws and regulations. At present, the traditional methods of conflict regulation are less and less recognized and used due to a loss of legitimacy. This may be attributed to the supposed or proven bias of traditional institutions in favor of land speculators and the political authorities (International Alert, 2021a).

Since the beginning of the crisis in 2012, some traditional leaders have been threatened or forced to leave their lands, which has significantly reduced their room for manoeuvre with regard to resource management. In these areas, people are increasingly turning to jihadists or self-defense groups to settle water conflicts. As a result, these actors are seeking to strengthen their local roots, taking advantage of the withdrawal of the state and/or traditional authorities to step in and provide the services necessary for the functioning of grassroots communities.

The modern mechanisms are also dysfunctional and contested due to the alleged influence exerted by political and administrative actors and corrupt practices that are frequently criticized. Yet progress has been made in terms of the involvement of local communities in the management of natural resources. With the advent of democracy, Mali has adopted new policies, legislation, and regulations in order to reconcile the aspirations of local communities and the country's strategic vision. Legislation and regulations have been adopted in all areas of natural resource management. These include the Water Code 2002 (Code de l'eau) (Loi n°02-006, 2002) and its implementing decrees which establish regional and local water committees designed to develop solutions to water-related conflicts, as well as the Agricultural Framework Law (Loi d'Orientation Agricole, LOA) (Loi n°06-045, 2006) with its implementing decrees which create local, commune-level, and village land commissions.

Other equally important laws have been adopted, such as the Pastoral Charter (Charte pastorale) (Loi n°01-04, 2001) and the Law on the principles



and conditions of fisheries and aquaculture management (Loi n°2014-062, 2014). Although the remit of the consultative bodies set up by these laws is quite specific, in practice they function poorly or not at all, due to insufficient financial resources. In addition, insecurity is currently a major obstacle to the functionality of these bodies in the Delta region. The operationalisation of the Water Development Fund (Décret n°03-586/P-RM, 2003) has the potential to provide local bodies, particularly the Local Water Committees (LWCs), with sufficient resources for their work. In Konna, an LWC was set up in 2021, but it is not functional and the same is true of the Land Commission (Commission Foncière, CoFo), which has been established but is not operational due to a lack of resources. In Djenné, a village land commission exists but there is no LWC.

Because of their inclusive structure, meaning women, young people, and representatives of different categories of users are involved, these bodies can contribute to the rational, peaceful, and inclusive management of water resources. The mode of water resource governance, whether traditional or modern, must address the unequal power relationship between economic and ethnic groups, as well as adopting a gender-sensitive approach to water management to ensure inclusive and comprehensive access and usage. Non-inclusive management may lead to frustration and a desire for revenge on the part of groups who feel that their rights have been violated, resulting in often violent conflicts over the control of the resources.

#### ***Power relations, gender and access to water resources***

In the Delta, the tradition-based constellations of power between ethnic groups and in relation to marginalized groups, like the above-mentioned Rimaibe, women, and young people, also play a role in the challenges of water management and ultimately contribute to the potential for conflict. The beneficiaries of the traditional resource

management system are the landowners, the Dioros, who traditionally hold rights to the land and access to water resources and pasture. They collect usage fees from other groups and also from people who belong to the same ethnic group but are not of the same lineage. This creates a relationship of dominance and dependency which benefits the land owners. It restricts access to land ownership and the use of land and water for the Rimaibe as well as for users from other ethnic groups which have migrated to the area. This situation also affects seasonal workers and young people, especially those from groups excluded from land ownership. Contestation of the traditional resource management system and customary tenure often come from these growing populations which also need access to water and space for their agricultural, livestock, or fishing activities. The frustration felt by these groups at being dispossessed of or restricted in their access to land and water fuels conflicts over access to resources. The impacts of climate change as discussed above could further increase this potential for conflict in the future.

Women and young people traditionally do not participate in decision-making about access to water and have few opportunities to own land. When it comes to water governance mechanisms, the legal framework stipulates that women must be included, for example in the water committees. In practice, due to unequal power relations and traditional gender roles, women are often excluded or have little representation. However, the armed conflict has also changed women's traditional roles and responsibilities. Where men are expected to take up arms, women are taking care of the family and assuming new roles as heads of households. Women have direct responsibility for managing the food, water, and energy resources needed to sustain their households, and this should be given greater prominence in the consideration of issues of natural resource governance, particularly in relation to water resources.





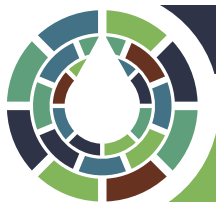
Competition in use of space in Mopti - During the flood recession, farmers, fisherfolk, and herders compete for access to the riverbed in the town of Mopti. The boundaries of vegetable patches (on the right side) and the presence of fisherfolk on riverbanks limit access to water and adjacent grazing areas for herders. Water constitutes a vital element in the livelihoods of each of these communities. © Ousmane Makaveli/International

Meanwhile, young men tend to break away from the family unit to develop their own livelihoods and this creates intergenerational conflict within families. As a result, they are perceived as vulnerable to the appeal of armed groups and are at risk of joining armed groups or jihadist movements in search of a way to make a living, gain protection, and/or obtain justice if they are marginalized. In addition, they often migrate to urban areas as a strategy to free themselves from the constraints around access to land and water, but also to realize the dream of a better future – a dream that is often hampered by the security and political crisis. Since the beginning of the crisis in Mali, the power relationship in some areas occupied by armed groups has changed. This has led to the emergence of new actors, and analysis is needed of their actions on the ground and the

consequences of these actions for water resource governance in the IND.

#### ***Emergence of new actors involved in water resource management***

Against the backdrop of the complex relations between different ethnic groups, the water crisis, and modern and traditional systems of conflict resolution, the gaps are filled by armed groups. In the Delta, self-defense groups have been formed by the Bambara (Dozos), Dogon (Dan Na Ambassagou), and Fulani, but jihadists from Katibat Macina, also referred to as the Macina Liberation Front (Front de Libération du Macina – FLM), are also present here (WPS, 2022). The vacuum created by the absence of security and administrative services has encouraged them to



act. The armed groups have effectively become involved in the management of rural land, water, and pasture. The jihadists, in particular, have become engaged in the management of water resources, and they use warfare as legitimized by the qadis, Muslim judges who employ a law of practice that combines Islam with local customs and traditions (Boubacar, 2022).

The degree of acceptance of the involvement of armed groups differs between communities. The jihadists are not well received in urban centers due to their involvement in criminal activities and human rights violations, including murder, rape, robbery, and the theft of animals. In rural areas, some communities accept their approach to natural resource governance and conflict management, because they contest the traditional power divisions. The egalitarian discourse of the jihadists is increasingly appealing to marginalized groups, particularly young people and the Rimaibe, some of whom see opportunities to improve their economic and social status. The ownership of land by the Dioros and the Malian government is contested by the jihadists, who claim that land belongs to Allah and that everyone should have access to it without restriction. For example, in Djenné, some areas developed by the irrigation development program in the Bani Basin and in Sélingué have ceased to be accessible to technical staff since the 2015 agricultural season, when these areas were occupied by the jihadists (Poudiougou, 2017). Some areas belonging to the traditional managers, the Dioros, have been taken away from them, either by force or by agreement, in favor of partners who have pledged their allegiance to the jihadists.

This situation weakens the local water resource management bodies, calling into question the rules that had previously been established. The new rules introduced by force by the armed groups are not necessarily received with enthusiasm, and the resulting lack of cooperation and consultation between communities only serves to weaken existing

achievements in terms of the peaceful management of water-related conflicts.

### Recommendations and Call to Action

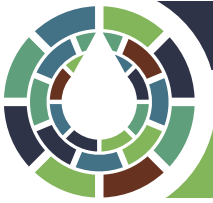
Ineffective and discriminatory water governance threatens human security and is a catalyst for conflict. The combination of high population growth, insecurity in the area due to the multiplicity of armed groups, and a dysfunctional water management system leads to a situation where increasing scarcity and ensuing competition for resources may contribute to and trigger further violent conflict within and between communities. In addition, the adaptation strategies employed by people to secure their livelihoods are not sustainable and may also contribute to tensions. The effects of climate change are exacerbating these vulnerabilities.

Yet it is important to note that a paradigm shift towards more dynamic and sustainable solutions for resource management enables challenges to be addressed and risks reduced. Key to this is the fair and sustainable governance of water resources in the Inner Niger Delta. To achieve it, decision-makers and other relevant stakeholders, especially technical and financial partners, must rethink their vision of governance in the light of the various studies that have been conducted, including this policy brief which calls for action and offers the following recommendations.

#### *Recommendations for the Malian government and its international and local partners*

- **Facilitate the conditions for a return to stability in the Inner Niger Delta, in particular by restoring the state authority and services, thus promoting the re-establishment of trust between the government and the governed.** This step is a prerequisite for any action relating to the governance of water resources – without stability, it will be difficult to implement water policies and strategies in

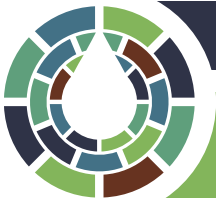




areas where the presence of the state is weak or non-existent. For example, the use of natural resource governance mechanisms by public administrations, can gradually help to restore trust between the state and the people. Trust can also be increased through the re-establishment of public services in remote areas, with a focus on including vulnerable groups and traditional authorities in decision-making.

- **Strengthen the function of traditional authorities and enable them to play a role in the effective implementation of national transitional justice policy and its mechanisms.** The modern and traditional systems of water and conflict management must complement each other effectively. The signing of Decree no. 2022-0128/PT-RM instituting the National Day of Traditional Authorities and the organization of its first iteration on 11 November 2022 is a step forward in the process of involving community leaders in the stabilization process and the return to peace. In practical terms, the Land Commissions are mixed bodies bringing together representatives of both the state and local communities and, as such, are an existing structure that can play a more important role in the peaceful resolution of conflicts and the dissemination of awareness-raising messages to prevent conflict over land and water in the IND.
- **Update the Water Code 2002 to take into account issues related to integrated water resource management (IWRM).** The Water Code 2002 was already in force prior to the adoption of the National Water Policy by the Malian government in 2006. This sets out a sectoral approach based on the principles of IWRM and strategic guidelines to steer efforts to develop the water sector. A review of the Water Code would allow account to be taken of current issues related to water governance in Mali, with a particular focus on integrated, participatory, and conflict-sensitive water resource management and consideration of climate and security risks.

- **Make the Water Development Fund operational so that it is accessible to users of water resources.** The Water Code adopted in 2002 included the requirement to establish a fund for the development of the public water service (Article 55). In 2003, the Water Development Fund was set up, with a management committee and an executive secretariat. However, the Fund currently does not have sufficient technical, human and above all financial resources to meet the challenges it faces. The government and its partners must ensure that the Fund is revitalized to make it more functional and operational so that it can fully play its role in water governance, particularly in relation to training/awareness-raising for water users and the protection of water resources.
- **Ensure the strict application of the laws on land commissions and local water committees, which have a particular role in addressing water and land-related conflicts.** Initiatives have been established with the aim of preventing and managing land disputes and ensuring integrated water resource management. These include the creation of local and communal land commissions (Decree no. 09-011/P-RM of 19 January 2009) and village commissions (Decree no. 2018-0333/PRM of 4 April 2018). In addition, the Water Code provides for the establishment of consultative bodies for the management of water resources (Title III), in particular the National Water Council, regional, and local water committees (LWCs) and basin and sub-basin committees. In practice, at the local level, the CoFos and LWCs, which should play a fundamental role in the peaceful management of water resources, are not functional due to a lack of financial resources and their members' lack of capacity to fulfil their roles and responsibilities. Capacity-building should focus on training members of these bodies on their roles and responsibilities, conflict prevention and management, and the keeping of minutes. In all accessible areas of the Delta, the state must mobilize the means necessary to make



these consultative and decision-making bodies functional and operational with regard to water and land resources. The relevant legislations provide for the inclusion of all social groups, such as women, young people, and historically excluded ethnic groups, and this would help to achieve an inclusive and peaceful management of water resources.

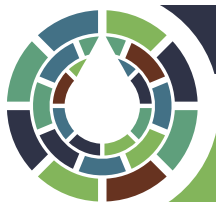
- **Use and disseminate the local dialogue and decision-making support tool for water, ecosystem and conflict management** (WPS and FREXUS, 2022). As part of the implementation of the WPS project, an interactive dashboard has been developed that allows the exploration and visualization of different development and natural resource management scenarios and their potential impact on conflict risks. The tool's integrated data are derived from digital models with hydrological and climatic data and an agent-based model of human responses. The latter is used to simulate the behavior of different actors in order to assess the impact of scenarios and interventions on the conflict risk scale. This tool can be used by policy makers to guide the discussion of effective decision-making in the prevention of recurrent climate risks on the one hand and conflicts over water resource use on the other.
- **Support the population in the IND to diversify livelihood activities.** It has been observed that diversification of economic activities is a source of conflict insofar as it is concentrated in the primary sector and in shared vital spaces, such as fertile land and pasture which are declining due to the impacts of climate change. The state and supporting partners should help people to develop alternative and environmentally responsible livelihood activities such as poultry farming, beekeeping, fish farming, cattle or sheep fattening, agro-processing, and market gardening, in order to reduce the pressure on natural resources. In addition, the government must pay attention to the emergence of the private sector and its

contribution to water resource governance in accordance with the law, and to the vision of the national strategy regarding the development of the drinking water supply in Mali. The private sector must also act in a conflict-sensitive manner.

- **Deepen research on water, conflicts, and climate change.** This involves initiating research activities on the anthropology of water and pastoralism in relation to climate and environmental changes in the Inner Niger Delta with a view to better understanding local dynamics and their links to conflict. This will facilitate the identification of avenues of prevention and solutions for the rational management of natural resources. Partnership between NGOs and Malian universities would enable collaboration to deepen research and knowledge in this field.

#### *Recommendations for Elected Officials and Civil Society Organizations at Local Level*

- **Develop conflict-sensitive Social, Economic and Cultural Development Plans (SECDP).** Despite the fact that the crisis in central Mali has been going on for years, the planning documents for the communes of Mopti (Mairie de la Commune Urbaine de Mopti, 2020, p. 55), Djenné (Mairie de la Commune Urbaine de Djenné, 2019, p. 67) and Konna (Mairie de la Commune Rurale de Konna, 2019, p. 45) do not place enough emphasis on security issues and related measures. Since the SECDP is the reference planning document for the communes, it must place greater emphasis on dealing with current grievances to find appropriate solutions. In addition, the communes must work together to prevent and manage conflicts related to access to shared resources, including water resources. NGOs can support such community initiatives with technical and/or financial assistance to strengthen and improve existing systems and plans.



- **Ensure compliance with local agreements for the management of natural resources, particularly water.** Local agreements have been drawn up but suffer from difficulties in applying them on the ground. It is up to local decision-makers to take appropriate measures to enforce the various laws on water resource management and the related local agreements, with the support of the state. These measures range from raising awareness about sanctions for breaches of the codes, to the establishment of support measures for the actors responsible for implementing and monitoring compliance with the agreements. Elected representatives can act as a bridge between communities and government, thereby encouraging the development of trust.
- **Promote dialogue on shared resources within and between communities.** This involves continuing to revitalize the forums for dialogue, such as those set up by WPS as an inclusive initiative seeking to take into account the concerns of all stakeholders. They serve as a reference point where vulnerable groups such as young people, women, and people from all ethnic and societal groups can express themselves. To this end, the local authorities should provide funding for these forums in the financing of the Social, Economic and Cultural Development Plan in order to ensure they are sustainable.

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## Water, Peace and Security (WPS) Partnership

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