

# SENEGAL: URBAN FLOODS



## Recovery and Reconstruction since 2009

### Recovery Framework Case Study

August 2014



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## INTRODUCTION TO CASE STUDIES SERIES

The World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR), the United Nations Development Program (UNDP) and the European Union (EU) are collaborating on a guide for Disaster Recovery Framework (DRF). This guide aims to help governments and partners plan for resilient post disaster recovery while contributing to longer-term sustainable development. It is based on practices gleaned from country experiences in disaster recovery around the world. Hence, the development of the DRF Guide entailed the development of country-level case studies as well as thematic case studies on disaster recovery.

These case studies have been designed to collect and analyze information on: i) disaster recovery standards and principles adapted by countries for specific disasters; ii) planning efforts for making such recovery efficient, equitable, and resilient; iii) policies, institutions and capacities to implement and monitor disaster recovery; and iv) ways and means for translating the gains of resilient recovery into longer-term risk reduction and resilient development.

*The methodology for developing the case studies consist of five steps:*

- 1. Desk review of available documentation and literature regarding the specific disaster and recovery;*
- 2. Field visit to complete and validate findings from the first step, including a workshop with government officials and other partners who have been involved in the disaster recovery process; and in-depth interviews with key partners in central and local government, international organizations and civil society;*

3. *Preparation of the document to be part of the GFDRR country case study series;*
4. *Review of document by GFDRR, World Bank country office, peers and partner agencies;*
5. *Validation of final case study document through in-country workshop.*

*Importantly, these case studies aim to learn from, and not evaluate, country reconstruction initiatives. Practices learned from each country's experience will inform the contents of the guide for developing a DRF. Additionally, the case studies examine the planning processes and not the implementation details of recovery experiences. As such, they do not seek to offer a comprehensive account of the post-disaster recovery program, but instead provide details and insight into the decision-making processes for reconstruction policies and programs.*

*Following the 2009 floods, the Government of Senegal elaborated its first recovery plan after a post-disaster needs assessment (PDNA) was conducted with the support of the international community. This case study thus uses the 2009 exercise as the point of departure for examining Senegal's policies for recovery and prevention of urban floods.*

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## LIST OF ABBREVIATIONS

<b>ADM</b>	Municipal Development Agency
<b>AFDB</b>	African Development Bank
<b>DPC</b>	Directorate of Civil Defense
<b>DRR</b>	Disaster Risk Reduction
<b>FCFA</b>	West African franc
<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery
<b>HFA</b>	Hyogo Framework for Action
<b>JICA</b>	Japan International Cooperation Agency
<b>MATCL</b>	Ministry of Territorial Planning and Local Communities
<b>MEF</b>	Ministry of Economy and Finance
<b>MHA</b>	Ministry for Hydraulics and Sanitation
<b>MINT</b>	Interior Ministry
<b>MRAZI</b>	Ministry in charge of Restructuring and Managing Flood Zones
<b>MUH</b>	Ministry of Urban Development and Housing
<b>ONAS</b>	Senegalese National Sanitation Office
<b>ORSEC</b>	National Relief Organization Plan
<b>PDGI</b>	Ten-Year Flood Management Program
<b>PDNA</b>	Post Disaster Needs Assessment
<b>PDU</b>	Land-Use Master Plan
<b>PGRC-ACC</b>	Program for Disaster Risk Management and Climate Change Adaptation
<b>PNRRMC</b>	National Platform for Reduction of Major Disaster Risks
<b>PROGEP</b>	Project for Rain Water Management and Climate Change Adaptation
<b>SONES</b>	Senegalese National Water Supply Company
<b>UNDP</b>	United Nations Development Program
<b>UNISDR</b>	United Nations International Strategy for Disaster Reduction





## OVERVIEW OF URBAN FLOODS IN SENEGAL, 2009 AND 2012

Senegal is located in the Sahel region of West Africa. Between 1970 and 2000, the country suffered prolonged droughts that contributed to rural exodus. Today, almost half of Senegal's population lives in urban areas; over 76 percent of these areas are classified as unplanned settlements. The capital of the country, Dakar, occupies only 0.3 percent of the territory of Senegal (2011)<sup>1</sup> yet concentrates 21 percent of the country's population, as well as most public services and economic activity<sup>2</sup>.

Communities in these peri-urban areas—already among the poorest in the country—are the most vulnerable to episodes of heavy rainfall and subsequent flooding. The impact of floods in this situation of uncontrolled urban growth is exacerbated by the lack of a functional storm water drainage system, ineffective land-use policies and non-compliance with the urban planning and development master plan.

The negative impact of flooding during the first decade of this century, especially those of 2005, 2009 and 2012, continue to be reflected in existing socio-economic conditions. Aside from the tragic loss of human lives, infrastructure—roads, bridges, houses and other property—was destroyed. The agricultural sector has also suffered from destruction of irrigation networks and loss of crops.<sup>3</sup> Between 2008 and 2012, the Government of Senegal invested over 70 billion FCFA, excluding external support, to reduce urban flooding but without satisfactory results.<sup>4</sup>

### 2009 FLOODS

In 2009, the Post- Disaster Needs Assessment (PDNA), funded through the Global Facility for Disaster Reduction and Recovery (GFDRR), estimated damage and losses to total 44.5 billion FCFA nationwide, of which 35.5 billion FCFA was for damage and loss in the Dakar region alone (see Table 1)<sup>5</sup>. Also, an estimated 30,000 houses were affected in the Dakar region, most of which are now uninhabitable and often abandoned.<sup>6</sup>

<sup>1</sup> Information from National Statistics Directorate, in GFDRR/World Bank, funding to the Republic of Senegal as part of the first phase of the Risk and Disaster Management and Climate Change Adaptation, January 15, 2012.

<sup>2</sup> National Statistics Directorate (ANSD), draft document for a GFDRR funding to the Republic of Senegal as part of the first phase of the Risk and Disaster Management and Climate Change Adaptation, January 15, 2012.

<sup>3</sup> DRR National Program Report.

<sup>4</sup> Republic of Senegal, AWF, EAA, Donor Roundtable aimed at financing the emergency phase of the Ten-Year Flood Program, Programs for Integrated Water Resources Management and Access to Drinking Water and Sanitation, December 2012.

<sup>5</sup> "Assessment report on post-disaster needs, urban floods in Dakar 2009", Government of the Republic of Senegal, World Bank, the United Nations System and the European Commission, June 2010.

<sup>6</sup> Republic of Senegal, AWF, EAA, Donor Roundtable aimed at financing the emergency phase of the Ten-Year Flood Program, Programs for Integrated Water Resources Management and Access to Drinking Water and Sanitation, December 2012.

Peri-urban areas of Dakar were the most affected in 2009. Most of the 21 sub-divisions (known as “communes d’arrondissement”) in Pikine and Guédiawaye were affected. Nearly 360,000 people or 44 percent of the population were affected in Pikine and 22,000 people in Guédiawaye, 7.2 percent of the population in those areas. Some 125,000 people were also affected in rural areas and inland cities including St. Louis, Dagana, Kaolack, Kaffrine, Mbour, Kolda, Thies, Tambacounda and Sédhiou<sup>7</sup>.

**Table 1:** Impact of the 2009 floods in peri-urban areas of Dakar, in FCFA and USD

Sectorial areas	Damage	Loss	Total (millions FCFA)	Total (millions USD)
<b>Infrastructure</b>	<b>2 230</b>	<b>6 247</b>	<b>8 477</b>	<b>20.0</b>
Transport	2 038	2 767	4 805	11.0
Water and sanitation (including solid waste)	190	572	762	2.0
Energy	2	2 908	2 910	8.0
<b>Social sectors</b>	<b>14 353</b>	<b>6 766</b>	<b>21 119</b>	<b>49.0</b>
Housing	11 088	3 140	14 228	33.0
Urban community infrastructure	142	3 070	3 212	7.0
Health	1 850	556	2 406	6.0
Education	1 273	0 *	1 273	3.0
<b>Productive sectors</b>	<b>1 305</b>	<b>4 060</b>	<b>5 365</b>	<b>12.0</b>
Agriculture, breeding and fisheries	0	61	61	0.141
Industry/Trade, SME, Informal sector	1 305	3 999	5 304	12.0
<b>Environment</b>	<b>261</b>	<b>295</b>	<b>556</b>	<b>1.0</b>
Protected areas and national parks (natural capital plus infrastructure and services)	261	295	556	1.0
<b>TOTAL (millions FCFA)</b>	<b>18 149</b>	<b>17 368</b>	<b>35 517</b>	
<b>TOTAL (millions USD)</b>	<b>42</b>	<b>40</b>		<b>82</b>

Housing, transport, and health sectors suffered the most damage; followed by education (7 percent), industry and trade (7 percent). The trade sector suffered the most losses, with 23 percent (mostly informal trade), followed by housing (18 percent), urban community infrastructure (18 percent), energy (17 percent), and transport (16 percent) sectors.

The 2009 PDNA concluded that there was an urgent need to address the underlying causes of recurrent floods. A strategy for the medium and long-term reduction of flood risks was recommended, based on a combination of structural and non-structural measures.

<sup>7</sup> Republic of Senegal, African Water Facility, EAA, Donor Roundtable aimed at financing the emergency phase of the Ten-Year Flood Program, Programs for Integrated Water Resources Management and Access to Drinking Water and Sanitation, December 2012.

Priority actions identified in the report include:

1. Preparing a master plan for storm water management;
2. Establishing a system for storm water drainage in priority areas on the outskirts of Dakar; and
3. Preventing and mitigating disasters by a) developing an urban development plan containing the mapping of flood risks, b) strengthening the management of flood risks, and c) educating affected communities.

Following this assessment, the Government developed a project for rainwater management and climate change adaptation (PROGEP) with the support of the World Bank. This project (discussed later in detail) aims to support the implementation of priority measures of the PDNA<sup>8</sup>.

## 2012 FLOODS

In 2012, the emergency relief plan (ORSEC) was activated after the heavy rains of August 26. Due to heavy flooding, 26 deaths, 264,000 people and 7,737 damaged houses were reported<sup>9</sup>. In addition, floods displaced over 5,000 families (over half from the regions of Dakar and Matam) and contaminated 7,700 drinking water sources<sup>10</sup>.

With most urban areas of the country affected by flooding, the government of Senegal adopted strong measures, starting with a ten-year program for flood management whose total cost is estimated at more than 700 billion FCFA (USD 1,4 billion) in 2014.

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<sup>8</sup> World Bank, Project Appraisal Document, PROGEP, February 2012.

<sup>9</sup> Mare Lo, National Consultation on the Post-2015 Framework for Action to reduce disaster risks, UNISDR, CAH, September 2013.

<sup>10</sup> UNOCHA, Summary on the impact of floods in West and Central Africa, 15 September 2012.



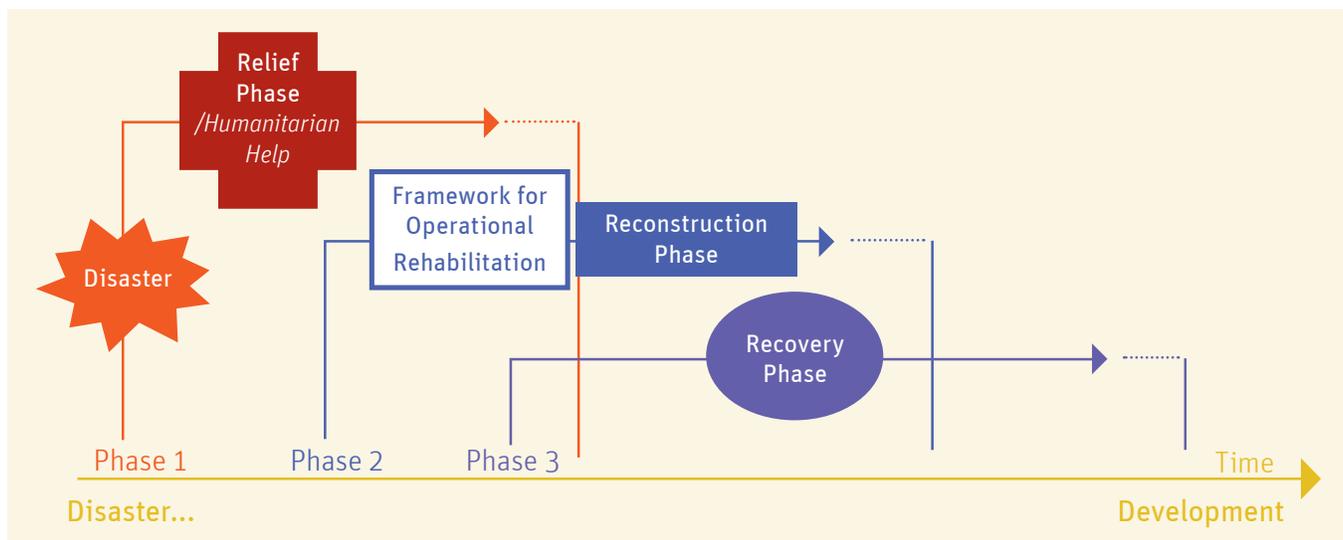
## POLICY FOR FLOOD PREVENTION AND RECOVERY

### CONCEPT OF RECOVERY

To help populations affected by disasters to resume their daily lives, and to mitigate the effects of disasters, governments have developed “recovery” policies. This recognizes that disasters are events that disrupt normal life, and requiring exceptional and specific actions that extend beyond emergency relief. This means that governments, communities and civil society have an established framework that is recognized by all, which situates post-disaster recovery and reconstruction. This framework permits the definition of recovery needs as well as the respective responsibilities of stakeholders, in order to avert ad-hoc actions and instead promote good coordination and efficient use of available resources.

The recovery phase and recovery planning get underway even as emergency programs. This is a transition period that bridges to normal development, but is a time when concrete measures for the mitigation of future risk should be included in the management of the cause and effects of disasters.

**Figure 1:** Overlapping Operational Phases after a Disaster



In Senegal, recovery and reconstruction policies are difficult to dissociate. Experience has shown that the only effective post-disaster strategies that have permitted affected populations to recover from the series of floods were reconstruction activities, such as drainage systems, restructuring of flood zones, and new housing. Flooding has occurred for more than fifteen years without government support to livelihoods of affected populations. Also, the phases of recovery and reconstruction in Senegal often coincide in providing concrete solutions.

## PRE-2009 POLICIES

Faced with recurring floods in most cities across the country and especially in the Dakar region, public authorities felt the urgent need to find a solution in 2009. In earlier years, the response consisted of emergency pumping operations in neighborhoods and the temporary resettlement of the victims in public buildings, such as schools. This strategy proved to be very expensive (for fuel and maintenance of pumping equipment, deploying field teams, sheltering flood victims and repairing the buildings where victims had been sheltered). Besides, such a strategy was not sustainable because similar actions were being repeated each year at the same sites with huge losses, unforeseen expenses and reorganization in the state budget.

The project for construction of social housing<sup>11</sup> and the fight against floods and slums was created by ministerial decree No. 003409 on May 31, 2006. The project was charged with implementing the “Jaxaay Plan” and the “One Family, One House” program, and was hosted by the Ministry of Architectural Heritage, Housing and Construction, following the dissolution of the National Agency against Floods and Slums (ANLIB). The Jaxaay plan, implemented from 2006 to 2012, aimed to build houses for flood victims as well as water drainage systems using emergency pumps. The plan has helped build more than 3000 housing units in Dakar and other regions of the country, as well as retention ponds, as part of PROGEP, along with gravity-based drainage systems.

The 2009 floods appear to mark a new start for the Government, with three steps to commit permanently to a sustainable recovery and flood management policy. These three steps were:

1. Assessing damage, losses and post disaster needs (PDNA) for 2009;
2. The storm water management and climate change adaptation project;
3. The ten-year flood management program (2012-2022).

## PROJECT FOR RAIN WATER MANAGEMENT AND CLIMATE CHANGE ADAPTATION (PROGEP)

### 1. Assessing damages, losses and needs in 2009

The PDNA<sup>12</sup> that was conducted in 2009 provided Senegal with a detailed economic and multi-sectoral estimate of flood impact as well as recovery and reconstruction needs. This assessment estimated the costs of priority recovery and reconstruction needs mainly in Dakar to exceed USD 204.5 million, of which USD 40.7 million were earmarked for recovery and rehabilitation and USD 163.8 million for reconstruction and disaster risk reduction.

This assessment prompted sectoral actors to ponder a lasting solution to the recurrent floods, and resulted in the identification of a **strategic action plan for recovery and reconstruction** in the short, medium and long terms. The needs assessment involved the priority sectors of social protection, infrastructure, basic social services and livelihood activities<sup>13</sup>. The government consequently elaborated PROGEP with the support of the World Bank, on the basis of recommendations made in the PDNA.

<sup>11</sup> Social Housing: the principle of social housing in Senegal is for people who have been displaced from flood zones and settled into housing constructed and subsidized by the State. The inhabitants become owners after paying a sum representing 15 percent of the value of the residence, over a period of several years.

<sup>12</sup> Jointly conducted in 2009 by the Government of Senegal, technical and financial partners and (NGOs, the PDNA was funded by GFDRR/ World Bank, June 2010.

<sup>13</sup> Social protection includes health, food security, education and housing sectors. Infrastructure and basic services include transportation and urban roadwork, energy, water, sanitation and solid waste management and urban community infrastructure. Livelihood activities include trade, industry and the informal sector as well as agriculture. For each action plan, the crosscutting themes of the environment, gender and the protection of vulnerable groups have been taken into account. PDNA, June 2010.

## 2. Project for Rain Water Management and Climate Change Adaptation

In August 2010, the Government of Senegal decided to prepare an urban development project for **rainwater management and climate change adaptation, known as PROGEP**, with the support of the World Bank. PROGEP is derived directly from the PDNA action plan, and aims to reduce floods through an integrated and sustainable approach. It is being implemented together with priority measures such as: 1) the preparation of a master plan for storm water drainage and the construction of drainage structures; 2) construction of storm water drainage on the outskirts of Dakar; 3) mapping of flood risks and within detailed urban plans (PUD); 4) developing a flood prevention Geographic Information System (GIS); 5) involving communities in flood reduction and climate change adaptation through information campaigns to raise public awareness and support micro-projects for reducing local flood risks.

The Government designated the Municipal Development Agency (ADM) with PROGEP preparation and implementation, PROGEP was officially launched in November 2012, but preparation of the master plan for storm water drainage in the outlying areas of Dakar and the preparation of technical drainage studies began in 2011.

The five-year project (2013-2017) is funded for USD 72, 9 million, of which USD 55.6 million through the World Bank; USD 10.6 million from the Senegalese government, USD 4.1 million from the Nordic Development Fund and USD 2.6 million by ADM. Additional funding was being negotiated with the World Bank, IDB and AfDB<sup>14</sup>.

### POST 2012 FLOOD RECOVERY AND THE LAUNCH OF THE TEN-YEAR PROGRAM FOR FLOOD MANAGEMENT

Following the floods of August 2012, the Government of Senegal was committed to significantly strengthen its post-flood recovery policy. The strong political commitment and key actions that enabled the Government to launch the Ten-Year Flood Management Program (PDGI) are described below.

#### *Ten strategic decisions to deal with floods*

At the Presidential Council of 19 September 2012, and based on conclusions and recommendations of the meeting attended by all stakeholders involved in flood management, the President of the Republic took ten strategic decisions to progressively and definitively eradicate recurring floods in Senegal. The Ten Commandments articulated in the Council report for developing resilience to flooding are the following:

- 1. Implement a ten-year special program:** The President of the Republic approved PDGI which comprises three phases; an emergency phase from 2012 to 2013; a short-term phase from 2014 to 2016 and a medium to long term phase from 2017 to 2022;
- 2. Make sufficient financial resources available:** The President of the Republic approved the budget for the 2012-2013 emergency phase, amounting to 66 billion FCFA, and asked for further studies to more accurately assess the budget for the entire program, estimated at 766 billion CFA;
- 3. Mobilize funds for the emergency phase within in the 2013 budget:** This directive instructs the government to integrate the emergency budget within the 2013 Finance Act, and urges committed development partners to contribute, particularly for the construction of pipes for storm water drainage;
- 4. Organize a donor round table:** the President of the Republic requested the Ministry of Economy and Finance to organize a donor conference to raise funds for PDGI;

<sup>14</sup> Sources: 1. General presentation of PROGEP, workshop aimed at coordinating and harmonizing state actions in flood management, March 27, 2013; 2. World Bank, PROGEP Appraisal Document, February 2012.

5. **Update the National Land Use Planning Policy:** The President requested the Government to take the necessary steps for updating and validating the **National Land Use Planning Policy** before the 2013 rainy season;
6. **Finalize Master Plans for Town Planning of Communities:** the Government was tasked with finalizing and validating the master plans for town planning by June 2013, for twelve priority municipalities and rural communities, and ensure consistency between the Master Plans for Drainage and Town Planning;
7. **Further involve Local Authorities:** The President requested greater and more effective involvement of local authorities, as privileged partners of the Government in the implementation of PDGI;
8. **Revitalize the social housing policy** through greater involvement of the private sector, the Deposit and Consignment Office, the Social Security Fund and Senegalese Pension Fund (IPRES);
9. **Establish a national Observatory on floods.** The President of the Republic recommended the establishment of a National Observatory on floods that will monitor this phenomenon and involve locally elected councilors, academics and experts.
10. **Establish a mechanism for interdepartmental coordination:** The President requested the Prime Minister to supervise, by mid-November 2012, an interdepartmental structure charged with coordinating interventions related to floods<sup>15</sup>.

Further evidence by the government to make flood management a national priority was the **creation of the Ministry in charge of Restructuring and Managing Flood Zones (MRAZI)** in November 2012, the first ever ministry in the history of Senegal exclusively dedicated to addressing floods.

It is worth mentioning that the Senate of Senegal was dissolved in 2012 by the President of the Republic with a view to reallocating funds from this institution to the funding of PDGI.

### **Donor Roundtable of December 2012**

A donor roundtable was held in December 2012 to raise funds earmarked for the emergency phase of PDGI, and other priority programs of the government, such as the Program for Integrated Water Resources Management and Access to Drinking Water and the Ziguinchor Sanitation Action Plan. Soon thereafter, the Minister of Economy and Finance announced the attainment of funding of 66.375 billion FCFA for the emergency phase of PDGI to which the government contributed 17 billion FCFA. For the 2014-2016 period, Senegal has planned investments worth 112.736 billion FCFA of which 76 percent were secured and the remaining 24 percent is under negotiation with the African Development Bank (AfDB) for implementing the Water and Sanitation Sector Project.

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<sup>15</sup> Mare Lo, September 2013, National Consultation on the Post-2015 Framework for Action to reduce disaster risks, UNISDR, CAH, September 2013.



## INSTITUTIONAL AND LEGAL FRAMEWORK FOR FLOOD MANAGEMENT AND RECOVERY

Disaster risk management (DRM) is a declared priority of the Senegalese Government, which has multiplied its efforts to integrate this within national development policies. These efforts include most notably the signing of the Hyogo Framework for Action (HFA)<sup>16</sup>, the integration of DRM as a priority in the National Development Strategy of Senegal (SNS), and the adoption in 2011 of a national program for disaster risk reduction that strengthens national capacity in all areas of DRM.

### INSTITUTIONAL FRAMEWORK

The institutional framework has evolved through changing policy priorities and strategies developed by the government. This framework is composed of several structures with diverse statutes, which are sometimes redundant; it is divided into an advisory level and executive level of intervention.<sup>17</sup>

### ADVISORY LEVEL

The advisory level provides risk and disaster management stakeholders and partners with the forum for consultation, dialogue, and participation. It is characterized by the coexistence of crosscutting and sectoral frameworks. For example, the High Commission of Civil Protection (CPSC) is responsible for advising the Minister of the Interior on all civil protection issues and for contributing to the coordination of sectoral activities in disaster prevention and relief organization. There is also the **National Platform for Reduction of Major Disaster Risks (PNRRMC)** established in 2008 by Presidential Decree, pursuant to the HFA recommendations. CPSC and PNRRMC have similar roles at the advisory level. Established before the High Commission for Civil Protection (CSPC), PNRRMC has experienced operational difficulties that the Risk and Disaster Management and Climate Change Adaptation project attempts to resolve through revitalizing activities. CPSC no longer seems to be operational.

Other advisory structures include:

- **A National Unit for Flood Prevention** chaired by the Minister of the Interior and established by Decree No. 2004 - 1153 of August 18, 2004 amending Decree No. 2003-685 of November 13, 2003.

<sup>16</sup> "The Hyogo Framework for Action (2005-2015): Building the Resilience of Nations and Communities to Disasters" was adopted by 168 States during the World Conference for Disaster Reduction in Kobe, Japan, 18-22 January 2005. HFA outlines five priorities for action for each State signatory by 2015, in the areas of prevention (including information, awareness-raising and training), preparation, and response to disasters.)

<sup>17</sup> Michel Seck, Review of the institutional framework for the risk and disaster management in Senegal, July 2013.

- **A National Committee on Flood Prevention, Supervision and Monitoring** established in 2007 under the authority of the Prime Minister and aimed at enhancing flood management policy. The fact that advisory structures are created without dissolving pre-existing one and those with similar mandates complicates the situation and exacerbates the lack of clarity in the institutional set up of risk management in general and flood management in particular.

## EXECUTIVE LEVEL

The executive level meets the need for operational structures to implement state policies on Disaster Risk Reduction (DRR) and for ensuring consistency of interventions. Regarding preparation, disaster response and recovery, the **Directorate of Civil Protection (DPC)** within the Ministry of Interior coordinates the committee for the National Relief Organization Plan (ORSEC) that is responsible for logistical support to the Administrative Staff, operational groups and support units<sup>18</sup>. It can requisition private national resources,<sup>19</sup> according to regulatory procedures.<sup>20</sup> The National Brigade of Firefighters (BNSP) is also part of the same ministry, and is an operational arm for emergency response.

**The National Relief Organization Plan (ORSEC)** is the crisis and disaster management tool in Senegal. Adopted in anticipation of serious events likely to endanger human lives, ORSEC provides a framework to quickly and efficiently mobilize in advance public and private relief resources. The Minister of the Interior decrees the arrangements for releasing and implementing ORSEC,<sup>21</sup> which comprises (i) an established chain of command, (ii) operational groups and (iii) the afore-mentioned support units<sup>22</sup> ORSEC was launched several times since the year 2000 to respond to floods. In June 2010, DPC developed an emergency action plan for optimizing the pumping of storm water and drainage for the benefit of ORSEC operations, supported by ADM with funding from the Local Authorities Development Program (PRECOL). This plan has enabled the emergency pumping system to be installed in the outskirts of Dakar, based on surveys and watershed studies.

The creation of the **Ministry for Restructuring and Managing Flood Zones (MRAZI)** in 2012 aimed to promote consistent flood management, based on mobilizing all stakeholders to jointly develop a real strategy for flood risk management. The role of MRAZI is also to facilitate flood management and prevention, by bringing stakeholders together to reduce negative impacts and to coordinate the implementation of action plans resulting from the national strategy<sup>23</sup>. The National Flood Committee (NILC), originally established after the 2009 floods under the aegis of the Ministry of Housing and Construction, was placed under the supervision of the Ministry of Water and Sanitation in 2012 and is coordinated by MRAZI since 2013. Actions for mitigating the impact of floods are also supervised by the Prime Minister through meetings that increase in frequency with the approach of the rainy season. These meetings chaired by the Prime Minister were held on a weekly basis from January 2013 to September 2013 to monitor progress in the implementation of PDGI.

Since the MRAZI was established in 2012, it hosts the program for “construction of social housing to prevent slums” (PCLSLB) and is committed to implementing the “Jaxaay plan” (in Keur Massar), building 2,000 social houses on 68 hectares in Tivaouane Peul (1,200 social housing units are scheduled for construction on 39 hectares), and constructing 800 units on 29 hectares in Niaga (department of Rufisque, Dakar region). As of March 13, 2014, the implementation rate of the project aimed at building

<sup>18</sup> Decree N° 99-172 of March 4, 1999.

<sup>19</sup> ORDER N° 04387 /M.MT/DPC of JUNE 22, 1999.

<sup>20</sup> It can equally appoint any person or institution whose support is deemed necessary.

<sup>21</sup> ORDER N° 4386/MINT/DPC OF JUNE 4, 1999.

<sup>22</sup> DRM, Country Note, December 2009.

<sup>23</sup> MRAZI presentation at the stakeholder consultation workshop held on February 17, 2014.

2,000 social houses was 86 percent<sup>24</sup>. The MRAZI also plans to establish a National Flood Prevention Office (ONPI) to coordinate the management of storm water drainage systems. The draft decree for establishing the Office is following the administrative process for approval.

The Ministry of Water and Sanitation also has an important role in flood prevention policy. The national office for sanitation in Senegal (ONAS) and the sanitation department implement construction projects, rehabilitate and maintain drainage systems. Both offices are promoting the development of an institutional framework and financial viability, with technical and financial support from PROGEP, the EU and BAD.

The Ministry of Urban Development and Housing (MUH) maintains the prerogative in matters of urban planning and use of land. Given one of the major causes of urban flooding in Senegal is uncontrolled urban growth, this ministry is also involved in flood management policies.

To address more specific needs arising from disasters, other specialized institutions may be involved in disaster response and recovery: these include the Food Security Commission; ANACIM or the civil aviation agency for security at airports; ANAMS for meteorology; ARSN for radio protection and nuclear security; and HASSMAR created after the sinking of boat Le Joola in 2000 to manage maritime security.

Other semi-public agencies, such as SENELEC (the national electric utility), SONES and SDE (water utilities), the Autonomous port of Dakar, ICS (chemicals), SAR (refinery), HAALSS (airport authority), AGEROUTE (road works authority), APIX (invest promotion), La Nouvelle Prévention Routière (NGO for road accident prevention), CETUD (urban transport) are other central level actors for DRM.

At the local and decentralized level, there are regional and auxiliary commissions of emergency preparedness, respectively chaired by Regional Governors and Department Prefects.

Associations of women, youth, and flood prevention tend to represent civil society. These non-governmental organizations (NGOs) invest in advocacy and local level monitoring during crisis and recovery periods. These actors are often involved in the planning and implementation of projects funded and managed by afford-mentioned organizations.

Last but not least, the local authorities are key decentralized stakeholders of the DRM framework, including flood management. Their capacities in terms of human, financial and logistical resources are very limited however and hinder their prevention and planning.

This institutional framework has been constructed from various emergency response plans, tools, training on risk awareness and crisis funding mechanisms.

Operationally, several bodies suffer overlaps of mandates and competencies, in terms of risk reduction and disaster management. This results in fragmented and competitive disaster response; whereas frameworks based on complementarity and comparative advantage would encourage better organization of activities.<sup>25</sup> A tendency for isolated acts of flood management also duplicates mechanisms, instead of building upon those already established in the common disaster risk management framework (national platform for disaster risk reduction, early alert system, national plan for emergency, etc.)

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<sup>24</sup> MRAZI.

<sup>25</sup> Mare Lo, National Consultation on the Framework for Action Post-2015 to reduce disaster risk, UNISDR, CAH, September 2013.

## THE LEGAL FRAMEWORK

The legal framework to support DRM policy in Senegal should be clarified and strengthened, as much as that of flood management, even if the creation of a ministry exclusively dedicated to flood management helped improve coordination. However, the roles and responsibilities of various stakeholders, especially those of other ministries, should be clarified in the flood management policy of the government.

In the meantime, the DRM framework exists only in the form of disparate legislation, decrees and resolutions supported by different sectors without clear connections to DRM objectives (let alone DRM policy) and of which the oldest date back to 1964. The legal architecture is abundant with texts, of which most are ignored, not applied, or are obsolete. There are also gaps in the legislation on land use, transportation and use of hazardous materials, management of flood risks, preparation, response, rehabilitation and post-disaster reconstruction.

Hence the relevance of the main recommendations taken from an assessment of national platforms for DRR, under the aegis of UNDP in May 2008,<sup>26</sup> in line with the adoption of legal text concerning prevention strategy and risk management. Indeed, in the absence of binding documents, the overlapping mandates of some sector ministries create inertia starting at highest political level. The existence of a legal framework would help develop new legislation, planning instruments or revise existing laws overall.

## DEVELOPMENT PARTNERS

Flood management and DRR policies in Senegal have the support of partners in multilateral cooperation. This includes the European Union, World Bank, Islamic Development Bank, African Development Bank, and United Nations agencies (FAO, WFP, UNOCHA UNICEF, UNFPA, WHO) among multilateral partners. France, Japan, Norway, the Netherlands, the United States and Spain also provide bilateral support to the Government of Senegal, either through contributions during emergencies or funding of capacity building projects.

Non-governmental organizations have supported emergency response or implement community resilience projects. Caritas, Oxfam, World Vision Senegal, Plan International, Save the Children, Aid Transparency, Christian Relief Services, French Islamic Relief, and SOS Children's Village are the most active NGOs in this area. The Senegalese Red Cross – with the support of USAID, DFID, SNU, Irish Cooperation, Spanish Red Cross and Japanese Red Cross – has been able to launch a project for “*strengthening resilience of the people affected by the 2012 floods*” in Sinthiou Garba (Matam region, Northern Senegal) with UNDP funding. This project aims to “reduce the impact of floods of 2012 among vulnerable households”, particularly in the most affected regions of Matam, Kaffrine and Diourbel<sup>27</sup>.

## COORDINATION PLATFORM WITH INTERNATIONAL AGENCIES

The national platform for DRR is an advisory and consultative body for stakeholders in risk and disaster management, including floods. It integrates international partners who are involved in DRR strategies and policy, and is coordinated by the Prime Minister's office. DPC acts as the secretariat. In practice, this platform has barely functioned since its creation in 2008; coordination with international partners takes place within respective sectors rather than for DRR development. For example, networks of development partners in fields such as environment, water and sanitation, health, agriculture, meet regularly to share experiences and opinions on the sector policies and formulate recommendations to the government ministries.

<sup>26</sup> National Program for Risk and Disaster Management Support Project (DPC-UNDP). Institutional Analysis of National Platforms and referents organs of Risk and Disaster Risk Reduction - Third part: Summary of lessons learnt by Country, May 2008.

<sup>27</sup> UNDP Senegal news on website, “UNDP and Senegalese Red Cross strengthen resilience among flood victims in Sinthio Garba in 2012, May 23, 2013.

It is also important to recall here, as mentioned in the preceding section, that the Government of Senegal organized a *donor roundtable* in December 2012 to raise funds for PDGI.

## **INVOLVEMENT OF THE PRIVATE SECTOR**

Private sector involvement in DRR policy in Senegal has not been specifically assessed, although some major industrial risks such as the transport of hazardous materials are mainly generated by private sector activities. Meanwhile, the State is often obliged to use the services of the private sector during emergency and recovery periods, including post flood situations, for the provision of equipment or services to build or repair infrastructure such as drainage systems, roads, schools, health centers. Like Senegalese citizens both within and outside of the country, the private sector also participates in acts of national solidarity during emergencies – even if they are not always well coordinated nor recorded. Information in this area is rarely available or accessible.



# PROGRESS AND INNOVATIONS IN FLOOD MANAGEMENT AND RECOVERY POLICY

## PROGRESS IN SUSTAINABLE FLOOD MANAGEMENT INITIATED IN SEPTEMBER 2012

The priority actions, which followed the Presidential Council meeting of September 19, 2012, have been fully or partially implemented. Progress to date is summarized in Table 2.

**Table 2:** Progress on priority actions identified by Government in September 2012

Priority actions of the government validated during the Presidential Council of September 19, 2012	State of implementation of the priority action plan (as of February 2014)
1. Implement a special program over ten years	PDGI 2012-2022 was adopted and initiated.
2. Prepare in-depth technical studies for more accurate financial calculations of PDGI, initially estimated at 766 billion FCFA.	Studies conducted under PROGEP and ONAS (for drainage work). Further evaluation studies of the overall budget of the PDGI have not yet been achieved.
3. Mobilize emergency funds required for storm water drainage.	Emergency phase partly funded from the State budget (2013 Finance Act).
4. Organize a donor round table in December 2012 to mobilize funding for PDGI.	Funding of the emergency phase was partially completed through government financing and the donor round table. Since 2012, the state continues to allocate 10 to 20 billion FCFA (equivalent to USD 20 and 40 million) in its annual budget for funding PDGI. Complementary funding is still sought for its short, medium and long-term projects.
5. Update the National Land Use Plan before 2013 rainy season	In progress
6. Finalize urban development master plans (PDU) of locations by June 2013 and align with Drainage Master Plans.	PDU are being developed in some municipalities, like Pikine and Guediawaye, with PROGEP financing. Master plans for storm water drainage in Guediawaye and Pikine were finalized in May 2012 under PROGEP, that of Dakar was updated in 2013 by ONAS and that of Kaolack (integrated PDD, storm water, waste water, solid waste) since 2013 with JICA support. 19 other plans for drainage and sanitation – some of which include storm water management – exist for regions outside of Dakar.
7. Involve local authorities in PDGI implementation.	In 2013, MRAZI initiated community forums and set up a network of local observers who are given small emergency equipment and materials.

Priority actions of the government validated during the Presidential Council of September 19, 2012	State of implementation of the priority action plan (as of February 2014)
8. Revitalize social housing policy with greater involvement of the private sector, Deposit and Consignment Office, Social Security Office and the national pension fund (IPRES).	The revitalization of the social housing policy (which depends on MUH) has not yet started, as no budget is available.
9. Establish a National Observatory on flooding.	In progress. The draft decree establishing the Observatory was transmitted to the General Secretary of the Government.
10. Establish an inter-departmental coordination mechanism for flood management under the supervision of the Prime Minister's Office by mid-November 2012.	Periodic meetings regularly coordinated by the Prime Minister and MRAZI.

Five of the actions in the above table (1, 3, 4, 8 and 10) are further detailed in the following:

### *Action 1 - Implementation a special program over ten years*

In order to find a sustainable solution to recurrent flooding, the Government of Senegal initiated the Ten-Year Flood Management Program for 2012 to 2022, known as PDGI, which was approved at the Presidential Council of September 19, 2012. This program was managed by MRAZI, with an estimated cost of 767 billion FCFA, and includes a 2012-2013 emergency phase, a short-term phase in 2014-2016 and a medium and long-term phase 2017-2022 (see Table 3 below).

Thus, it can be seen that the highest level of government is now committed to searching for sustainable solutions to recurrent flooding. This program has four main components:

1. resettlement of flood victims in furnished and equipped areas, providing an improved living environment;
2. installation of storm water drainage;
3. restructuring of urban areas and flood-prone districts;
4. improvement of land-use planning policy and development of new urban centers.

**Table 3: PDGI's short, medium and long-term phases<sup>28</sup>**

PDGI's phases	Time Horizon	Amount (in billion FCFA)			
		Total	2012	2013	
Emergency phase	2013-2014	66,375	5415	60,960	
Territory planning		500		500	
Urban restructuring and relocation		17,000	4000	13000	
Management of storm water		48,875	1415	47,460	
		Total	2014	2015	2016
Short-term Phase	2014-2016	250,604	75,018	88,225	87,361
Territory planning		2500	10,00	750	750
Urban restructuring and relocation		86,301	21,576	21,576	43,151
Management of storm water		161,801	52,442	65,899	43,460

<sup>28</sup> Republic of Senegal, FAE, EAA, Background paper for the Round table of donors to finance the Ten Year Flood Management Program, programs for the integrated management of water resources and access to drinking water and sanitation, 2012.

PDGI's phases	Time Horizon	Amount (in billion FCFA)						
		Total	2017	2018	2019	2020	2021	2022
Medium and Long Term Phase	2017-2022	450009	71494	81858	81954	69934	75684	69084
Territory planning		2500	500	500	500	500	250	50
Urban restructuring and relocation		380385	63398	63398	63397	63397	63397	63397
Management of storm water		67124	7596	17961	18056	6036	12036	5436
<b>TOTAL</b>	2012-2022	766988	151927	231043	169315	69934	75684	69084

### Action 3 - Mobilization of emergency funds for storm water drainage

The total cost of the emergency plan for combating floods has been estimated at 66.375 billion FCFA, broken down as follows:

**Table 4:** Total cost of the Emergency plan

	(in billion FCFA)
Territorial planning	500
Management of storm water	48,875
GEP-ONAS	(30,100)
GEP- Matrix of Priority Actions - Suburb	(5,150)
Reassignment of boreholes, Thioroye - SONES	(6,000)
Matrix of Priority Actions-GNSP/MINT	(7,625)
Urban restructuring and relocation	17,000
<b>Total cost</b>	<b>66,375</b>

The government was able to mobilize most of the emergency phase funding, which enabled drainage work as well as the building of housing units in Dakar, Touba, Bambey and Matam. This work had a positive impact during the 2013 rainy season, suggesting that the drainage solutions have been effective. The government has also included in the MRAZI budget an additional 11 billion FCFA (USD 22 million) for additional drainage work in preparation for the 2014 rainy season.

### Action 4 - The organization of a round table of donors

The donor round table was held on December 12, 2012 with the financial support of the African Water Facility (FAE). This meeting brought together technical and financial partners, such as the French Development Agency (AFD), the African Development Bank (AfDB), the Islamic Development Bank (IDB) the European Union (EU), the World Bank, the West African development Bank, the Japan International Cooperation Agency (JICA), the West African Economic and Monetary Union (ECOWAS), and diplomatic representation to meet with the Government of Senegal<sup>29</sup>. It helped confirm (i) the financing of 17 billion FCFA (USD 34 million) by the Islamic Development Bank for social housing, and (ii) World Bank funding for drainage works planned within the emergency phase of PROGEP.

In a message to the government during this meeting, donors insisted on the need for an institutional and financial viability framework to support operations and regular maintenance of drainage facilities. Such mechanisms would need to be financed for efficient and continued rainwater drainage into the sea. These donor conditions for additional program funds were accepted by the Government, which has strived

<sup>29</sup> Birane Hady Cissé, "Sénégal-Assainissement. Lutte contre les inondations : le financement de la phase d'urgence bouclé (ministre)," Dakar, 13 déc 2012 (APS).

since 2012 with the support of PROGEP, to establish the institutional framework as well as funding for the operation and maintenance of drainage facilities. The funding mechanism for the entire program has not been clearly defined and stabilized by the government; as a result, the program's financing gap estimated at more than CFA francs 700 billion (U.S. \$ 1.4 billion) has not yet been resolved. The Government continues to allocate funds from its own budget and, at the same time, appeal to donors for financial support.

The implementation of reforms needed to sustain what has been achieved should encourage donors to fund rainwater and flood management. The government's goal is to establish an entity that is responsible for the operation and maintenance of drainage facilities by end 2015.

#### *Action 8 - Revitalize the social housing policy*

Revitalizing the social housing policy has been entrusted to the Ministry of Urban Development and Housing (MUH) through the building of 5,000 houses. These works have not started in the absence of a budget, but is complemented by the housing program for relocating populations living in flood-prone lowland areas. The program is run directly by the MRAZI, which plans to complete 2,000 houses by the end of the 2014. The government has planned to create an urban development center in Diarniadio (about 40 kilometers outside of Dakar), which is expected to both increase opportunities for housing in pre-developed areas and decongest Dakar whose uncontrolled growth is one of the root causes of flooding.

#### *Action 10 - Creation of an interdepartmental coordination mechanism*

An interdepartmental coordination mechanism has been created by the (previous) Prime Minister who established a weekly coordinating meeting system he used to preside personally to ensure the monitoring of the implementation of activities of PDGI. Weekly meetings are now coordinated by the MRAZI to monitor the implementation of the program. Regular meetings are also organized by the Prime Minister's office to monitor progress in the implementation of PGDI. A mechanism for coordinating among ministries thus exists, although more efforts are required to involve and empower government departments concerned with flood management.

## **ORGANIZATIONAL INNOVATION AND DEVELOPMENT OF THE RECOVERY FRAMEWORK**

### **Ministry for Restructuring and Managing Flood Zones**

Creation of the **Ministry for Restructuring and Managing Flood Zones (MRAZI)** in 2012 is considered a **major political innovation**. Such an entity should promote coordination among all stakeholders, in itself an innovation for the government.

### **The Ten-Year Program for Flood Management (PDGI)**

The PDGI is also considered a big innovation for the government. The recovery framework is illustrated through the implementation of PDGI, which includes the project for management of storm water and adaptation to climate change (PROGEP), an innovative and integrated project of sustainable flood management, as well as ONAS projects for building a drainage network.

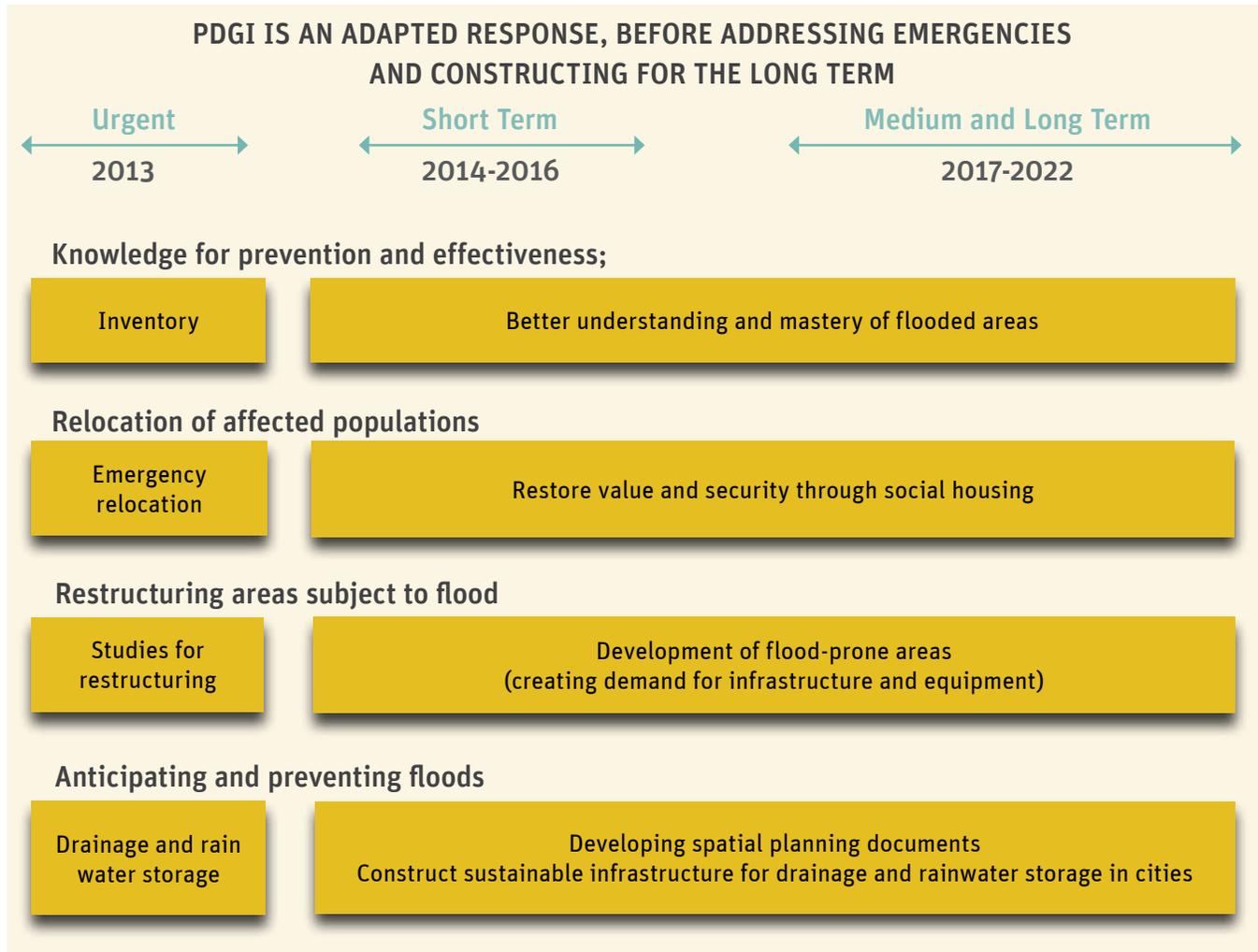
In its strategy document, MRAZI set the following priorities for 2013-2014:

- identification of critical flooded areas and the inventory of all affected areas;
- relocation of the populations living in flood ones (low-lying areas, waterways, lake beds and pond beds);

- studies for restructuring and planning of flooded areas;
- sustainable drainage infrastructure and storage of rain water in priority areas.

Figure 2 below illustrates PDGI objectives, actions and timetable.

Figure 2: The Ten-Year Program for Floods Management<sup>30</sup>



The other strategic objectives in medium and long term of PDGI are:

- improved knowledge and mastery of flooded areas;
- relocation of all current and potential victims living in flood zones within ten years;
- restructuring flood-prone areas for “spontaneous” housing throughout the country;
- requalification and development of low-lying areas for their integration into the urban landscape;
- building structurally sustainable storm water drainage and rainwater storage.

These objectives are implemented today through ONAS and PROGEP, executed by ADM.

<sup>30</sup> MRAZI, Policy of management of flooded areas presented to the Advisory Group, Paris Club, February 2014.

## **PROGEP, executed by the Municipal Development Agency (ADM) consists of four components:**

- Component A: **Integration of flood risk in urban planning** (USD 3.9 million) divided into three sub-components: (i) urban management and development; (ii) institutional capacity building of national facilities (particularly DAU, DUA, DSCOS, DPC, ONAS) and the municipality of Pikine and Guediawaye; and (iii) development of an integrated program of storm water management and climate change adaptation for suburban Dakar, as well as a national strategy of integrated management of storm water and adaptation to climate change in larger urban areas.
- Component B: **Building and management of drainage facilities** (USD 55.8 million) consisting of two sub-components: *investment in drainage facilities, and operational maintenance of drainage systems.*
- Component C: **Community involvement** in reducing the risk of floods in urban areas and adaptation to climate change (USD 4.4 million) consisting of two sub-components: *Advocacy, communication and capacity building for community adaptation to flooding and Community involvement to reduce flood risks.*
- Component D: Coordination, management and monitoring and evaluation of the project (USD 8.8 million).

In component B, the project plans the construction of 28 km-long channels for the drainage of rainwater into the sea, based on the Drainage Master Plan (DMP) of the Departments of Pikine and Guédiawaye. This DMP is used today to coordinate interventions in the areas of Pikine and Guédiawaye.

The rainwater management project (PROGEP) is being implemented in two phases:

- phase 1: Dalifort and Thiourour basins
- phase 2: Northern Yeumbeul and Mbeubeuss Basins

Phase 1 of the work was divided into (i) priority work carried out from February to December 2013; and (ii) work launched after February 2014.

Emergency interventions enabled, some 88 hectares of inhabited zones in the districts of Dalifort and Cheikh Sy (southern Yeumbeul) to be drained, relieving more than 18,500 inhabitants during the 2013 rainy season.

Moreover, PROGEP finances activities to clarify institutional and financial viability mechanisms and the operational maintenance of nationwide drainage infrastructure, update detailed community plans of Pikine and Guédiawaye, map flood-prone areas in these zones with a geographic information system (GIS) for flood prevention, define construction standards for flood-prone areas, and small community projects for reducing the risk of floods and adapting to climate change.

The total cost of the PROGEP is USD 72.9 million, financed by IDA (USD 55.6 million), the Norwegian Development Fund (EUR 3 million) and the Government (USD 13.2 million). The project is implemented by ADM, and a Steering Committee involving all key stakeholders and chaired by the Prime Minister's office oversees the preparation and implementation of the project.

## **PDGI Activities of the National Sanitation Office of Senegal (ONAS):**

ONAS is involved in building and rehabilitating drainage facilities in the departments of Dakar, Pikine, and Guediawaye. The office also builds drainage channels in the secondary cities of Touba, Tambacounda, Nioro, Kolda and Fatick.

The main projects conducted by ONAS within the PDGI framework are:

- Construction of rainwater drainage systems in the CICES-FOIRE and Yoff districts (discharging to the sea and Philippe M. Senghor Dispensary)
- Drainage of the low-lying areas on national highway 1 (RN1) at the level of Patte D'Oie (e.g. Station ELTON)
- Construction of rain water drainage systems in the town of Touba
- Construction of rain water drainage systems in the town of Bambey
- Rehabilitation and reinforcement of the pumping stations of Grand-Yoff, Bourguiba and the Catchment Area
- Clearing and development of the catchment area basin
- Rehabilitation and reinforcement of the existing network and pumping stations and construction of new stations in the regions of Thiès, Kaolack and Saint Louis.
- Works to rehabilitate and improve stations in Dakar and relocation of the TGBT (general low-voltage panel) of Cambérène

ONAS succeeded in draining an area of 7639 hectares, and provided protection for nearly 1,460,000 people in February 2014.<sup>31</sup> With regard to drainage systems in flood zones, the length of the functional channels increased from 310 km in 2013 to 334 km in February 2014; and the number of pumping stations increased from 44 to 67.

Within Dakar's drainage master plan, a special focus was placed on developing the *niayes* (geographical depressions subject to flooding) for leisure and recreational activities in addition to the storm water storage function. Along the drainage lines around the *niayes*, a paved road network will be prepared to protect the facilities and to facilitate movement in those areas. Moreover, these facilities are anticipated to buffer the spread of housing in these areas.

## ENVIRONMENTAL AND SOCIAL SAFEGUARD MEASURES

The implementation of PDGI is accompanied by environmental and social safeguard measures. For example, under PROGEP, a Policy Framework for Relocation of Populations (CPRP) has been prepared in accordance with World Bank operational policy OP/BP 4.12 on indemnities for relocation. The document includes guidelines for compensation and measures for resettlement assistance, as well as provisions for consultation and grievance redressal.

An Environmental and Social Management Framework (CGES) as well as Environmental and Social Impact Studies (EIES) have also been prepared and validated by national procedures, under the auspices of the Environment Department. These instruments help identify the environmental and social impacts likely to be generated by the activities of the project and define a mitigation plan for the project. These environmental and social safeguards instruments have been reviewed and validated by stakeholders, under the coordination of the Environment Department, which has the prerogative to validate such documents and monitor the implementation of environmental and social safeguards measures prescribed therein. The latter has been subject to consultation with affected communities and is publically accessible on the websites of PROGEP and the World Bank via "*Infoshop*".

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<sup>31</sup> ONAS.

## A COMMUNITY PARTICIPATION PLAN

Through PROGEP, the ten-year management plan incorporates community activities for risk reduction. Component C is for “*community involvement in the prevention of flood risk and adaptation to climate change*,” as discussed in section (b) above. It includes information, education and communication activities for mitigating community-level risks. It also includes community initiatives for maintenance of drainage facilities, and the preservation of areas that are “off limits” for construction due to flood risk. The Community dimension of flood prevention policy in the PROGEP can be extended to other areas, because their involvement in flood prevention is the first measure of success and sustainability in this type of program.

The PDGI does not yet include specific strategies for community participation in the implementation of its program. Local authorities were often invited to share with the Ministry the issue of flood management, but without a formal partnership for community involvement in the implementation of PDGI<sup>32</sup>. A community engagement strategy could be included in the PDGI to capitalize upon their experiences in flood prevention and mitigation, as well as the small community projects of PROGEP. This would undoubtedly help assure active community involvement in reaching PDGI objectives, including drainage, maintenance and preservation of *non-aedificandi* (off limit) areas.



<sup>32</sup> Interview with a technical advisor to the Minister for Restructuring and Managing Flooded Areas (MRAZI).



## RECOVERY FINANCING

### NATIONAL COMMITMENT AND PARTNERSHIPS

The State contributes substantially to the funding of post-flood recovery, and the PDGI budget also seems, for the moment, to be provided largely by the Government. These funds are invested in drainage, housing and emergency operations, and are centrally managed by MRAZI.

Technical and financial partners have allocated credits for the financing of PDGI projects, namely the World Bank (USD 55.6 million) for PROGEP, the Islamic Development Bank (USD 38 million USD) for social housing of displaced population groups, and the French Development Agency, AFD (USD 19 million) for redirecting rain and storm water in flood zones of Pikine, and the European Investment Bank, BEI (EUR 800,000) for updating the master water and sanitation plans for Dakar, Pikine and Guediawaye. Grants were also received from the Nordic Development Fund (EUR 3 million) for PROGEP, GFDRR (USD 1.1 million) for the program for disaster risk management and climate change adaptation (PGRC-ACC), UNDP (USD 700,000) in 2007 to finance the national program for disaster risk management (PAPNGRC), and JICA which donated materials for emergency response to the Senegalese Fire Brigade and DPC, as well financing the rain water-waste water-sanitation master plan for the town of Kaolack.

**Table 5: Technical and Financial Partners**

Partner Agency	Area of financing	Amount of Financing	
		Credits	Gifts in-kind
World Bank	PROGEP	USD 55.6 million	
Islamic Development Bank	Social housing for flood victims	USD 38 million	
French Agency for Development	Redirecting rain and storm water in flood zones of Pikine	USD 19 million	
European Investment Bank	Updating water & sanitation plans in Dakar	EUR 800,000	
Norwegian Development Fund	PROGEP		EUR 3 million
GFDRR	PGRC-APP	USD 1.1 million	
UNDP	PAPNGRC	USD 700,000	
JICA	Master water & sanitation plan for Kaolack	Value not specified	Value not specified

The financing of emergency rescue operations and humanitarian assistance is largely provided by the State, although assistance and contributions (cash and in supplies) has also been received from technical and financial partners (United Nations agencies, IFRC and the Senegalese Red Cross, World Bank, diplomatic missions, NGOs, International Civil Defense Organization), local authorities, the private sector, and Senegalese citizens.

The information obtained from the Directorate of Economic and Financial Cooperation in the Ministry of Finance reveals the absence of budget provisions made a priori for emergency assistance operations. In the event of a disaster, budgets are reallocated to help finance emergency assistance; unfortunately the funds are often received one to two months after the outbreak of the disaster and this reduces the effectiveness and speed of the assistance provided to the population, as was the case in 2012. The management of floods in 2013 was more pro-active since part of the budget for emergency response was received by MRAZI prior to the start of the 2013 rainy season.

The procedures for disbursement and spending of public emergency funds are complex, and reduce the effectiveness of interventions on the ground. It should be noted that the Ministry of Interior has recently adopted a manual of procedures for the mobilization and use of funds for emergency operations. This manual, validated by ministerial decision, should help to clarify the roles and responsibilities in accounting operations, procedures and expedited access to emergency funds. This experiment could be replicated by the ministry in charge of flood management, which currently centralizes the use of emergency funds for flood management.

With regards to insurance for disaster victims, the Senegalese government joined the initiative of the Pan-African Mutual Insurance Company for disaster risk management (African Risk Capacity) to benefit from agricultural insurance premiums in the event of severe drought. The mechanism is being formulated and needs more regulation and support at top decision-making levels in order to be operational in the near future.

Senegal lists all the projects and programs of the government in the Triennial Public Investment Program (PTIP) for a period of three years.

Within the sub-sector of urban water and sanitation, an investment program amounting to 129.171 billion FCFA is planned<sup>33</sup> to generalize access to potable water, improve access to sanitation services, and **efficiently manage flood risks**.<sup>34</sup> The emergency phase of PDGI (storm water management sector) and PROGEP are part of twenty projects planned in this section of the PTIP.

## TRANSPARENCY, ANTI-CORRUPTION MEASURES AND PROCUREMENT

Senegal is a country where both civil society and the private sector are involved in monitoring public procurement. Representatives of the government, the private sector and the civil society manage the Public Procurement Regulatory Agency (ARMP), established in early 2008, on a tripartite basis. It is responsible for policy definition, reviewing the claims of bidders and audits on procurement.

The government has significantly improved control over public procurement to comply with the Guidelines of ECOWAS markets and international standards. It has also developed standard bidding documents for national and international calls for tender. Various measures for building private sector and donor confidence are being implemented within the national financial management system. These actions reflect the commitment of the Senegalese government to modernize and ensure the transparency in procurement operations.

The work initiated for the emergency phase of PDGI required the use direct contracting with several types of markets to enable rapid action and impact on affected populations. Better PGDI business planning (including PROGEP) should reduce direct contract agreements in the future, to give greater flexibility to the State, especially in negotiations of contracts with selected companies.

<sup>33</sup> Distributed as follows: 2014: 33.001 billion FCFA, or 25.6 percent; 2015: 47.9 billion FCFA, or 37.1 percent; 2016: 48.2 billion FCFA, or 37.3 percent. On this funding, 120 billion FCFA are received, or 92.9 percent and an amount of 9.1 billion FCFA, or 7.1 percent is being negotiated.

<sup>34</sup> PTIP (Triennial Public Investment Program) 2014-2016.



## MANAGEMENT AND MONITORING OF RECOVERY OPERATIONS THROUGH PDGI

### COMMUNICATION STRATEGIES

It is difficult to identify a formal communication strategy within the flood management policy of Senegal. PDGI does not yet have a communication strategy; the plans for information-education-communication on DRM in general are not sufficiently developed and operational on the ground. Nonetheless, the Senegalese media has become more developed and diversified in recent years, and the sector plays an important communication role, especially in times of disaster. Public opinion is regularly informed in times of disaster by both State-owned and private media.

This press played a significant role in the national solidarity campaign launched after the 2012 floods. Indeed, the telethons organized to assist disaster victims resulted in the collection of substantial funds. However, the media could be more involved in prevention activities – such as educating citizens about their roles and responsibilities in risk prevention and promoting a culture of risk management. The media today do not sufficiently deal with these prevention and communication aspects, despite the existence of a journalist-based disaster risk reduction network within the national DRR platform.

### REPORTING, MONITORING AND EVALUATION

At national level, the reporting, monitoring and evaluation system often depends upon technical and steering committees of programs and projects. These committees generally regroup all the key institutional stakeholders.

It is observed however that PDGI projects (including PROGEP), in addition to being provided with technical and steering committees, are monitored at the highest level, by the offices of the President of the Republic and Prime Minister. Since early 2014, a results framework has been set up within the Emerging Senegal Plan (PSE), to monitor the accomplishments of priority projects, which include PDGI and the DRM project. The system has World Bank backing, and is managed by the Office of Organization and Methods (BOM) within the Presidency. A coordinator for PSE monitoring was appointed in March 2014. This Office is an alert mechanism to help make mid-course corrections in the implementation of the 27 projects and 17 reforms around which the PSE is structured.

MRAZI had been regularly monitoring PDGI project implementation. However PDGI's overall monitoring-evaluation system could be strengthened by the preparation of a program document that includes a clear results framework for all PDGI-related projects.



## ASSESSMENT OF CONSULTATIONS WITH STAKEHOLDERS

This part presents the results of consultations that were held collectively and individually with a variety of flood management stakeholders in Senegal.

A consultation meeting with key actors was organized on February 17, 2014, at the offices of the World Bank in Dakar. This one-day workshop provided the opportunity to present the initiative for preparation a guide for disaster recovery frameworks based on case studies. The case of Senegal is interesting for the country's experience in flood prevention and recovery policies. The workshop was attended by representatives of ministerial departments, NGOs, community-based organizations, and local communities (see annex 1). The consultations were broadened and completed by individual discussions targeting expertise in flood prevention and management and, in particular, those who did not participate in the workshop (also in annex 1).

These discussions shed light on the relevance and effectiveness of the policy adopted by the Senegalese government to manage floods, and the perceptions of stakeholders with regard to persisting shortcomings and gaps.

### RELEVANCE AND EFFECTIVENESS OF FLOOD PREVENTION AND RECOVERY POLICY

Efforts deployed by the government to manage floods has led to notable progress, as characterized by the following:

#### (i) At the institutional level

- A. The establishment of a national framework to coordinate the implementation of flood management policy in 2010 (National Committee for Flood Management), periodically regroups actors involved in flood management (local authorities, services responsible for town planning, sanitation, road infrastructure, civil protection etc.). It is a step forward in coordinating the definition of flood management strategies. However, this framework should be extended to all actors concerned with regional planning, town planning, and rural floods who are not sufficiently involved in a nation-wide integrated policy.
- B. The creation, in 2012, of a Ministry (MRAZI) specifically dedicated to the implementation of the flood management policy, was appropriate for the coordination of governmental policy on flood management and the many actors involved, a weakness that had been observed in past policies. MRAZI is evidence of the Government's stated desire to find a sustainable and effective solution to recurrent flooding. The ministry in charge of flood management must henceforth strive to

- (i) strengthen its coordination role of actors involved in the implementation of the PDGI,
- (ii) develop the overall and strategic vision of the PDGI, and (iii) monitor and evaluate PDGI projects.

## **(ii) At the political and strategic level**

- A. **The preparation of PDGI** as well as an accompanying annual budget is proof that the State of Senegal has the political will to move forward in a sustainable flood management policy. The experiment seems new in sub-Saharan Africa and could serve as an example to other African countries confronted with similar problems of recurrent floods, once these recommendations for optimization are addressed.
- B. The policy for restructuring flood zones and relocating the populations living in the low-lying areas is viewed positively by stakeholders, reflecting the government's objective of vulnerability reduction (Jaxaay and Yakaar). The relocation program should be consistent with the drainage master plans (DMP) that have been implemented or are in progress as they clearly indicate the locations of rainwater storage and/or evacuation systems that should be free of human settlement.
- C. **The preparation of Drainage Master Plans (DMP) and the construction of rainwater drainage** in flood-prone districts have effectively reduced flooding. The construction of these networks where there had been no drainage systems has already had an observable and positive impact in several neighborhoods of Dakar and other regions, in recent years.
- D. The implementation of projects for the reorganization of flood-prone zones has improved the quality of life in 'spontaneous' districts of Saint Louis and Dakar.
- E. On-going implementation of integrated flood management projects such as PROGEP, which seeks to manage floods through an integrated approach, takes into account risk prevention in town planning, the construction of drainage facilities and the involvement of communities.
- F. **Mapping flood-risk areas and updating the detailed land-use plan with this information.** The first generation of detailed land-use plans that include flood risks maps is being developed for Pikine and Guédiawaye. These legal documents, once finalized and validated, will be effective against third parties.

## **(iii) Community and private sector involvement**

- A. Local authorities were able to develop their organizational skills with a view to assisting flood-affected populations during the emergencies. Many of them had to organize themselves for the relocation of their disaster-stricken populations, given as a backing to the limited State means of government. Their crisis management efforts could be made more effective with the development of their capacities to prepare and organize emergency response. This could be supported by the PDGI, at least for the most flood-prone communes.
- B. Since 2009, local actors (such as neighborhood and mayors) have become more interested in pooling resources for flood management. Several neighborhood associations have been formed in affected zones, with activities centered on flood management. Most of them are not well organized however and often take ad-hoc action during the rainy season.
- C. The effective involvement of local authorities in the implementation of the national emergency plan (ORSEC).
- D. The involvement of the private sector, which provides supplementary material and logistical support for the implementation of ORSEC. This outpouring solidarity with disaster victims was particularly

remarkable in 2012, when media groups, sensitized public opinion about the needs for assistance to disaster victims. In the future, this spirit of solidarity should be better organized in the interest of transparency and effective coordination with governmental actions.

This progress, recognized by the stakeholders in flood management, does not yet suffice however for Senegal to manage flood risks serenely. Efforts are still needed at the institutional, legal and operational levels.

## **EFFORTS NEEDED TO CONSOLIDATE ACHIEVEMENTS**

Efforts made since 2012 to manage floods should be strengthened further. Analysis of these experiences since 2009 has highlighted several gaps, notably with regard to the preparedness, prevention and recovery aspects that have not yet been sufficiently addressed to manage future floods.

The discussions identified gaps and efforts that need to be pursued and structured around the following axes:

### **(i) At the institutional and legal level**

- A. Lack of clarity in the distribution of roles for implementing PDGI: need for better distribution and definition of the roles of each institution, public services and local authorities**
  - Lack of clarity reduces the effectiveness and efficiency of actions undertaken. It would be appropriate for the Government to clarify the roles, and for State structures to be empowered and even delegated to implement the sectoral PDGI projects. Through this strategy correction, technical expertise can be tapped, capacities in the prevention of flood risks strengthened and the sustainability of gains ensured, especially at the national level.
- B. Need for coordination of government stakeholders to ensure effective PDGI implementation.**
  - Senegal's flood management policy is relevant, but its implementation raises concern especially with regard to coordination. Indeed, the actions and initiatives lack synergy; they are dispersed and not coordinated, thus reducing the effectiveness policy implementation.
  - By way of example, for the implementation of PDGI, MRAZI coordinated a steering committee that regrouped some stakeholder organizations, such as the national fire brigade, ONAS, DPC, and the Municipal Development Agency. This framework should be extended to all actors concerned with flood management, notably, regional planning, town planning, stakeholders in urban, rural and hydrological flood management, who do not seem to be sufficiently involved and empowered in a national integrated policy.
  - The MRAZI should henceforth strive to strengthen its role of (i) coordination of actors involved in the implementation of the PDGI, (ii) development of the overall and strategic vision of the PDGI as well as (iii) the monitoring-evaluation of projects that form an integral part of the PDGI.
- C. Absence of leadership for the broader policy of risk prevention, the management of disasters and common tools for DRM at the national level**
  - DPC is not currently configured to be able to fully assume its role of coordinator and DRM policy manager at national level. Common risk and disaster management tools - such as an early warning system, a crisis coordination center, the platform for risk prevention and disaster reduction, the emergency response plan - should all be developed and kept operational by DPC at national level. Most of these mechanisms were defined at the strategic level with the support of the project on Risk and Disaster Management and adaptation to Climate Change (PGRC-ACC), financed by GFDRR. What remains is to make them operational. Senegal has already agreed to finance from its own budget the construction of a new head office for the DPC that would

meet international standards. Development partners would be called upon to provide additional support for making the system operational. The creation of an agency in charge of DRM has been recommended within the review of institutional frameworks for DRM in Senegal.

**D. Need to update the legal and regulatory framework for flood prevention and more generally, for the prevention of disaster risks**

- The obsolescence of existing legislation attests to the fact that regulations and legislation are not adapted to the real causes of flood, their control mechanisms and prevention policy. This legislation as well as more general risk prevention and disaster management policy should be reviewed and updated for a more effective vulnerability reduction policy.

**(ii) At the political and strategic level**

**A. Need to capitalize on experiences and studies before launching new initiatives**

- Before launching of any new initiative (risk mapping, among others), the government should capitalize and pool the data and information already available, especially to draw lessons from past experiences. Several institutions have databases that could be shared. MRAZI or the ministry in charge of flood management should consolidate this information in a central database that is accessible at any time. This would enable more accelerated decision-making in post-disaster emergency response and recovery. For example, interesting risk maps exist, including the low-lying suburbs of Dakar and the no-go zones suggested by the Ecological Monitoring Centre (CSE) in 2011, large-scale maps (at a scale of 2/1000th ) drawn by the National Regional Planning Agency (ANAT) as well as maps of no-go zones envisaged within the detailed land use plans financed by PROGEP.

**B. Need to strengthen the integrated flood management approach particularly with regard to town and regional planning in the PDGI**

- Regional and town planning need to be taken into account in the policy for flood prevention in the urban areas since they help pre-empt the proliferation of vulnerabilities caused by lack of drainage facilities, misuse of land and failure to make allowance for risks in urban development.
- The urban master plan and existing detailed land-use plans do not sufficiently integrate the flood risk dimension and are not systematically applied on the ground.
- Flood management should be conducted in an integrated manner by including risk management in regional planning and town planning, managing rain water/waste water/solid waste, constructing and operating (upkeep and maintenance) of developmental structures for rainwater drainage, and developing community commitment to the reduction of flood risks.
- The PDGI should develop a component dedicated to the integration of the risk within regional and urban planning, especially tools and mechanisms to “Build Back Better”, which can prevent the repetition of past errors in the future urban areas.

**C. Need to formalize and better organize the involvement of local authorities and communities in the implementation of PDGI**

- The involvement of local authorities and communities should be systematic, especially with regard to population displacement, local planning or the development of projects related to the ten-year plan. The conditions of dialogue with these local authorities must be mutually defined, formalized and made operational.

- Communities have a vital responsibility in the reduction of flood risks and the sustainability of investments, namely caring for drainage and preventing blockage by solid waste or pollution by wastewater. It would be advisable for PDGI to work with communities to develop local strategies for the preservation of no-go areas and maintenance of the drainage systems. These aspects do not seem to be sufficiently integrated. The accomplishments of PDGI might be compromised unless “soft” measures are developed to ensure that the populations take ownership of the drainage systems, fight against urbanization and uncontrolled land-use.
- PROGEP has a component dedicated to community activities that could be used as an experimental framework for strategies to be replicated nationally.
- Local authorities are not sufficiently equipped to manage post-disaster recovery. Their technical and organizational capacities with regard to preparedness, post-disaster response and recovery should be strengthened within the framework of the PDGI.

#### **D. Need to integrate river flooding management into PDGI**

- PDGI does not sufficiently address risks generated by the river and, in particular, the stakeholders in charge of monitoring water resources, the Directorate of Water Resource Management and Planning (DGPRE) and its decentralized services. Senegal is affected by both urban and rural floods, which touch large cities like Saint-Louis, Tambacounda, Kolda, Kaolack, Fatick. The ORSEC Plan in the region of Fatick was launched in 2013 following the overflow of a river resulting in the isolation of whole villages in the area for several days. There is need to integrate at least the main watersheds of Senegal in PDGI together with DGPRE.

#### **E. Need to raise awareness, communication and training in the culture of prevention**

- Myths regarding the contents and issues of the prevention policy may delay the effectiveness of action. For example, backfill embankments may help settle individual sanitation problems but can create more serious problems in the flow of water. Furthermore, embankments made with household refuse, which is current practice, results in the waterproofing of the soil. PDGI should strengthen activities for raising awareness in the culture of prevention.
- Lack of counseling and psychological support to the affected populations is also identified as a source of aggravation of vulnerabilities. PDGI should reinforce emergency response and recovery with effective counseling and support.

#### **F. Need for an operational mechanism to maintain the drainage systems**

- The construction of rainwater drainage networks should go hand in hand with a formal system for the operation and maintenance of the facilities, which usually does not exist. There is thus the need to ensure that its operationalization is given priority in the current ten-year program. Action must be taken to guarantee the financial viability of rainwater drainage and ensure the management of drainage channels under construction or finalized.

#### **G. Need to ensure that preparatory and emergency response mechanisms remain operational**

- PDGI neglects the integration of preparatory and emergency response measures. The country needs to ensure that its early warning mechanisms are operational and strengthened; it needs preparedness and response, primarily to floods and more generally to natural disasters, assuming that sustainable solutions (the construction of rain water drainage in particular) will take several years to be realized nation-wide. Since zero risk does not exist, and despite the construction of drainage facilities, the country will continue to be vulnerable to extreme events such as the heavy rains registered in Dakar on August 26, 2012, which caused enormous damage and left several districts under water for several days.

- Post-flood recovery and reconstruction should be the occasion to put in place a meteorological monitoring and reinforced early warning system. The needs of meteorological services should be taken into account within PDGI, in terms of equipment for weather surveillance and staff training.
- H. **Need to integrate the strategic framework and results framework in one document, to enable monitoring and evaluation of PDGI and its affiliated projects.**
- It is difficult to confirm the existence of an official document that defines global and sectoral strategy, monitoring-evaluation mechanisms, the results framework and the PDGI performance indicators. Such document should be prepared to enable the ministry in charge of flood management to better coordinate, monitor and evaluate the implementation of PDGI.

### **(iii) At the financial level**

- A. **Sustainable financial mechanisms need to be established for efficient implementation of PDGI**
- The government has made immense efforts, particularly since 2012, to finance a sustainable flood management policy. However, the system used to raise funds for PDGI does not seem secure or sustainable; the funds are mobilized annually, subject to available budget. A planning horizon and budget of at least three to five years would put program implementation on firm footing.
  - Mobilizing funding in times of crisis is still a long and complicated process. The Ministry of Interior recently prepared and adopted a manual of procedures for the mobilization and use of emergency funds, with the support of GFDRR and implemented by the DPC. This manual is intended to clarify and expedite the procedures for the mobilization and use of funds in case of emergency. It should operate constantly, notably through PDGI in order to improve emergency response. The experience should also be replicated by other structures having recourse to emergency funds, the ideal being however that only one manual with a harmonized content on the mobilization and use of emergency funds is jointly used by all the structures and actors involved in emergency operations.
- B. **Creation of emergency and recovery fund: ideally dedicated uniquely to emergency assistance in case of a disaster, that could be quickly accessible to emergency stakeholders.**

## **SUMMARY OF KEY RECOMMENDATIONS RESULTING FROM THE CONSULTATIONS**

The consultations held with diverse actors in the area of risk prevention and recovery provided an opportunity to list their recommendations, for government and decision-makers to draw upon in the implementation of PDGI and future flood management strategies. These key recommendations already discussed in preceding paragraphs are summarized in the table below.

Actions	Nature of action	Responsible Institutions	
		Institution	Responsibility
<b>Very Short Term (6 months)</b>			
1. Clarify the roles and responsibilities of each state structure and local administration involved in the implementation of PDGI activities	Institutional	Prime Minister's Office	Issue a decree that clearly defines institutional roles and responsibilities for PDGI implementation
2. Support the Ministry in charge of flood management in: a) coordination of PDGI stakeholders; b) development of strategic vision for PDGI; c) monitoring and evaluating PDGI projects	Institutional	Presidency and Prime Minister's Offices	Update the decree that created the Ministry for Flood Management (MRAZI), in function of the above decree and its definitions
		Ministry for flood management	Introduce operational tools for stakeholder coordination and PDGI monitoring
3. Prepare an integrated document on PDGI that includes a) the strategic framework and b) a results framework to enable M&E of related projects. Initiate the exercise with all stakeholders	Policy	Ministry for flood management Water & Sanitation Ministry (MHA) Ministry for Urban Development and Housing (MUH) Ministry of the Interior (MINT), for DPC and Fire Brigade Ministry of Territorial Planning and Local Administration (MATCL)	Organize preparation of the PDGI document  Provide inputs to this PDGI document (e.g. activities planned, schedule, costs, results, etc)
4. Identify a sustainable financing mechanisms for the ten-year program, and secure funding for at least 3 to 5 years, to enable the ministry in charge of flood management to plan and organize drainage construction and other PDGI activities	Financial	Ministry for flood management Ministry of Economy and Finance (MEF)	Transmit financial needs and plans to MEF  Program the PDGI budget in a triennial cycle to enable the ministry for flood management to improve planning and implementation of program components
5. Enable the water and sanitation sector to take charge of drainage construction and maintenance	Policy	MHA MATCL Ministère en charge des inondations	Finalize institutional mechanisms and financial viability studies to draft a decree for government approval  Participate in the process for defining the above  Catalog existing DRM tools (e.g. early warning system and emergency plans)
6. Avoid duplication of existing DRM tools (e.g. early warning system and emergency plans)		Ministry for flood management	Catalog existing DRM tools (e.g. early warning system and emergency plans)

Actions	Nature of action	Responsible Institutions	
		Institution	Responsibility
<b>Short Term (One Year)</b>			
7. Elaborate political and legal frameworks for mitigating disaster risk, including 1) a national strategy and 2) a legal framework for DRR, recovery and reconstruction	Policy	MINT	Update the national DRR strategy. Conduct a diagnostic study on the legal framework. Draft legal framework for DRR.
8. Integrate the challenges of flood management into strategies for territorial and urban planning	Policy	MUH MATCL	Update urban planning tools to include risk mapping. Update the national urban strategy to include risk mitigation.
			Update tools for urban management to include risk mitigation; similarly update national strategy for territorial management.
9. Public awareness-raising and training on the culture of prevention in the context of PDGI		Ministry for flood management Local Administrations	Integrate and implement IEC strategy together
10. Maintain response mechanisms for emergency operations		MINT Ministry for flood management	Finalize the updating of the operational framework of the national emergency plan. Organize annual simulation exercises. Prepare annual contingency plans for flooding with emergency response stakeholders.
11. Capitalize on experiences and studies by stakeholders before launching new PDGI initiatives		Ministry for flood management	Construct and update database on projects, studies and experiences on risk mitigation, focussing on flood management
12. Institutionalize simple and accessible financial mechanisms that enable rapid mobilization of funding for emergency response		MEF	Create an emergency recovery fund
13. Adopt the procedures manual for mobilizing and disbursing emergency funds, prepared by the Ministry of Interior		MINT MEF Ministry for flood management	Adopt procedures already approved by the Minister (and disseminate internally)
			Introduce a procedures manual for mobilizing and disbursing emergency funds to all public institutions involved in emergency management operations.
			Adopt procedures manual already elaborated by MINT and MEF
14. Reinforce DPC in its coordination role to implement DRM nationally. Make DRM more effective and operational by involving all institutional stakeholders		MINT	Ensure progressive approval of the draft decree that modifies the status of DPC. Ensure that DPC has the budget and human resources necessary for DRM mechanisms. Coordinate with all stakeholder institutions for DRM at national level

Actions	Nature of action	Responsible Institutions	
		Institution	Responsibility
<b>Medium to long term (1 to 5 years)</b>			
15. Strengthen institutional capacity to control the occupation of land		MUH	Extend the functions and capacities of the directorate in charge of land monitoring, control and occupation (DSCOS), with the possible support of PDGI.
16. Ensure that institutions responsible for drainage and water works, such as ONAS and the sanitation department, can also manage the networks		MHA	Reorganize ONAS by providing human and financial resources to maintain drainage systems around the country. Support the sanitation department in its coordination role to supervise implementation of rain water management and sanitation policies.
17. Strengthen the capacity of the national meteorology agency (ANACIM) in providing early warning of weather-related disasters		Ministry of Tourism and Air Transport (administrator of ANACIM)	Continue funding ANACIM's capacity-building program to strengthen surveillance and data collection around the country, including equipment and the means to modernize information management and analysis for early warning
18. Strengthen the community-based approach in PDGI: including activities to engage communities in flood mitigation and preservation of no-go zones, as well as maintenance of drainage works (as per experiences in component C of PROGEP)		Ministry for flood management	Include a component or sub-component dedicated to local administration and communities within PDGI
19. Implement an integrated approach to management of rain/waste water and solid waste to improve efficiency of investments in flood-prone areas.		Ministry for flood management MHA MATCL	Jointly implement PDGI through integrated management of rain/waste water and solid waste
20. Recognize the challenges of river flooding along with urban floods within PDGI (in terms of water flow and preservation of water beds)		Ministry for flood management MHA	Integrate river flood mitigation into PDGI
			Strengthen technical capacity of the Water Resources Planning and Management Department (DGPRES)
21. Develop a communication strategy for PDGI activities, as well as a strategy for sharing information with national and local stakeholders		Ministry for flood management	Prepare and implement communication strategy



## CONCLUSION

The conclusions drawn from these consultations reveal that the government of Senegal is resolutely on track with regard to flood management, but that adjustments need to be made at the strategic, organizational, and financial level to face future rainy seasons.

The analysis of this proactive policy has shed light on good practices to better anticipate disasters and manage recovery. Among these best practices and areas identified for improvement:

The analysis of this proactive policy helped shed light on good practices and avenues for improvement in order to better anticipate disasters and deal with the recovery phases while ensuring the improved efficiency of this policy. **The identified good practices and avenues for improvement, include the aspects below:**

### **POLITICAL WILL AFFIRMED IN THE NATIONAL STRATEGY**

The efforts made by the government thus far should be commended, particularly the development and implementation -mostly with government funds- of a ten-year program for sustainable flood management, estimated at over 700 billion FCFA (USD 1.4 billion) whose implementation is entrusted to an entity at ministerial level;

By choosing to invest up to 400 million FCFA (USD 800,000) for the construction of a new head office for the Directorate of Civil Protection to enable the latter to develop DRM activities and tools, the Senegalese Government displayed its commitment to promote Disaster Risk Management and, in particular, the prevention of floods, as a top development priority. Besides, the DRM, including flood management, is an integral part of the Emerging Senegal Plan, which is the government's priority development framework for 2014-2017. DRM is also one of the strategic axes of the National Economic and Social Development Strategy (2012-2017.)

### **ESSENTIAL INSTITUTIONAL MECHANISMS THAT NEED TO BE READJUSTED FOR EFFICIENT COORDINATION**

Public authorities have expressed a genuine desire to put in place an intervention system in response to risk prevention and disaster management needs. However, the general observation emerging from analysis of the DRR mechanisms in Senegal is that for this institutional tool to be fully effective, the inter-sectoral roles for organization and coordination need more clarity.

Operational processes such as the preparation or updating of prevention plans, the institution of early warning systems or the organization of simulation exercises, are all preparedness and recovery mechanisms that also need to be systematized and generalized.

To help strengthen the existing institutional mechanisms in Senegal, several initiatives emerged: the Project for Disaster Risk Management and Adaptation to Climate Change (PGRC-ACC), financed by GFDRR and implemented by DPC. This project, in its first phase, will support a national early warning coordination mechanism, improve emergency preparedness, develop a coordination and crisis management center, reactivate the national DRR platform and reinforce the status of DPC to enable it to better discharge its functions of coordination and implementation of DRR policies in Senegal. The second phase of this project should make the established mechanisms operational. The request for financing is being prepared for GFDRR.

### **Regional and urban planning: a priority to be strengthened in the short-term**

The construction of rainwater drainage systems and housing to relocate populations living in flood-prone zones registered substantial progress in 2013 and 2014. However, the regional planning project and the development of new urban centers require the government's full attention in the short-term, in order to integrate the global sustainable flood management strategy and ensure its effective application. In fact, the rules of land-use in general and urbanization in particular, are vital in DRM and, of course, in flood management.

Beyond ensuring harmonious socio-economic development for the entire country, an enlightened regional development policy will also better identify the areas prone to disaster risk, such as floods, and thus reduce exposure and vulnerability.

### **A NATIONAL COMMUNICATION PLAN FOR EFFECTIVE PREVENTION AND RECOVERY**

Disaster risks sensitization and information activities should be stepped up to encourage the adherence of all stakeholders, including the local population, to flood management policy and development of the culture of prevention at national level. The preparation and implementation of a national plan for communication and sensitization on risk prevention should enable actors (locally elected representatives, administrative authorities, civil society, and private sector) to both enhance their participation in the definition of DRM in Senegal and to contribute actively to the implementation of more efficient prevention and recovery policies.

## ANNEX 1: LIST OF STAKEHOLDERS CONSULTED FOR CASE STUDY

N°	Name	Organization	Title	Telephone	Email
1	Mr. Idrissa DIALLO	Réseau des Parlementaires	Député Maire de la commune d'arrondissement de Dalifort; Président du Réseau des Parlementaires en RRC	77.566.0327	Diallo_idy@yahoo.com
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5	Mr. Mbaye GNING	Union des Associations d'Elus Locaux		77.200.4188	mbayegsitie@gmail.com
6	Mr. Aliou DIOUCK	Mairie de Djeddah Thiaroye Kao	Maire	77.192.8217	Diouck.aliou@yahoo.fr
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8	Mr. Moussa THIAM	CADDTK			
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10	Pr Serigne FAYE	Université Cheikh Anta Diop (UCAD)		77.411.8395	fayes@ucad.sn
11	Mr. Ansoumana BODIAN	Université Gaston Berger (UGB)		77.811.7553	ansoumana.bodian@ugb.adm.sn
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16	Mr. El Hadji Daouda DIOP	ONAS/Ministère de l'Hydraulique et de l'Assainissement	Chef de Projets Travaux Programme d'Urgence de Lutte contre les Inondations	33.859.3531 77.569.5797	daouda.diop@onas.sn
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N°	Name	Organization	Title	Telephone	Email
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