



**PUBLIC**

Decision per capsulam (in written procedure)

## FINAL CONSIDERATION

### NDF C33 Senegal – Additional Financing for the project NDF C33 Senegal Flood Risk Management<sup>1</sup> (EUR 4 million)

#### PROJECT SUMMARY

<b>Sector:</b>	Flood Prevention/Control (CRS code 41050) Rio Markers: Adaptation: 2, Mitigation: 0
<b>Partner Country:</b>	Senegal
<b>Previous NDF Credits/ Grants to Country:</b>	Credits: SDR 37.0 million ; EUR 10.4 million Grants: EUR 14.0 million
<b>Partner Agency:</b>	The World Bank (WB)
<b>Mode of Financing:</b>	Parallel co-financing
<b>Relevance for NDF Strategy 2014-2015:</b>	The proposed NDF components are well-embedded in NDF's Strategy 2014-15 in terms of selected topics and approaches. NDF's proposed contribution will focus on the key climate change vulnerability and risks facing two priority cities, Diamniadio and Saint-Louis, and promote necessary climate-resilient planning, management and capacity-building to ensure post-project sustainability. The NDF activities will also explore opportunities for private sector involvement.
<b>Climate Change Screening:</b>	The proposed NDF components have been screened and fulfil the criteria for adaptation.
<b>Earlier Board Consideration:</b>	Pipeline approval 25 November 2014
<b>Status:</b>	The original project (PROGEP) was approved by NDF and WB in 2012 and is currently under implementation. Additional financing (AF) for this project was jointly appraised by the World Bank and NDF in November 2014. Expected World Bank Board approval date is 28 May 2015.
<b>Project Period:</b>	Implementation during 2015-19
<b>Cost Estimate and Financing Plan:</b>	Total project cost USD 42.3 million (approx. EUR 38.9 million <sup>2</sup> ) proposed to be financed by USD 35 million from the World Bank, EUR 4.0 million from NDF (approx. USD 4.3 million)), and USD 3 million from the Government of

<sup>1</sup> Called Senegal Storm Water Management and Climate Change Adaptation Project (PROGEP) by the World Bank.

<sup>2</sup> Exchange rate of 8 April 2015: 1 EUR = 1.08714 USD)

Senegal.

**Project Objective:**

The original PROGEP objective had a focus on peri-urban Dakar. The objective is proposed to be revised to include the broadened geographical scope and the sustainable cities framework. Hence the revised objective is to improve storm-water management and to promote climate-resilient cities for the benefit of local residents in selected urban areas.

**Project Description:**

The PROGEP components will remain the same under the AF except the establishment of a new sub-component supporting climate-resilient urban planning and management in Diamniadio and Saint-Louis. The proposed NDF AF support is of key importance and will be fully channelled to these two new urban areas.

**Description of NDF Components:**

The NDF-funded activities will focus on long-term urban climate-resilient planning and management. The activities will include (i) diagnostic studies and investigations on flooding risks, coastal zone instability threats, and other climate vulnerability issues; (ii) pro-active integration of climate adaptation into urban development planning and management through upgraded urban development plans, flood management and drainage plans; (iii) long-term monitoring programmes and necessary equipment and system investments; and (iv) strengthening of institutional capacity and associated partnership arrangements.

**Gender Marker:**

1

**Implementation Arrangements:**

The Municipal Development Agency (ADM) will remain the implementing agency.

**Procurement:**

The procurement arrangements including those for NDF components will remain the same as under the initial project with ADM in charge of all procurement activities. Four new consultancy contracts and one goods contract will be procured in accordance with NDF's procurement guidelines.

**Nordic Interest:**

Nordic municipalities and Nordic actors have accumulated experience and expertise in climate change that may be relevant for this project. Nordic cities like Copenhagen, Malmö and others in the Nordic City Network have resilience solutions for green planning, and flood control. Nordic companies and experts have experience with coastal zone management and climate change capacity-building.

**NDF's Added Value and Comparative Advantage:**

NDF has already added considerable value to the project through its active involvement in the identification, design, and appraisal of the AF where the NDF-supported activities in Saint-Louis and Diamniadio will form a centrepiece. The approaches and lessons learned from the NDF-supported Emerging and Sustainable Cities Initiative in Latin America, co-financed with Inter-American Development Bank, has inspired the design of the AF. Knowledge-sharing is expected to continue through exchange between relevant NDF-financed activities across countries, continents and institutions.

***Recommendation for Board resolution:***

***The Board approved additional grant financing of up to EUR 4 million to the project NDF C33 Senegal Flood Risk Management.***

Helsinki, 29 April 2015



Pasi Hellman  
Managing Director



Martina Jägerhorn  
Country Program Manager

## PROJECT SUMMARY

The original project (PROGEP) was approved by NDF and WB in 2012 and is currently under implementation. Additional financing is now proposed for this project to be co-financed by the World Bank, NDF and Senegal.

The objective of the initial PROGEP was to improve storm-water drainage and flood prevention in peri-urban areas of Dakar for the benefit of local residents. Progress towards the achievement of project development objectives as well as implementation performance has been considered continuously satisfactory by NDF and the World Bank. As of 30 October 2014, 148 hectares of flood-prone areas (of a target of 660 hectares) and 41,400 residents, (31% of the target of 132,000) have been protected from recurrent floods and storm surges as a result of the project implementation. Under the ongoing project, NDF supports the development of a national strategy, flood risk mapping, training, communication, and impact evaluation.

The PROGEP components will remain the same under the proposed additional financing except the establishment of a new sub-component supporting climate-resilient urban planning and management in Diamniadio and Saint-Louis. The proposed additional financing will be channelled to (i) storm-water drainage infrastructure investments in peri-urban Dakar (Pikine and Guediawaye); (ii) scale-up related community-engagement activities in peri-urban Dakar; (iii) reinforce integrated urban management in peri-urban Dakar; and (iv) upscale climate change resilient urban planning and management in two additional cities, Diamniadio and Saint-Louis.

NDF is proposed to support the activities in the two new urban sites. The NDF-funded activities will focus on long-term urban climate-resilient planning and management. The activities will include (i) diagnostic studies and investigations on flooding risks, coastal zone instability threats, and other climate vulnerability issues; (ii) pro-active integration of climate adaptation into urban development planning and management through upgraded urban development plans, flood management and drainage plans; (iii) long-term monitoring programmes and necessary equipment and system investments; and (iv) strengthening of institutional capacity and associated partnership arrangements.

A PROGEP extension of two years (until the end of 2019) will be required to mobilise and implement the proposed activities and achieve the revised project development objectives.

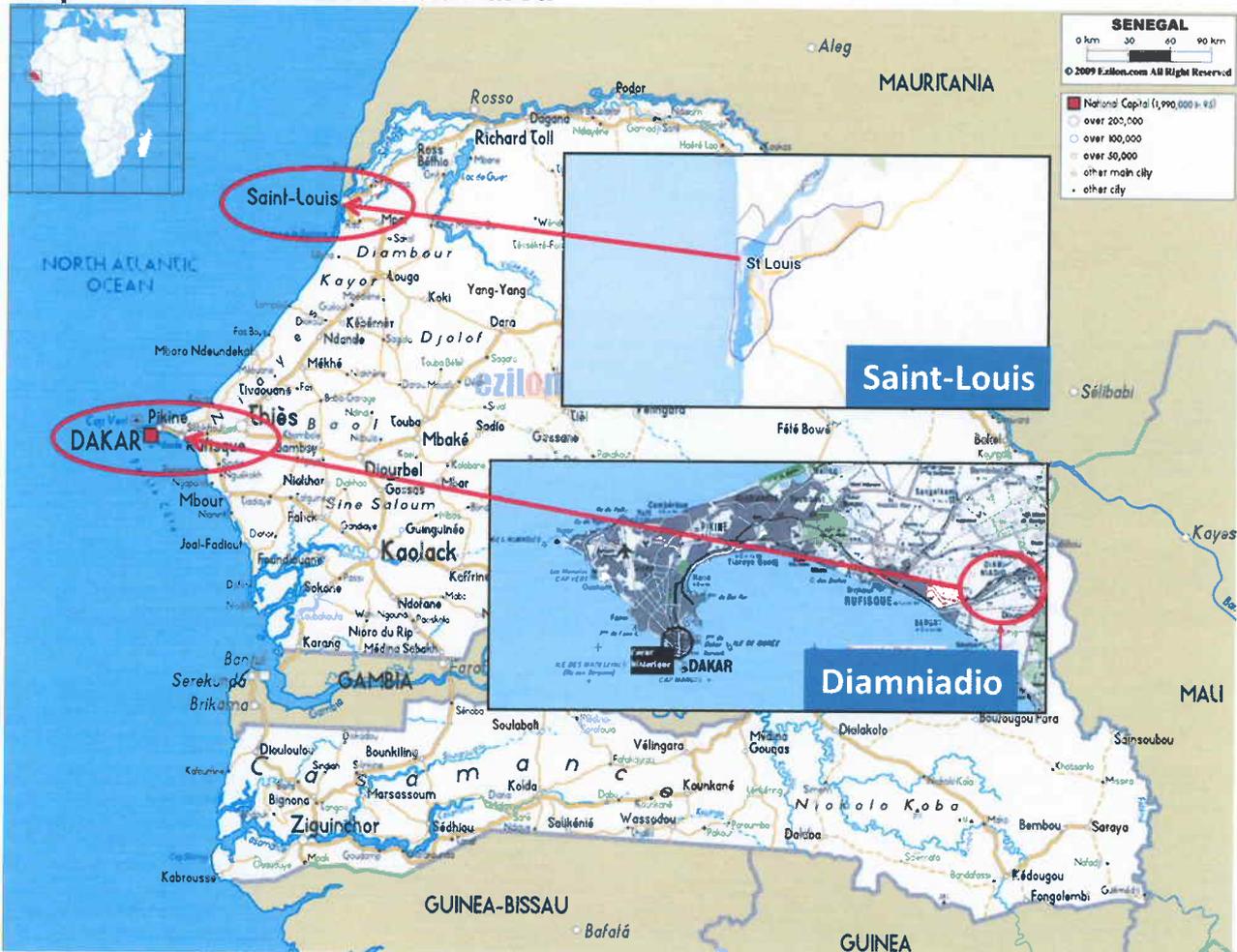
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## Abbreviations

ADM	Municipal Development Agency ( <i>Agence de Développement Municipal</i> )
AF	Additional Financing
DGPU	Department in charge of Diamniadio Urban Pole ( <i>Délégation Générale du Pôle Urbain de Diamniadio</i> )
DRM	Disaster Risk Management
GEF	Global Environment Facility
GIS	Geographical Information System
M&E	Monitoring and Evaluation
MTR	Mid-Term Review
NDF	Nordic Development Fund
ONAS	Senegal's National Sanitation Office ( <i>Office National de l'Assainissement du Senegal</i> )
PDU	Urban Master Plan ( <i>Plan Directeur d'Urbanisme</i> )
PROGEP	Storm-water Management and Climate Change Adaptation Project
PUD	Detailed Urban Plan ( <i>Plan d'Urbanisme de Detail</i> )
WB	World Bank
WRM	Water Resources Management

Map of PROGEP intervention area



## 1. INTRODUCTION AND PROJECT BACKGROUND

Sustainable development of cities is a national priority in Senegal. More than 40% of Senegal's population (totalling about 13.6 million people in 2014)<sup>3</sup> resides in urban areas. By 2050, the country's population is expected to increase to up to 25 million people, of which 16 million are expected to live in cities. About 40% of Dakar is projected to be informal settlements often located in flood-prone areas without provision of basic services.

The key focus of the initial PROGEP was to improve storm-water drainage and flood prevention in peri-urban areas of Dakar for the benefit of local residents. The main funding of the project was approved by the World Bank on 10 May 2012, and the NDF co-financing was approved by the Board on 10 March 2012. The current closing date of the initial PROGEP is 31 December 2017.

The bulk of the WB financing for PROGEP is for storm-water drainage infrastructure, whereas NDF supports the development of a national strategy, flood risk mapping, training, communication, and impact evaluation. Progress towards the achievement of project development objectives as well as implementation performance has been considered continuously satisfactory by the World Bank. As of 30 October 2014, 148 hectares of flood-prone areas (of a target of 660 hectares) and 41,400 residents (31% of the target of 132,000) have been protected from recurrent floods and storm surges as a result of the project implementation. WB's satisfactory rating of the project after two years of implementation is based on a satisfactory disbursement ratio, effective procurement, full compliance with fiduciary requirements and legal covenants, and effective risk mitigation. Safeguard compliance is also considered satisfactory.

The NDF activities under the current PROGEP are still in early stages and two of the seven NDF funded contracts are scheduled to be procured later. NDF has carried out several monitoring missions of the project, at times also jointly with the WB. NDF rates the project performance as well as collaboration between NDF, the World Bank and the Implementing Agency as highly satisfactory; the interactions have been of high quality and speed in all project-related issues during the different stages of the project.

The proposed Additional Financing (AF) would (i) support storm-water drainage infrastructure investments in peri-urban Dakar (Pikine and Guediawaye); (ii) scale-up related community-engagement activities in peri-urban Dakar; (iii) reinforce integrated urban management in peri-urban Dakar; and (iv) upscale climate change resilient urban planning and management in two additional cities, Diamniadio and Saint-Louis. NDF is proposed to support the activities in the two new urban sites. A PROGEP extension of two years will be required to mobilise and implement the proposed activities and achieve the revised project development objectives.

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<sup>3</sup> CIA World Fact Handbook: Senegal

## **2. RELEVANCE AND RATIONALE**

### **2.1 Lessons Learned from the Original PROGEP**

The ongoing project was designed to establish an urgently-needed storm-water drainage system in peri-urban Dakar to avoid reoccurrence of the disastrous 2009 floods (curative action) and to lay the foundation for climate-resilient urban planning and management. The PROGEP experiences and lessons were meant to contribute to the development of sustainable and resilient cities in Senegal including national resilient urban strategy and programme as unplanned urban areas are recognised to be the main reason for flooding in Senegal. The additional financing project will build on this experience by supporting the sustainable city concept and climate change resilience, including diagnostic studies and implementation action plans, in the new sites.

Implementation of PROGEP has demonstrated the important role of having a robust drainage master plan and the associated appropriate infrastructure in place to protect flood-prone areas of the Dakar region. It has also shown the necessity of clarifying and confirming the role and responsibilities of the institutional stakeholders for ensuring the viability of the drainage infrastructures through a sustainable operation and maintenance mechanism. Based on lessons learned, a bigger role will be given to Senegal's National Sanitation Office (ONAS) as the institution responsible for storm water drainage operation and maintenance. The original project design emphasised the importance of strengthening community engagement in the planning, monitoring and management, and this design choice has proven successful. Operations and maintenance will remain critical aspects of Senegal's flood management strategy. This aspect will continue to be strengthened under the AF project.

PROGEP has made evident the added value of climate risk mainstreaming in urban planning and management for the sustainability of the flood management system including drainage networks. NDF's support for capacity-building both in the original PROGEP and in the proposed additional funding is well-placed to capture and build on knowledge and lessons. This added value will be seen, for example, in training, communication and awareness activities to be extended to the new geographical areas. The proposed new activities will also be guided by a national strategy for integrated urban planning and management taking into consideration flood risk prevention and adaptation to climate change financed by NDF under the original project.

### **2.2 Project Relevance**

The proposed AF is needed to support infrastructure investments and scaled-up interventions, and to introduce new activities aimed to reinforce the impacts of PROGEP. The biggest part of the additional resources will support the construction of drainage infrastructure in the Mbeubeuss solid waste deposit in Pikine in the Dakar region. These costs are proposed to be financed by the World Bank and Senegal. During the first year of implementation, it became evident that additional funding would be needed from the World Bank and Senegal to complete the necessary work related to storm-water drainage infrastructure investments: the initial project design and cost estimates were based on information and data from the interim Dakar Metropolitan Drainage Master Plan and considered as preliminary estimates by the World Bank. It was thus already expected in the design phase of the original project that the budget would need to be revisited, but it was decided to advance to implementation swiftly due to the high priority that this project has in Senegal. The costs were recomputed after the detailed master plan technical studies were issued and approved and serve as a base for the AF request.

The NDF-funded activities will support the upscaling climate change resilient urban planning and management in the two cities with different characteristics. Diamniadio is located 30 km from the city center of Dakar and is part of the Dakar region. It is at the heart of a governmental priority development project expected to serve as Senegal's urban model for a sustainable, carefully planned and managed city relieving the pressure on Dakar's uncontrolled growth. Saint-Louis is a historical city exposed to multiple natural hazards exacerbated by climate change. The Saint-Louis region is an important contributor to national output in fishing, tourism and horticulture.

The two cities to be added to the project have also been proposed to be nominated pilot cities under the GEF Sustainable Cities Initiative. Based on the dialogue between the government of Senegal and the GEF Secretariat, Senegal believes that Diamniadio and Saint-Louis are strong candidates for becoming Sustainable Cities pilots. If this GEF financing is confirmed later in 2015, these interventions would be complementary to the NDF-funded interventions.

The additional financing from NDF and World Bank will contribute towards ending extreme poverty by reducing losses of assets amongst the poorest population living in peri-urban Dakar, Diamniadio and Saint-Louis and promote shared prosperity by improving the urban-environmental quality. The project's revised development objectives are consistent with the WB's Senegal Country Partnership Strategy 2013 to 2017 that supports Senegal's new national development strategy 2014-2035 (Plan Sénégal Emergent). Moreover, the proposed intervention is in line with and complements programmes and projects supported by Senegal and its partners in water and sanitation, urban development, climate change, as well as coastal and disaster risk management. The proposed NDF activities are well-aligned with NDF's involvement in the original PROGEP and tie in well with the scope and objectives of the upgraded project.

### **2.3 Relevance to NDF's Mandate and Strategy**

The proposed NDF involvement under the AF is considered relevant for NDF's Strategy 2014-2015, both in terms of focal topics and applied approaches. It addresses all three cluster areas of NDF's Strategy; namely (i) Infrastructure (urban development and water management, climate vulnerability/resilience); (ii) Natural Resources (water resources management, sustainable land use, coastal zone management); and (iii) Climate change related capacity-building of the involved authorities to ensure post-project sustainability. The NDF financing will also explore opportunities for private sector involvement through a diagnostic study, which will explore the current situation as well as opportunities to engage private sector in adaptation to climate change.

The proposed NDF components benefit from and build upon approaches developed under similar projects. The NDF - Inter-American Development Bank co-financed Emerging and Sustainable Cities Initiative (NDF C40 and NDF C68) provides an especially strong model. This initiative includes development of methodology comprising diagnostic studies, risk modelling and vulnerability assessments, urban governance and management to promote climate resilient urban planning and adaptation measures including pilot micro-projects. The Diamniadio component will significantly benefit from previous NDF-funded credit for modelling and strategic studies on the Maastrichtian aquifer<sup>4</sup> as an important groundwater resource for the Dakar region.

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<sup>4</sup> In Senegal, groundwater is the major source- 80%- of drinking water supply. The Maastrichtian deep aquifer is the most important groundwater source.

NDF's engagement in the PROGEP AF has been subject to internal climate change screening and has passed the screening criteria.

### **3. THE PROPOSED PROJECT**

#### **3.1 Objective**

The original project objective is proposed to be revised to include the broadened geographical scope of Diamniadio and Saint-Louis. The revised PROGEP objective is thus to reduce flood risks in peri-urban areas of Dakar and improve capacity to plan and implement sustainable city management practices, including climate-resilience, in selected urban areas.

#### **3.2 Project Activities**

The AF activities are structured around the four original PROGEP components:

A. Flood risk mainstreaming in urban sector (to be renamed Integration of climate risks in urban planning and management):

A.1 Urban planning and management;

A.2 Institutional strengthening of central government departments and municipalities; and

A.3 Piloting sustainable cities through climate-resilience measures (new subcomponent).

B. Drainage investments and management:

B.1 Drainage investments; and

B.2 Operating and maintenance of drainage system.

C. Community engagement in urban flood risk reduction and adaptation to climate change:

C.1 Flood resilience awareness, communication and community capacity building; and

C.2 Flood risk reduction community investments.

D. Project Coordination, Management, Monitoring and Evaluation

The NDF support is proposed to fall under subcomponent A.3. The World Bank will support complementary activities under the same subcomponent such as knowledge management, promotion of inter-communal cooperation, as well as validation and implementation of priority investments and micro-pilot projects. In addition to the proposed AF, Senegal expects to access funds in late 2015 from GEF's Sustainable Cities programme for complementary activities. The total financing expected from GEF is USD 8 million to be executed through the World Bank and United Nations Industrial Development Organisation (UNIDO) in support of improving capacity to plan and implement sustainable city management practices, renewable energy, integrated waste management, and a planned sustainable industrial park in Diamniadio. NDF's support to enhanced private sector involvement will be designed to complement and pave the way for related activities supported by Senegal and its partners as well as by the above-mentioned activities financed by WB, GEF and UNIDO.

#### **3.3 NDF Components**

NDF's AF will be used to augment and pilot climate vulnerability assessments and adaptation measures under the sustainable cities concept in the evolving urban development pole of Diamniadio and Saint-Louis. The activities financed by NDF under the original project will serve as valuable building blocks for scaling up activities in the two new urban sites. As the costs of the

NDF contracts have been in line or below the budgeted amounts, the balance from the original grant is proposed to be used for some of the scaled up activities. Three of NDF's six contracts under the original financing can be expanded to provide technical assistance in communication, training and geographic information system (GIS) activities for the new urban sites.

The new additional NDF activities will:

**Pilot sustainable cities through climate resilience measures in Diamniadio through:**

**-A diagnostic study and city action plan including:**

- (i) Environmental and natural resources sustainability;
- (ii) Urban planning and management climate focus;
- (iii) Urban governance and fiscal management with focus on climate vulnerability and risks;
- (iv) Private sector development opportunities and actions;
- (v) City action plan focused on climate-resilience.

**-A catchment study and drainage master plan including:**

- (i) Urban catchment study climate focused field investigations, data collection, and modelling of urbanisation and natural resources response affected by climate change; and
- (ii) Climate responsive drainage master plan including costs, institutional arrangements and implementation modalities.

**-An update and extension of the detailed urban master plan (PUD) including:**

- (i) Up-dating the existing urban plan with integration of climate risk; targeted capacity-building for urban authorities and community stakeholders related to urban planning;
- (ii) GIS-based climate vulnerability and risk mapping to guide urban planning;
- (iii) Integration of climate-resilience into the city drainage master plan; and
- (iv) Strengthening of climate governance.

**Pilot sustainable cities through climate-resilience measures in Saint-Louis through:**

**-A diagnostic study and city action plan including:**

- (i) Environmental and natural resources sustainability;
- (ii) Urban planning and management with a climate focus;
- (iii) Urban governance and fiscal management with a climate vulnerability focus;
- (iv) Private sector development opportunities and actions; and
- (v) City action plan with focus on climate resilience.

**-The design and implementation of a coastal zone environmental model and monitoring system for Saint-Louis including:**

- (i) Prepare plan for data collection monitoring, modelling, and climate risk analysis in city, estuarine and coastal areas;
- (ii) Establish climate focused data collection and modelling systems for climate modelling, assessments and knowledge generation;
- (iii) Investigate climate-related issues, and modelling on geotechnical, sedimentary, hydro-dynamic and hydro-sedimentological conditions;
- (iv) Assess urban climate change vulnerability and impacts under various scenarios; and
- (v) Establish and launch post-project modelling, monitoring, evaluation, and dissemination programme including costs, training, implementation, handing-over, and launching.

**-The development of a partnership protocol for the management of the model and acquisition of equipment** including:

- (i) Develop methodology and partnership protocol for implementation of modelling and monitoring activities including coordination mechanisms and operational support; and
- (ii) Procurement of equipment and systems and support identified by the diagnostic and planning study. The hydro-meteorological systems and services to be supported are based on applied technology that is widely used.

**-The update and extension of the urban master plan (PDU)** including

- (i) Updating of the Urban Master Plan (PDU) so that climate change risks are integrated to the plan, and related capacity-building of authorities and community actors;
- (ii) Establishment of GIS-based climate vulnerability and risk maps to guide urban planning and management;
- (iii) Integration of climate resilience city drainage master plan; and
- (iv) Strengthening climate change management and governance.

**-The establishment of a territorial GIS for Saint-Louis** including:

- (i) Establish multi-user GIS system for climate impact simulation, vulnerability analysis, production of risk maps, and information and knowledge sharing; and
- (ii) Implement the GIS services to guide urban planning and management.

**-Communication and awareness-building.** This will be an extension to ongoing activities including:

- (i) Systematic sharing of information on interventions, progress, and achievements; and
- (ii) Awareness-raising events engaging public society, stakeholders and beneficiaries.

The proposed NDF components are described in more detail in the tentative logical framework presented in Annex 1.

### 3.4 Cost Estimates and Financing Plan

The provisional cost estimate for the PROGEP AF including the proposed NDF-funded contribution of EUR 4 million are summarised in the table below.

**Original and AF PROGEP AF Cost Estimates in USD millions\***

Current Component Name	Original Budget	Proposed AF Budget
A. Flood risk mainstreaming in urban sector (renamed Integration of climate risks in urban planning and management)	3.8	5.8**
B. Drainage investment and management	55.7	33.0***
C. Community engagement in urban flood risk reduction and adaptation to climate change	4.8	1.5
D. Project coordination, management, monitoring and evaluation	9.2	2.0
<b>Total</b>	<b>73.5****</b>	<b>42.3</b>

\* NDF contribution will be in EUR.

\*\* This figure consists of around USD 4.3 million from NDF and USD 1.5 million from WB. In addition, Senegal is expected to access funds (about USD 8 million) in late 2015 from GEF's

emerging integrated programme on sustainable cities aiming at demonstrating innovative models of sustainable urban management and high impact investments. The NDF-funded interventions are not dependent on the GEF funding; the GEF activities will serve as supplementary contribution to the activities for which NDF has paved the way.

\*\*\* This figure consists of USD 30 million from the World Bank and USD 3 million from Senegal.

\*\*\*\* This figure consists of USD 4 million from NDF and USD 69.5 million from WB.

### **3.5 Nordic Interest**

The Nordic countries have knowledge and solutions relating to flooding, coastal erosion and planning of sustainable cities. Nordic municipalities and Nordic actors have accumulated experience and expertise in climate change that may be relevant for this project. Nordic cities like Copenhagen, Malmö and others in the Nordic City Network have resilience solutions for storm water management, green planning and flood control.

Nordic companies and experts have experiences with coastal zone management, climate change capacity-building, training and institutional development. In addition, Nordic institutions and Nordic companies have extensive experience with sustainable city planning and management, coastal erosion, hydro-meteorological services and flood and water resources management. Some fifteen Nordic companies have been actively engaged in NDF-supported projects in Senegal since 1990 and they have developed working relations with Senegalese consultants and sound insight in the country's governance structures and institutions.

Knowledge-sharing is expected to continue also through exchange between NDF-financed activities across countries, continents and institutions. The project is expected to benefit directly from Nordic expertise in other projects. Senegal and the project have already and will in the future continue to learn about other projects financed by NDF and others where Nordic actors are involved. For example, the project has already in its design phase been inspired by work carried out under the NDF-funded Emerging Sustainable Cities Initiative in Nicaragua and Honduras. Also, since knowledge-sharing events will be arranged e.g. under the NDF-financed small grant facility project West Africa Coastal Erosion and Adaptation Project and under the Emerging Sustainable Cities Initiative, there may be additional opportunities for sharing experience between countries.

### **3.6 NDF's Added Value and Comparative Advantage**

NDF engaged a consultant to participate in the preparation, design, and appraisal of the PROGEP AF. Value has been added to the project through the consultant's active participation in design and planning of Saint-Louis and Diamniadio under the sustainable cities approach. Knowledge and lessons learned from the two cities will benefit from further replication and up-scaling. NDF has particularly advocated for enhanced inclusion of the private sector in the PROGEP through diagnostic studies and action plans specifically targeting private sector involvement. These activities will explore and pursue opportunities for private sector involvement in urban climate change adaptation in terms of resource mobilisation, follow-up investments, and contribution to future upscaling, investments and economic activities.

NDF has actively shared documentation on approaches and methodologies from the Emerging and Sustainable Cities Initiative with the World Bank and with the Implementing Agency in Senegal, which has been appreciated, and which has inspired project design. This includes how to select the stakeholders, undertake diagnostics and identify problems, filters and priorities, as well as strategies

and solutions for planning and implementation. NDF has also shared examples of meaningful indicators and monitoring frameworks.

The applied approach may break new ground by demonstrating the importance of tackling urban climate change challenges across different sectors and authorities. The interventions in Diamniadio will also directly benefit from a previous NDF-funded project<sup>5</sup> which produced a hydrogeological study of the Maastrichtian Aquifer that included groundwater studies, modelling, long-term water security planning, education, and institutional capacity-building of the Water Directorate (DGPRE), one of the key partners of the AF interventions. NDF also benefits from being a recognised and long-term funding partner in the Saint-Louis region through previous projects on water security in Saint-Louis and Senegal River studies.<sup>6</sup>

## **4. IMPLEMENTATION ARRANGEMENTS**

### **4.1 Technical Aspects**

The selection and design of the NDF components is based on comprehensive discussions with authorities, stakeholders, and other partners in Diamniadio and Saint-Louis during the joint WB/ADM/NDF appraisal mission in November 2014 and the supplementary WB/ADM missions to Saint-Louis in December 2014 and March 2015. The missions discussed the contents and synergies between the different sub-components and activities to ensure coherent expectations and impacts. Supported by a technical working group, ADM leads the elaboration of Terms of References for the contracts, technical aspects, and detailed activities of the NDF funded sub-components, and the documents are shared with NDF and WB for comments and subsequent NDF approval.

### **4.2 Institutional Aspects and Project Organisation**

There are only minor modifications to the implementation arrangements under the AF that also apply to the NDF-funded components. ADM will remain the implementing agency responsible for all fiduciary aspects (procurement, management as well as safeguard compliance monitoring and coordination). Some adjustments will be made based on lessons learned from the initial project. City authorities and other stakeholder representatives from the two cities added to the project will be included in the existing project management structures (including a management committee and a technical committee). The department in charge of Diamniadio Urban Pole (DGPU), the city authorities of Saint-Louis and several stakeholder groups will thus be actively involved in project planning, execution, coordination and monitoring in the two cities.

### **4.3 Procurement and Contract Structure**

A procurement plan for the AF has been prepared on the basis of discussions between NDF, WB and ADM. The procurement arrangements and procedures will remain the same as in the original project. ADM will continue being responsible for procurement including the NDF-financed activities. ADM has considerable technical and fiduciary experience from management of similar projects and also benefits from lessons learned from the initial phase of the project. The grouping of project activities in suitable contract packages has been discussed between NDF, WB and ADM. The recommended contract structure is the following:

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<sup>5</sup> Funded under the credit NDF 150 Senegal Water Sector Project

<sup>6</sup> Funded under the credit NDF 276 Long Term Water Sector Project: Water Sector Management

### Proposed NDF Funded Contracts

Contract No	ACTIVITY	EUR
<b>Consultancy contract 1</b>	Diagnostic Study and City Action Plan for Diamniadio	204 000
<b>Consultancy contract 2</b>	Catchment study and Drainage Master Plan and Update and extension of the Detailed Urban Master Plan (PUD) for Diamniadio	680 000
<b>Consultancy contract 3</b>	Diagnostic Study and City Action Plan Update and Extension of Urban Master Plan (PDU) for Saint-Louis	476 000
<b>Consultancy contract 4</b>	Design and Implementation of a Coastal Zone Environmental Model and Monitoring System including Development of a Partnership Protocol for the Management of the Model for Saint-Louis	1 496 000
<b>Goods contract 1</b>	Equipment and systems such as computer hardware, software (relating to hydrodynamic models, hydraulic modules, mapping and data management), survey instruments, sampling systems, and monitoring equipment; all based on applied technology that is widely used)	816 000
	Contingency	328 000
	<b>TOTAL</b>	<b>4 000 000</b>

In addition to the above new contracts, it is foreseen that some of the new activities can be added as amendments to existing contracts. For example, NDF currently finances three ongoing contracts related to training, communication and awareness-building and geographic information systems (GIS) in the original project target area of peri-urban Dakar. Extending these services to cover the new geographical regions is expected to be not only cost-effective but also represent concrete examples of how the results and experience gathered from the original PROGEP can be used in the second phase of the project. There is a sufficient balance from the initial grant to cover these types of activities, and also to serve as an additional contingency for the activities foreseen under the additional financing project.

The procurement of the consultancy contracts will be subject to quality and cost-based selection. The terms of references for the different consultancy contracts and the technical specifications of the goods contract will be prepared by ADM on the basis of preliminary drafts prepared by the NDF consultant participating in the joint NDF-WB appraisal mission.

#### 4.4 Risk Analysis

The joint appraisal mission assessed critical risk factors related to project implementation and sustainability and identified possible mitigation measures. The mitigation of the risks includes lessons learned during the initial project. The risks of underestimating the construction costs again (specific to the World Bank and Senegal-financed Dakar activities) have been minimised through the updated feasibility and design studies. The risk of inefficient implementation management and poor public response is mitigated through participatory approaches with partners and stakeholders to identify and motivate the key executing partners and beneficiaries. The paperwork and communication between the executing agency ADM and the funding agencies will also be streamlined on the basis of lessons from the initial phase. A summary of risk factors and mitigation measures are summarised below.

### Summary of Risks and Mitigation Measures

Risk	Rating*	Mitigation Measures
Political and governance challenges may occur	M	Political and governance challenges will be resolved by multi-disciplinary and concerted efforts with the participation of local actors.
Sector strategies and policies may affect the project	S	AF is consistent with key partnership, sector, and disaster risk management strategies.
Technical design of project may be weak	S	The design and approach will profit from being reviewed by national and international experts and will also apply models and approaches proven successful elsewhere such as the sustainable cities framework and the NDF-supported emerging cities initiative in Latin America.
Institutional capacity for implementation and sustainability may be weak	S	Efficient project implementation and response by ADM and key stakeholders is expected based on lessons learned from the initial PROGEP and extensive preparation efforts to engage and motivate executing partners. Another mitigating factor is the strong involvement of the decentralised operational and oversight structures in the two new cities.
Fiduciary weaknesses may occur	M	Lessons learned from initial PROGEP
Environment and social impact may be negative	S	The Environment and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) have been updated to reflect the adjusted scope of activities.
Stakeholders' response may be weak	M	The risk of poor public response will be mitigated by outreach activities aiming at enhancing local involvement
Integrity issues may occur	M	NDF has already and will continue to raise awareness of NDF's anti-corruption guidelines which now are available also in French.
Project start-up may be delayed	M	NDF financing could be provided as an amendment to the existing grant agreement, which is expected to speed up processing.
NDF components may experience cost overruns	L	The total cost estimate contains a contingency which can, if needed, accommodate price increases and unforeseen expenditures. There are also some unallocated funds under the original PROGEP which can be used.
Private sector involvement may be weak	M	NDF can actively mitigate the risks when contributing to the draft Terms of References relating to private sector engagement.
<b>OVERALL</b>	<b>S</b>	

\* H: High; S: Significant; M: Medium; L: Low

Given the complexity of the project, involving many stakeholders, institutional leadership and coordination challenges, the environmental and social issues as well as the structural sustainability risks, the overall risk is rated S (significant).

#### **4.5 Monitoring and Evaluation**

The Monitoring and Evaluation (M&E) arrangements of the parent project will continue to apply. Progress reports covering the project are provided to NDF and WB on a semi-annual basis. ADM's M&E system for the PROGEP - considered a good practice - has been adjusted to match the revisions introduced for the AF. Monitoring and reporting will be shared with new stakeholders. The NDF components will be integrated in the World Bank's result based management structure. NDF and the World Bank will continue the close collaboration also in monitoring and aim at conducting for example joint supervision missions.

### **5. ECONOMIC AND SOCIAL ASPECTS**

#### **5.1 Economic Justification**

The WB has carried out an updated economic analysis which shows a significant social benefit accruing to population and notably to poor communities. Although the focus of the analysis is on the civil works (representing the biggest part of the total AF costs), other project components, such as the activities scaled up in new areas with the support of NDF, will also generate additional benefits.

A number of socioeconomic and environmental benefits could accrue with the implementation of the AF which could not be valued in detail. A "without project" scenario could include a multitude of direct and indirect effects for example on health (premature death, drowning, injuries, water-related and vector-borne diseases); environment (ecosystem services disruption, water resource pollution, sea water intrusion, land degradation); carbon emissions (air pollution due to additional traffic jams, animal putrefaction, vegetal decomposition); damages (infrastructure such as transport, energy and water, land, household, business, private property including vehicles); social (such as disruption of health service, schools, universities); and loss of economic opportunities (such as loss of wages, time, yield, sales, commerce, tourism). On the basis of this scenario, it is judged that the present value of cost savings in future investment and operating costs attributable to the NDF contribution exceeds the cost of the component.

#### **5.2 Social Aspects**

The AF supports the overall development poverty reduction goals by reducing losses of public and private assets and protecting residential homes and human life and health amongst the poorest population living in peri-urban Dakar, Diamniadio and Saint-Louis. Women and children, who are now exposed to floods, permanent high levels of stagnant moisture in their homes and polluted water, are among the primary beneficiaries. Women are also specifically targeted in all NDF-financed training focusing on institutional capacity-building. The project will also contribute to improved mobility and access to social infrastructure and services during the rainy season, and job opportunities through community investments and maintenance of drainage works. Additional beneficiaries will include the local government and municipalities in the two new sites and ultimately the inhabitants of these cities. Diamniadio will account for some 40,000 and Saint-Louis some 160,000 direct and indirect beneficiaries. Environmental and social risks will be minimised by the updated Environment and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) to include the two new cities.

## **6. CONCLUSION**

The proposed NDF involvement under the AF is highly relevant for Senegal's, NDF's, the World Bank's strategies and policies and has passed NDF's screening criteria for adaptation. The activities will generate applied climate information and knowledge that will be integrated into urban development planning together with capacity-building which will ensure sustainability. The additional financing will build on the activities and lessons learned from the original PROGEP financed by NDF and the WB. The NDF financing will explore private sector opportunities and support private sector involvement. The NDF components will benefit from approaches and lessons learned from other projects funded by NDF and others and could serve as a model for further replication and up-scaling in Senegal and in other vulnerable countries.

## ANNEX 1: TENTATIVE LOGICAL FRAMEWORK FOR THE PROPOSED NDF COMPONENTS

HIERARCHY OF OBJECTIVES	RESULTS	BENEFICIARIES	KEY INDICATORS	TARGETS AND TIME FRAME	MEANS OF VERIFICATION	RISKS AND MITIGATION
<p><b><u>Overall Objective</u></b>            Improve storm-water management and to promote climate-resilient cities for the benefit of local residents of Diamniadio and Saint-Louis.</p>	<p><b><u>Impact</u></b>            Contribution to improved living conditions of the urban residents by applying preventive measures against the expected impacts of the escalating climate instability on urban environment, settlements, infrastructure and livelihood</p>	City authorities and regional authorities, universities and research institutions, private sector, and city populations of 200,000	<p>Number of people and entities directly or indirectly benefitting from the improved quality of urban development planning and governance.</p> <p>Tools related to urban resilience, including climate change, adopted</p>	<p>200,000 beneficiaries (of which 50% female) supported by December 2019</p> <p>Site-specific scorecards will be developed for Diamniadio and Saint-Louis.</p>	ADM progress reports, supervision and review missions, MTR, evaluation reports. Publications and outputs from the Knowledge Management component	<p>Political and governance challenges to be resolved by multi-disciplinary and concerted efforts with the participation of local actors.</p> <p>Risk of weak political support is low due to AF being consistent with key partnership, sector, and disaster risk management strategies.</p>
<p><b><u>Objective</u></b>            Strengthened climate-resilience in the two cities.</p>	<p><b><u>Outcomes</u></b>            Evolving benefits to residents due to improved knowledge, climate-focused urban development, institutional strengthening and resource mobilisation</p>	City authorities and regional authorities, universities and research institutions, private sector, and city populations	Foundation for climate-resilient planning and development actions established and operational	Improved knowledge and climate-resilient development and early pilot investment taking hold by December 2019	See above	<p>The risk of poor technical designs are mitigated by involving the best international and national experts to contribute to the design and by applying models proven successful</p>

<b><u>Activities</u></b>	<b><u>Outputs</u></b>	<b><u>Beneficiaries</u></b>	<b><u>Key Indicators</u></b>	<b><u>Target and Time Frame</u></b>	<b><u>Means of Verification</u></b>	
<b>Sub-Component A.3.1 Piloting sustainable cities through climate resilience measures in Diamniadio</b>	Climate impact knowledge strengthened and effectively integrated into urban planning (PUD), management, and resource mobilisation  Enhanced private sector recognition and involvement in climate resilience promotion and resource mobilisation	City authorities and regional authorities private sector, population of 40,000	Climate impact knowledge in city strengthened and effectively integrated into PUD, and implemented	Compliance with indicator by December 2019	Project reports and deliverables. ADM progress reports, supervision and review missions, MTR, evaluation reports. Publications and outputs from the Knowledge Management component	elsewhere (e.g. the sustainable cities framework and the NDF components will adopt appropriate city approaches like the one applied in Latin America)  The risks of insufficient institutional capacity for implementation and sustainability is mitigated by efficient implementation by ADM and executive entities based on lessons learned from initial PROGEP and extensive motivation of executing partners
Diagnostic study and City Action Plan Diamniadio including: -Environmental and Natural Resources Sustainability -Urban planning and management climate focus -Urban governance and fiscal management with focus on climate vulnerability and risks -Private Sector Development opportunities and actions	Diagnostic study (including the private sector) and City Action Plan validated  Enhanced private sector appreciation and involvement in climate change adaptation measures	City and regional authorities and economic actors	Diagnosis (including private sector involvement), monitoring, modelling, assessments, of climate risk and vulnerability knowledge enhanced in city	Compliance with indicator by February 2016		Fiduciary risks will be alleviated by lessons from initial PROGEP  The environmental and social risks will be minimised by the updated

-Climate Resilience focused City Action Plan						Environment and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) of the initial PROGEP to include the two new cities.
Catchment study and Drainage Master Plan Diamniadio including: -Urban Catchment Study climate focused field investigations, data collection, and modelling of urbanisation and natural resources response affected by climate change -Climate responsive Drainage Master Plan including costs, institutional arrangements and implementation	Catchment study performed  Climate adaptation-oriented Drainage Master Plan prepared and validated	City and regional authorities and economic actors including private sector in Diamniadio Development Pole	Catchment study and drainage master plan established and operational	Compliance with indicator by June 2016		The risk of poor public response is mitigated by outreach activities enhancing local involvement.
Update and extension of the Detailed Urban Master Plan (PUD) Diamniadio including: -Updating of PUD with integration of climate risk; capacity-building of authorities and communities -GIS-based climate vulnerability and risk maps to guide urban planning and management -Integration of climate-resilience into Master Plan -Strengthening of Climate Governance and Capacity-Building	Urban Development Plan (PUD) upgraded to include climate change aspects  GIS-based climate risk maps produced  Strengthened climate orientation of Drainage Master Plan  PUD launched and capacity-building undertaken	City and regional authorities and economic actors including private sector	Climate change issues incorporated in PUD, recognised, and effectively impacting on climate resilient urban development	Compliance with indicator by March 2017		Integrity issues may occur, so NDF has already and will continue to raise awareness of NDF's anti-corruption guidelines which now is available also in French.  There is a risk of delayed start-up, which will be mitigated by proposing an amendment to the existing grant agreement instead of

<u>Activities</u>	<u>Outputs</u>	<u>Beneficiaries</u>	<u>Key Indicators</u>	<u>Target and Time Frame</u>	<u>Means of Verification</u>	a new agreement
<b>Sub-component A.3.2 Piloting sustainable cities through climate-resilience measures in Saint-Louis</b>	Climate impact knowledge strengthened and effectively integrated into urban planning (PDU), management. and resource mobilisation Enhanced private sector recognition and involvement in climate-resilience promotion and resource mobilisation	City and regional authorities private sector, universities and research institutions, population of 160,000	Climate impact knowledge in city strengthened and effectively integrated into PDU, and implemented	Compliance with indicator by December 2019	ADM progress reports, supervision and review missions, MTR, evaluation reports. Publications and outputs from the Knowledge Management component	The risk of cost overruns of the NDF overall allocation is considered to be low since the total cost estimate contains a contingency which can, if needed, accommodate price increases and unforeseen expenditures.  Private sector involvement is not a priority for all stakeholders.
Diagnostic study and City Action Plan including -Environmental and natural resources sustainability -Urban planning and management including climate focus -Urban governance and fiscal management and climate vulnerability focus -Private sector development opportunities and actions -City Action Plan with focus on climate-resilience	Diagnostic study (including the private sector) and City Action Plan validated including enhanced private sector appreciation and involvement	City and regional authorities, universities and research institutions, and economic actors	Diagnosis (including private sector involvement), monitoring, modelling, assessments of climate risk and vulnerability knowledge enhanced in city	Compliance with indicator by February 2016		Nevertheless, the NDF has actively advocated for more focus on private sector involvement that is now part of the diagnostic study and City Action Plan preparation. NDF supports communication, outreach and training activities, and can propose content that targets the private

<u>Activities</u>	<u>Outputs</u>	<u>Beneficiaries</u>	<u>Key Indicators</u>	<u>Target and Time Frame</u>	<u>Means of Verification</u>	sector.
<p>Design and implementation of a coastal zone environmental model and monitoring system Saint-Louis incl:</p> <ul style="list-style-type: none"> <li>-Preparing plan for data collection monitoring, modelling, and climate risk analysis in city, estuarine and coastal areas</li> <li>-Establishing climate-focused data collection and modelling systems for climate modelling, assessments and knowledge generation</li> <li>-Undertaking climate-related investigations and modelling on geotechnical, sedimentary, hydro-dynamic and hydro-sedimentological conditions</li> <li>-Assessing urban climate change vulnerability, risks, under various scenarios</li> <li>-Establishing and launching long-term modelling, monitoring, evaluation, and a dissemination programme including training and handing-over</li> </ul>	<p>Plan for coastal zone climate change and environmental model and monitoring prepared and validated</p> <p>Data collection and modelling systems designed, established, and operational</p> <p>Detailed climate-oriented investigations and modelling carried out</p> <p>Climate change impact assessments undertaken</p> <p>Long-term modelling and monitoring programme launched and operational</p>	<p>City and regional authorities, universities and research institutions, and economic actors</p>	<p>Environmental model and monitoring system active operation and providing quality data, analysis, and knowledge contribution to climate-related urban planning and management</p>	<p>Compliance with indicator by August 2017</p>		

<u>Activities</u>	<u>Outputs</u>	<u>Beneficiaries</u>	<u>Key Indicators</u>	<u>Target and Time Frame</u>	<u>Means of Verification</u>	
<p>Development of a Partnership Protocol for the Management of the Model and acquisition of equipment Saint-Louis including</p> <ul style="list-style-type: none"> <li>-Developing methodology and protocol for modelling and monitoring, partnership arrangement, coordination mechanisms, operational support</li> <li>-Establishing and operationalising TA</li> <li>-Procurement of equipment systems, and services under the Action Plan.</li> </ul>	<p>Partnership Protocol in place and effective</p> <p>Equipment acquired and operational</p>	<p>City and regional authorities, academia, and economic actors</p>	<p>Climate resilience actions and resource/partnership mobilised</p>	<p>Compliance with indicator by 06/2016</p>		
<p>Update and extension of the Urban Master Plan (PDU) Saint-Louis including</p> <ul style="list-style-type: none"> <li>-Up-dating of the Urban Master Plan (PDU) with integration of climate risk, and related capacity building of authorities and community actors</li> <li>-GIS based climate vulnerability and risk maps to guide urban planning and management</li> <li>-Integration of climate resilience City Drainage</li> </ul>	<p>PDU upgraded to include climate change aspects</p> <p>GIS services providing essential inputs to climate sensitive urban planning</p> <p>Climate resilient City Drainage Plan in place</p>	<p>City and regional authorities, academia, and economic actors</p>	<p>Climate change issues integrated in PDU, recognized, and effectively impacting on climate resilient urban development</p>	<p>Compliance with indicator by 03/2017</p>		

Master Plan -Strengthening of climate governance and capacity building	PDU launched and capacity of key actors strengthened					
Establishment of a territorial GIS for Saint-Louis including -Establishing multi-user GIS system for climate impact simulation, vulnerability analysis, production of risk maps, and information sharing -Operationalising the GIS services to guide urban planning and management.	Multi-user GIS system oriented towards of the impact simulation of events, vulnerability analysis, and producing risk maps	City and regional authorities, academia, and economic actors	GIS system in operation and providing the required maps and inputs to climate resilient urban planning and development		Compliance with indicator by 06/2016	
<b>Sub-component A.3.5 Communication and awareness building</b> - Systematic sharing of information on project objectives and interventions, progress, and achievements - Organise awareness raising events engaging public society, stakeholders and beneficiaries	Project communication and awareness building services effectively in operation and stakeholders duly informed about PROGEP interventions and achievements	City Authorities and regional authorities private sector, academia, Population of 160,000	Project recognised for good public transparency and recognised and supported by target groups		Compliance with indicator by 03/2017	ADM progress reports, supervision and review missions, MTR, evaluation reports.