



# AN AUDIT OF RIVERS AND WATERCOURSES THAT CAUSE RECURRENT FLOODING

Ministry of Environment Solid Waste Management and  
Climate Change



# THE RIVER NETWORK AT A GLANCE

- 92 rivers and 232 rivulets distributed within a network of 25 major river basins and 21 minor river basins
- Most of the rivers and rivulets take their source in the Central Plateau.
- The Grand River South East, located in the central-eastern region, is the country's longest river, at 35 km in length and 161.9 km<sup>2</sup> in area.
- Rivers and river banks support a diverse range of plants and animals as well as provide innumerable ecosystem services to society, from amenity and recreation to flood control, namely:-
  - (i) Potable and irrigation water supply;
  - (ii) Habitat for wildlife;
  - (iii) Food source and aquaculture;
  - (iv) Renewable energy source (hydropower);
  - (v) Leisure (canoeing, boating, swimming, picnicking), recreational, eco-tourism;
  - (vi) Aesthetic values; and
  - (vi) Place for cultural and religious rituals and historical heritage.

# LEGISLATION

- Rivers, rivulets and river reserves are protected under various legislation, more particularly under the Forests and Reserves Act 1983 and the Rivers and Canals Act 1863.
- However, despite the social, economic and cultural importance of rivers, survey reports undertaken over years have revealed that these are under constant stress from human activities and pollution.
- Debris and wastes which drift downstream get accumulated along rivers and watercourses, thus causing obstruction to the normal water flow and hence resulting in flooding.

# RATIONALE FOR THE STUDY

- According to the World Risk Report 2018, Mauritius is ranked as the 16<sup>th</sup> country with the highest disaster risk and ranked 10<sup>th</sup> on the list of countries most exposed to natural hazards.
- One of the most daunting extreme climatic impacts observed in Mauritius is the rise in frequency of abnormal high intensity rainfall occurring in fairly short lapse of time, which results in flash floods.

# OBJECTIVE OF STUDY

- Audit of the main rivers and watercourses in Mauritius to assess their carrying capacity particularly at critical sites over the island, taking into account the impacts of climate change.
  - (i) Identify the stretches of rivers and watercourses that cause recurrent flooding;
  - (ii) Investigate the causes of flooding of the identified rivers and watercourses; and
  - (iii) Recommend appropriate remedial measures to mitigate flooding in identified rivers.

# Scope of project

- (i) An island-wide inventory and mapping of the main stretches of rivers and watercourses that cause recurrent flooding. The map shall be of scale 1:5,000 or as appropriate
  
- (ii) Determination of the carrying capacity of identified rivers and watercourses and investigation of the causes of flooding, on the basis of field surveys
  - Calculation of surface run-off coefficient from incoming catchments and sub-catchments
  - Hydrological and hydraulic analysis of the identified rivers, including longitudinal and cross profiles of rivers to calculate the wetted perimeter, discharge, velocity, peak flow and upsurge of underground water along the river course
  - Hydrological and hydraulic modelling to reflect event scenario simulations of rising limbs of water along specific paths of the rivers to assess the fluctuation in the wetted perimeters
  - Map showing delimitation and area of the overall catchment, indicating the catchment and stretch contributing to flooding problems as well as where flooding could occur. The map shall be of scale 1: 5,000 or as appropriate
  - Identification of any obstruction along the long profile and cross profile of the identified rivers, watercourses and their reserves, including near bridges and culverts

# Scope

(iii) Recommendations on appropriate remedial measures (soft and hard measures) that need to be taken to mitigate flooding in the identified rivers and watercourses

(iv) Prioritization of stretches of rivers and watercourses requiring urgent remedial actions

(v) Preparation of a costed Restoration Action Plan for prioritized rivers and watercourses

# Duration

- 8 months
- Audit is the first phase.
- The second phase will comprise preparation of detailed design of all proposed upgrading / infrastructural works.



# Core Consultancy Team

- A Registered Civil Engineer
- A Hydrological and Modelling Expert
- A Professional Land Surveyor
- A GIS Expert

# Deliverables

1. A work plan for the overall study with proposed methodology
2. An inventory and map indicating stretches of rivers, watercourses and catchment in flood-prone area, urban areas and critical infrastructure
3. A report on the assessment of the carrying capacity of the identified rivers (site investigation), including hydrological and hydraulic models developed, a map showing delimitation and area of the overall catchment, identification of causes of flooding.
4. A report on recommendations on appropriate remedial measures that need to be taken to mitigate flooding in the identified rivers and watercourses, including preliminary drawings and quantifications of proposed upgrading/infrastructural works and cost estimates; advice on frequency of maintenance of the watercourses.

# Deliverables

- Prioritization of stretches of rivers and watercourses requiring urgent remedial actions.
- A costed restoration action plan for prioritised rivers and watercourses.
- A summary of all public and stakeholder consultations.
- Final documents/reports/maps

Thank you for your kind attention.

