



JAMAICA STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE

PRESENTED TO THE PPCR SUB-COMMITTEE MEETING
NOVEMBER 2, 2011, WASHINGTON D.C.



OUTLINE

- ✘ Brief Background
- ✘ Climate risks, historic trends & future projections
- ✘ Jamaica's SPCR
- ✘ Investment Projects

GEOGRAPHICAL SETTING



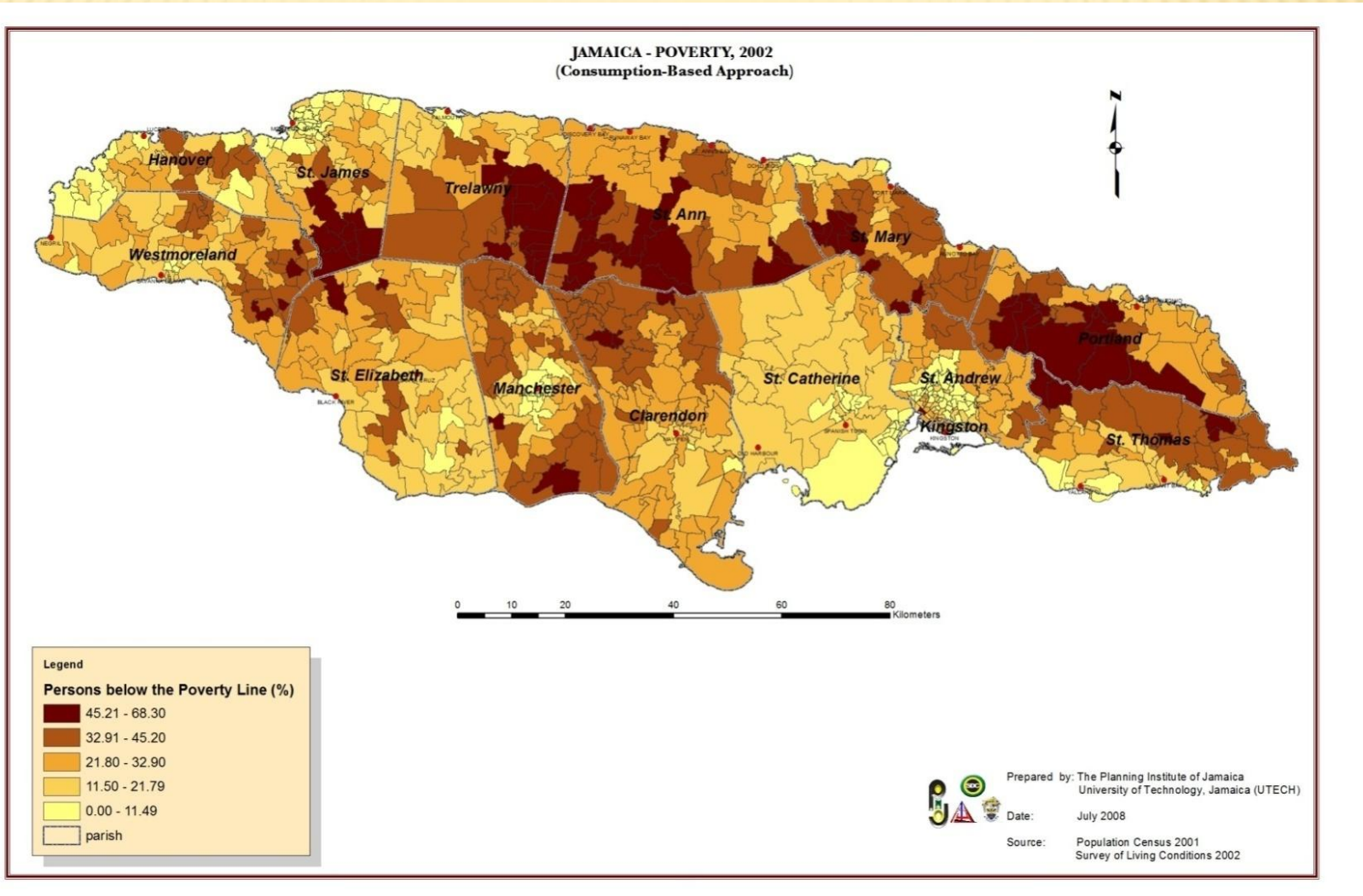
©2011 Google - Map data ©2011 Google -

- Interior surrounded by flat and narrow coastal plains, less than 3.2 km (2 miles) wide along most of the north and south coasts
- Three interior plains which have fertile soils; prime agricultural lands.
- Wetlands with mangrove forests along some of the coastal plains.

BRIEF COUNTRY PROFILE

- ✘ Population – 2.7 million
urban - 52%; rural 48%
- ✘ 26 watershed management units
- ✘ Weak economic performance
GDP Growth – 2008 (-0.9), 2009 (-3), 2010 (1.2)
- ✘ Poverty (16.5%) – significantly higher in rural areas
- ✘ Human Development Index – 0.688

BRIEF COUNTRY PROFILE – GEOGRAPHICAL DISTRIBUTION OF POVERTY



CLIMATE RISKS, HISTORIC TRENDS & FUTURE PROJECTIONS

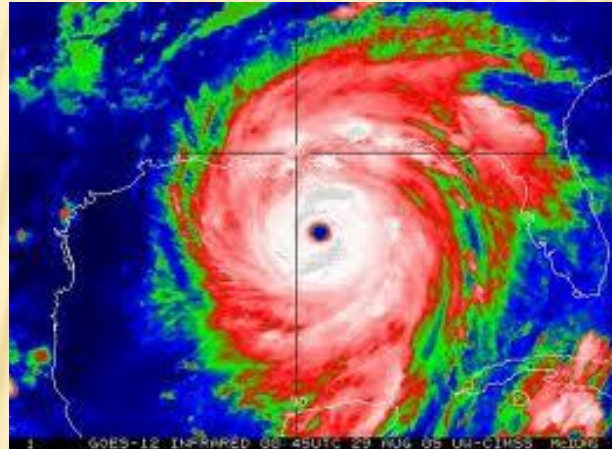
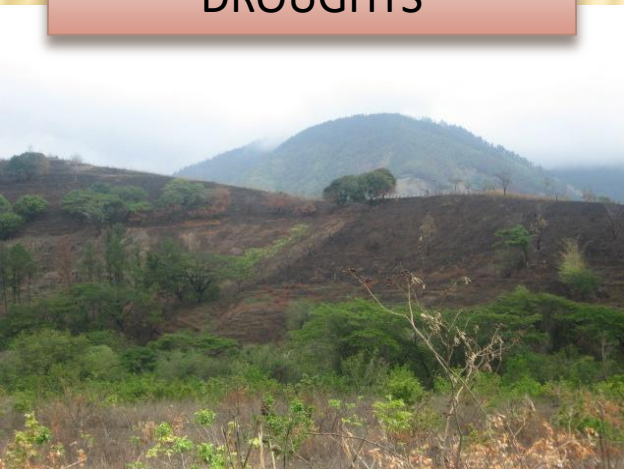
STORM SURGES



FLOODS



DROUGHTS

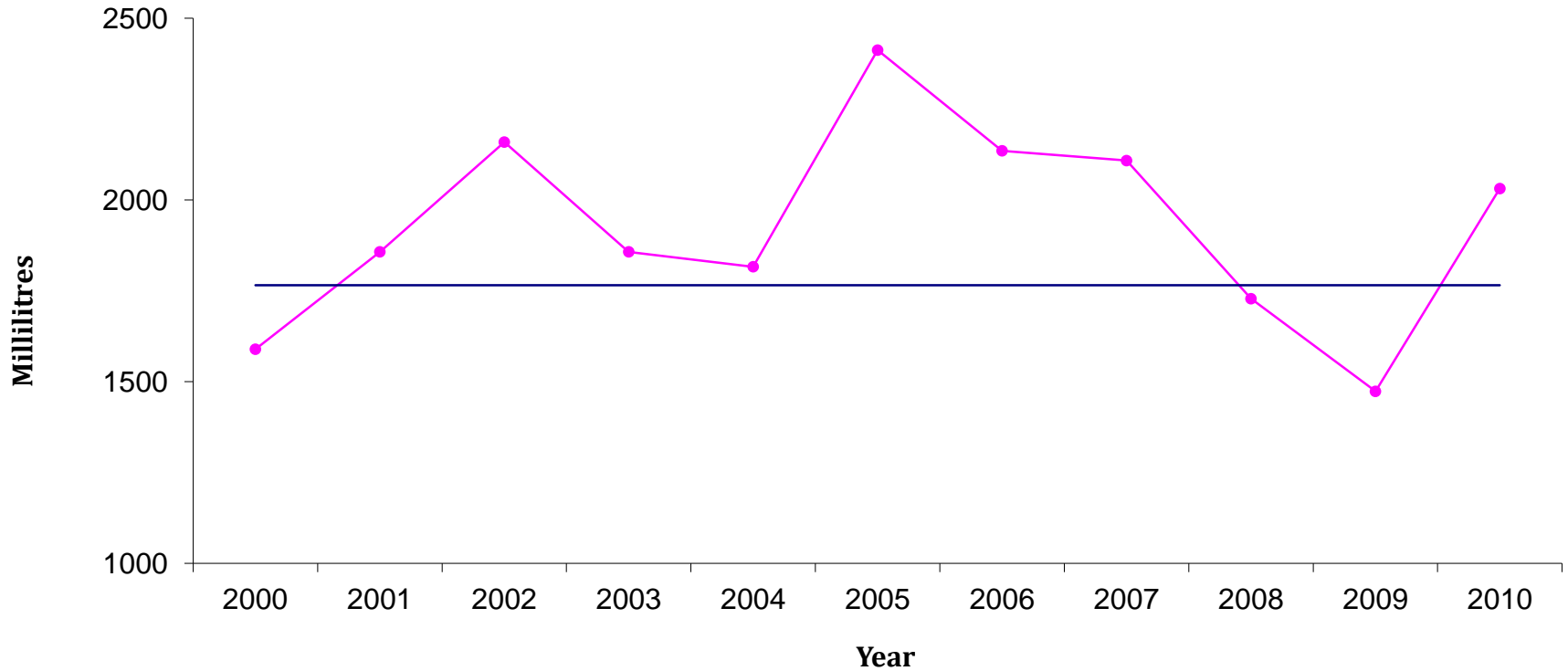


HURRICANES/STORMS

DEVELOPMENT CONTEXT AND CLIMATE RISKS

- ✘ *Since 2001, climate related events resulted in damage and loss estimated at J\$111.8 billion*
- ✘ *Each event affected, on average, over 250,00 persons; 58 lives lost over the period*

RAINFALL



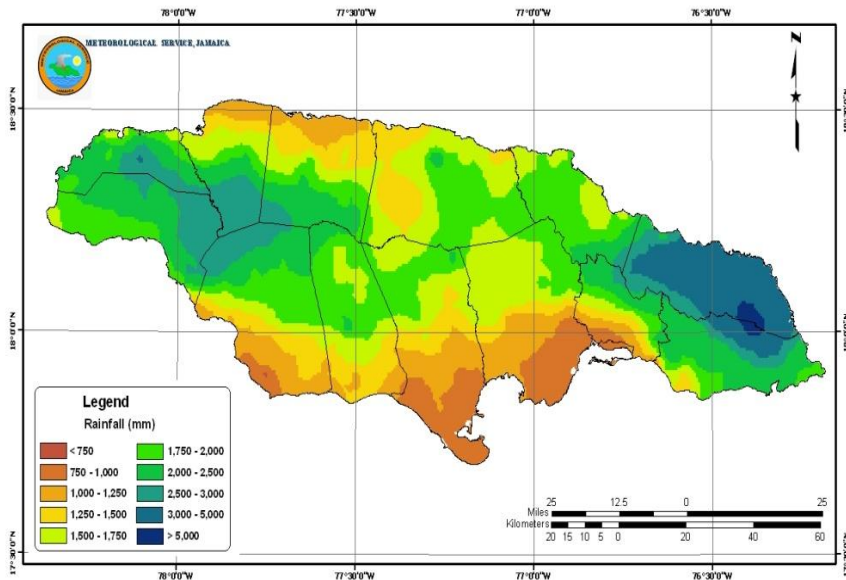
—●— Annual Rainfall

— 30 Year Mean

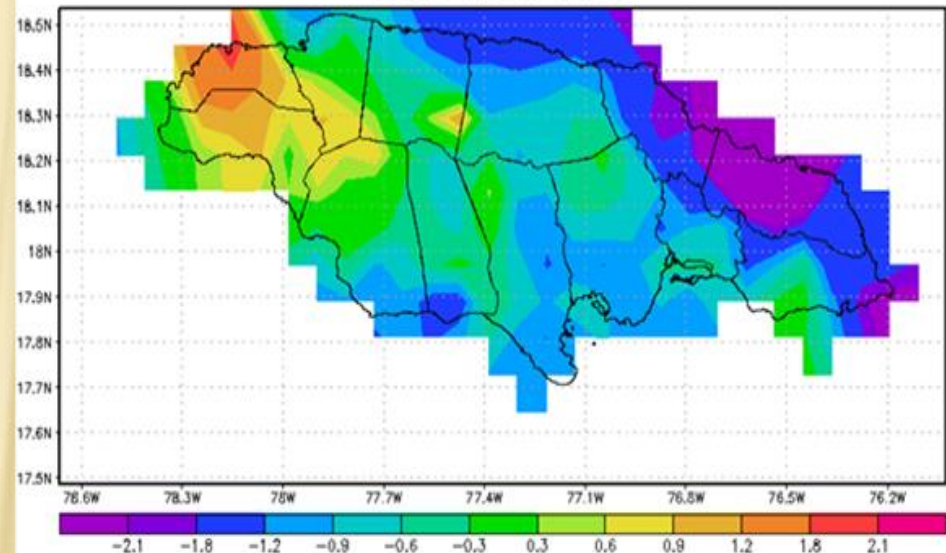
Annual rainfall , typically 1,800 mm but there is significant year to year variability. Some of this variability can be accounted for by associations with global climatic phenomenon such as, El Nino or variations in tropical Atlantic sea surface temperatures.

RAINFALL

Jamaica: Distribution of Mean Rainfall (1951- 1980)

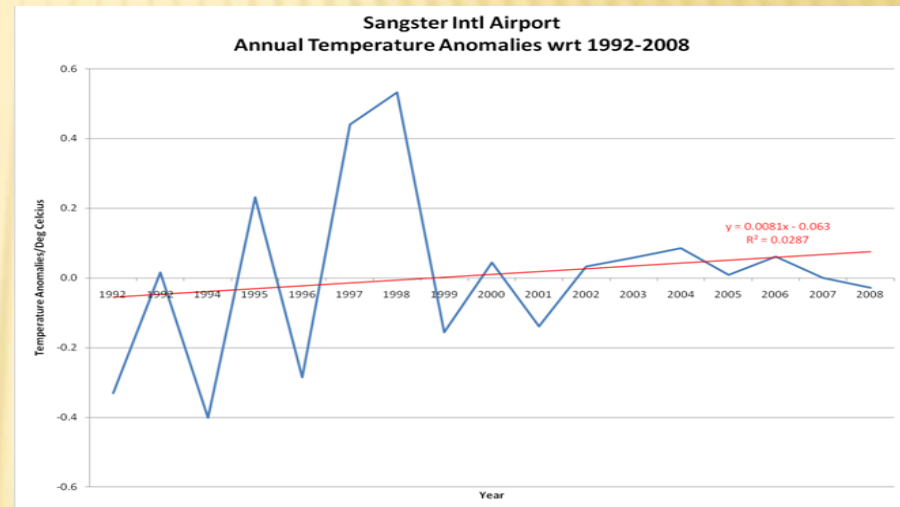
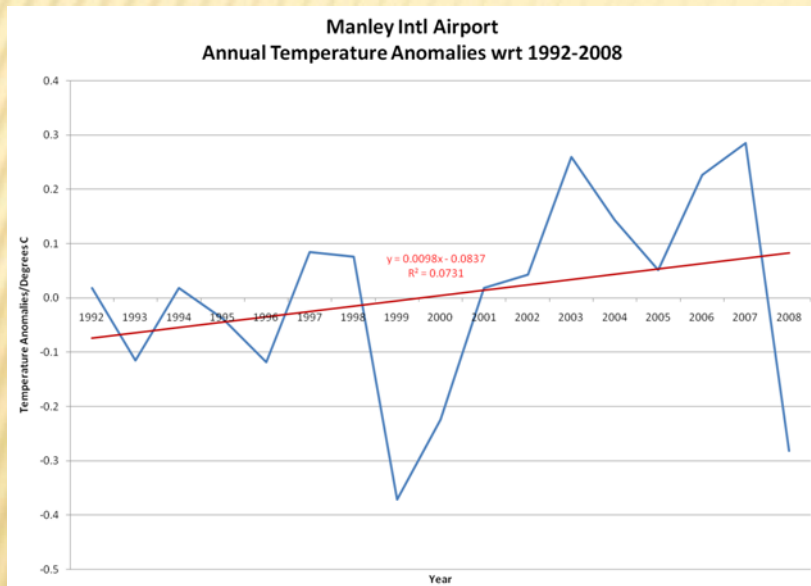


Slope 1992-2010



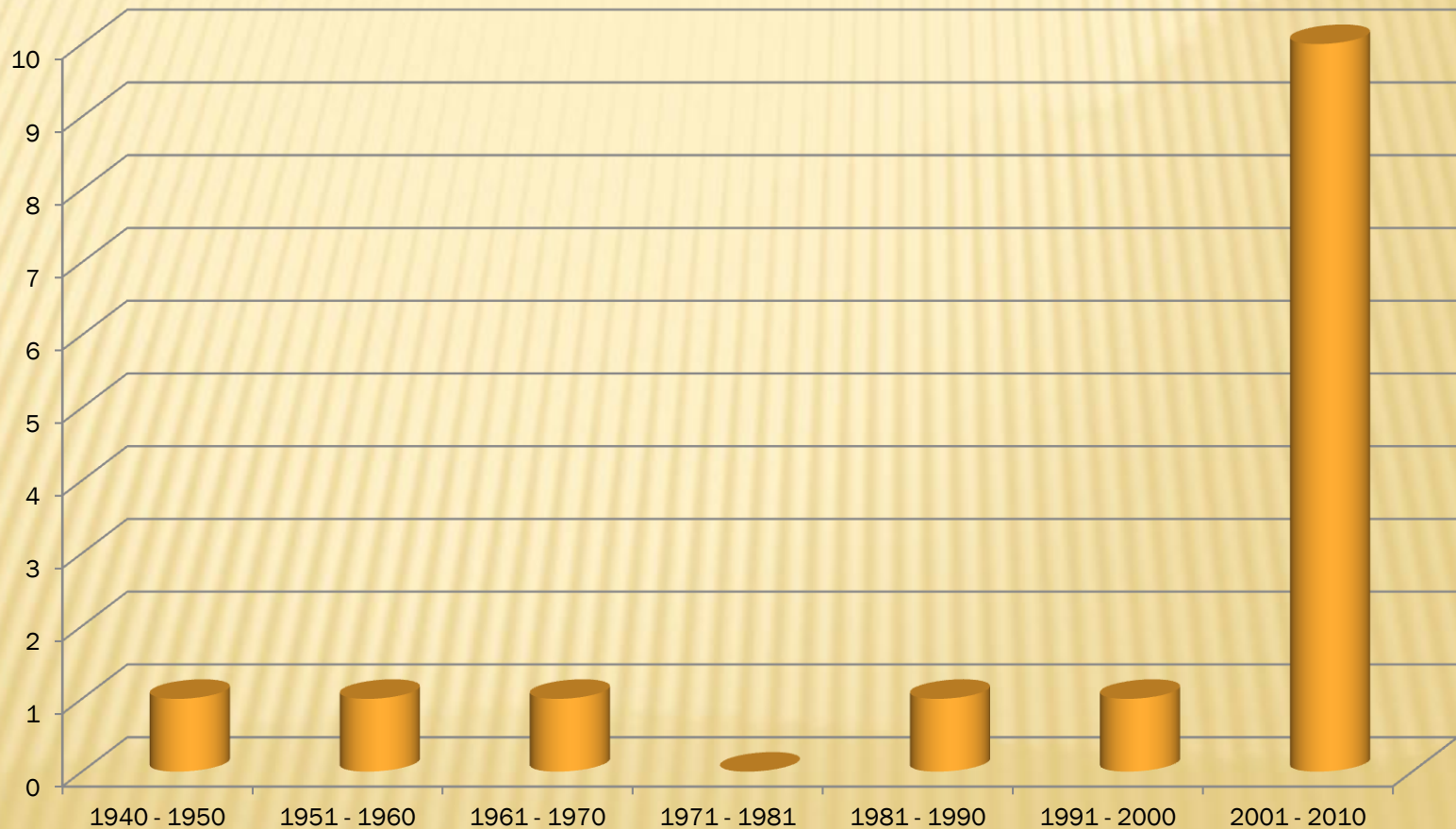
Rainfall is also characterised by spatial variations

TEMPERATURE

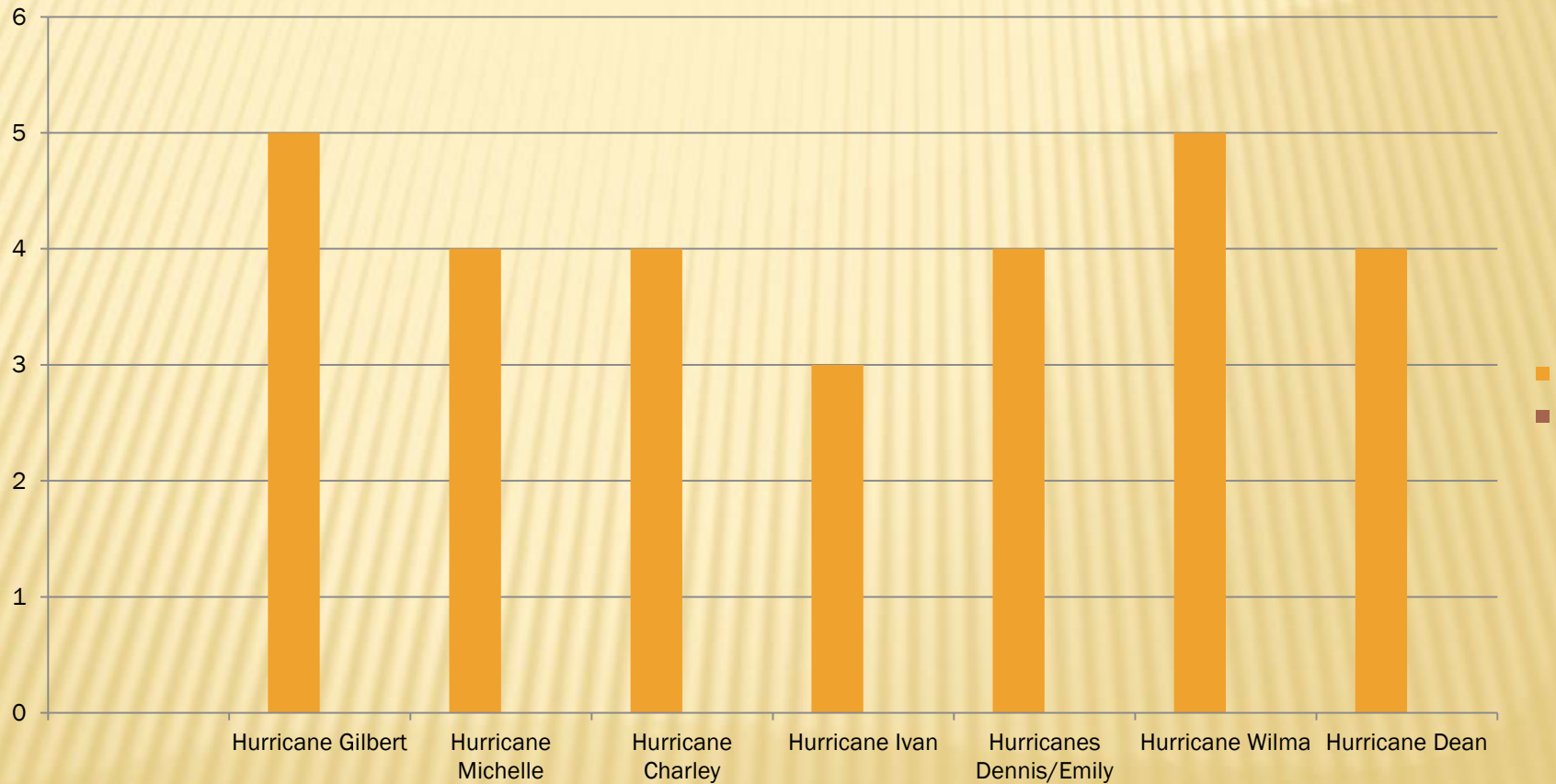


- Number of cool days and nights has decreased
- Number of warm days and nights has increased

THE FREQUENCY OF DISASTER HAS BEEN INCREASING



INTENSITY OF STORM EVENTS HAS BEEN INCREASING

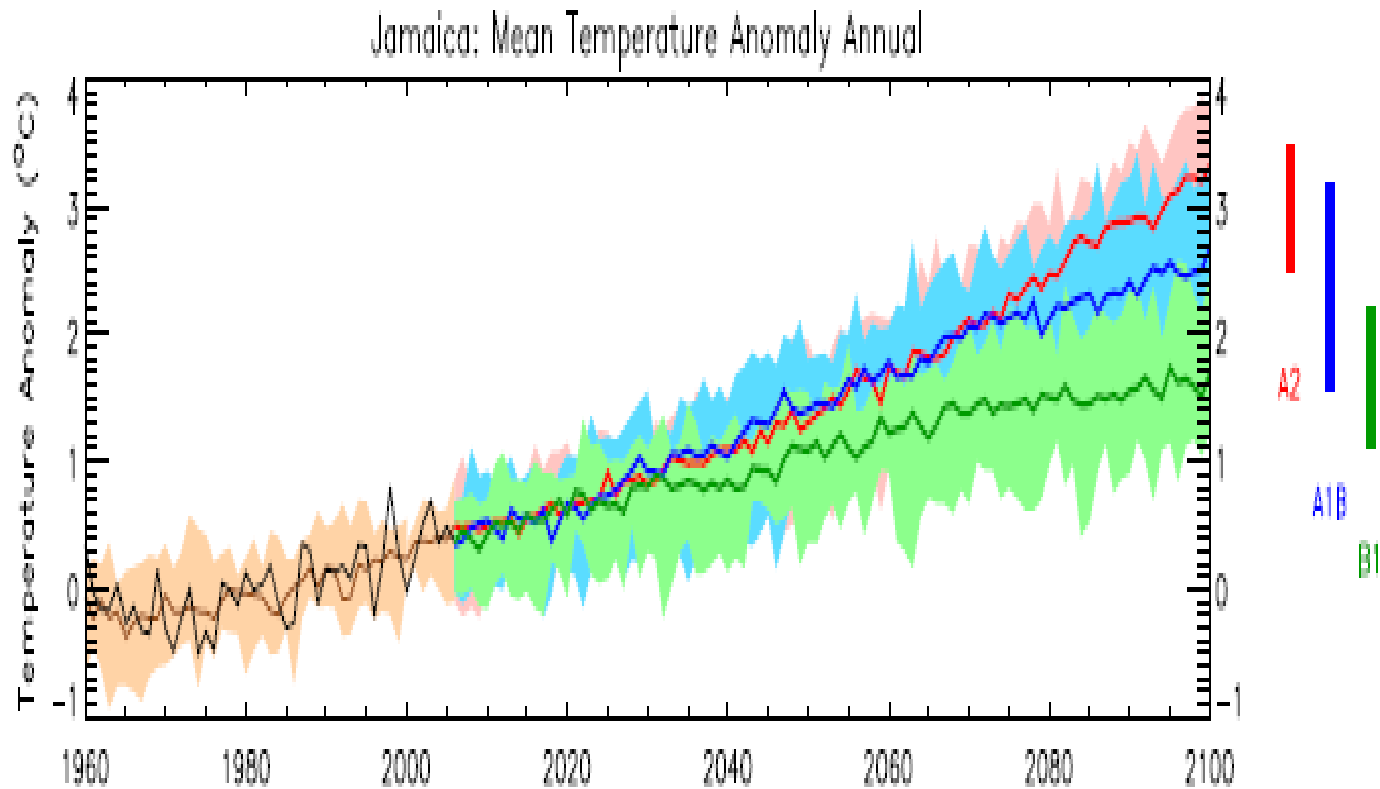


CLIMATE PROJECTIONS - 2050

Increase in climate variability and extreme weather events will result in:

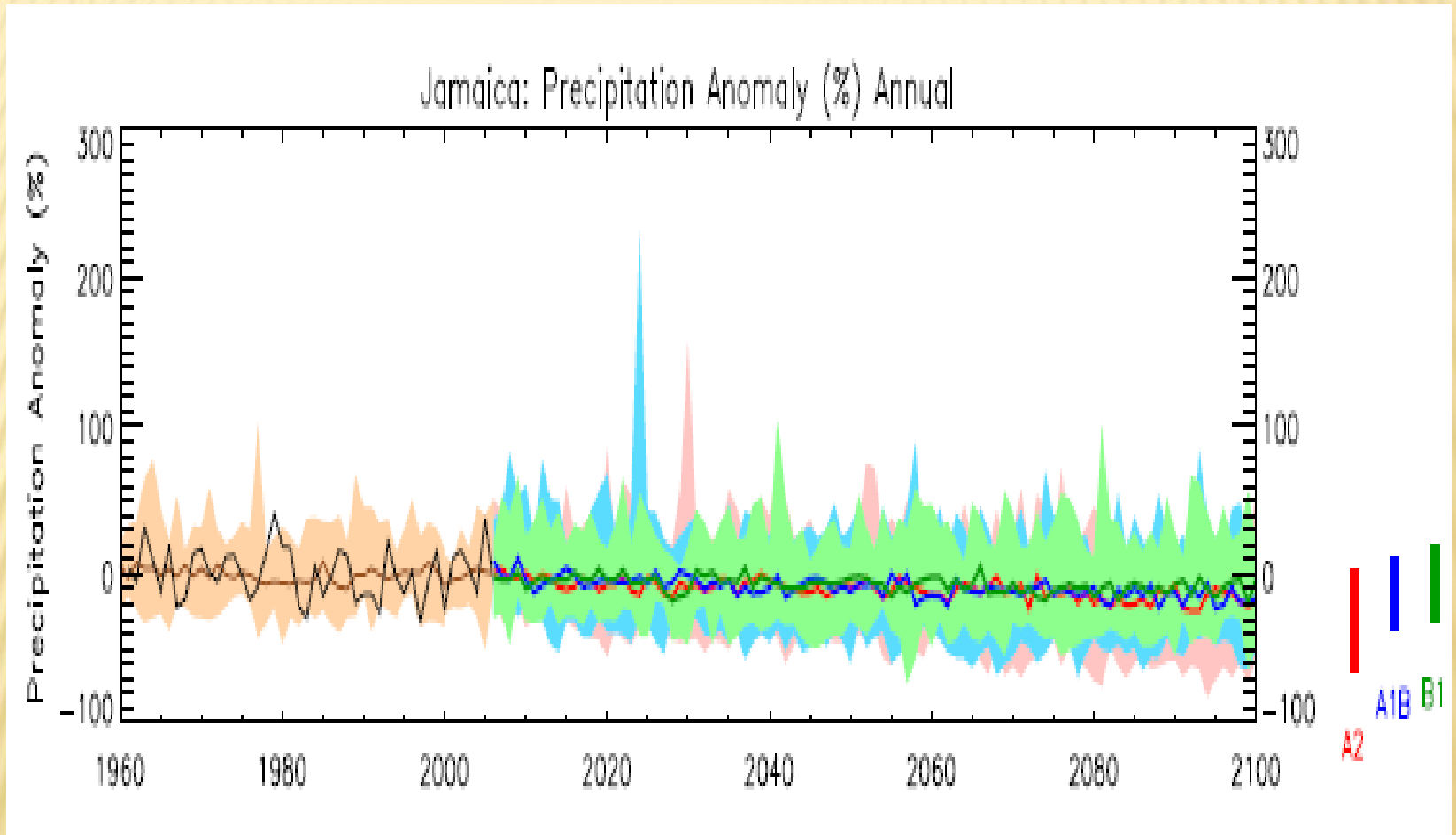
- length of the rainy season decrease - 7-8%
- length of the dry season increase - 6-8 %
- frequency of intense rains increase - 20%
- disaster losses increase due to stronger more intense hurricanes

TEMPERATURE



Temperature could increase to a range of between 0.7 C – 1.8 C by mid-century

RAINFALL



- Typical rainy seasons will experience reduced rainfall
- Total number of wet days will decrease
- Increase in intense rainfall & drought

SEA-LEVEL RISE

- ✘ With a 1 metre sea-level rise nearly 1 300 Km² (e.g. will be lost (e.g.5% of Bahamas)
- ✘ Lands surrounding 35 ports will be inundated
- ✘ Loss or damage of 21 airports
- ✘ Loss of 567 Km of roads will be lost (e.g. 12% of road network in Guyana)
- ✘ At least 149 multi-million dollar tourist resorts damaged or lost

Source- UNDP, 2010

VULNERABILITY CONTEXT

- ✘ Poor female-headed households among those most likely to have houses that are completely destroyed or severely damaged in a storm
- ✘ With the destruction of livelihoods by disasters women find it most challenging to meet their basic needs before a return to full productivity

VULNERABILITY CONTEXT

- ✘ Children living in female-headed households are more vulnerable to poverty because women have higher rates of unemployment
- ✘ Small farmers vulnerable to weather extremes—80 % of small farmers occupy plots on steep slopes
- ✘ Heavy dependence on rain-fed agriculture

NEED FOR ADAPTATION

Without adaptation climate change could:

- ✘ Disrupt the livelihoods & threaten the food security
- ✘ Increase poverty especially among rural households
- ✘ Result in significant economic losses – up to 27.9 % by 2050

JAMAICA'S STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE

JAMAICA'S PPCR

PPCR Caribbean Regional Pilot

Jamaica's SPCR

SPCR Investment Projects

SPCR PROGRAMME STRUCTURE

Goal: Enhanced resilience to the impacts
of climate change

Priority Sectors

Sectoral
Strategies

Strategic Actions
(grouped by sector)

Actions to be
funded by
PPCR

Investment
Programme 1

Investment
Programme 2

Investment
Programme 3

SPCR - SECTORAL AND THEMATIC PRIORITIES



Vision 2030: Jamaica the place of choice to live, work, raise families and do business

Outcome 14: Hazard Risk Reduction and Climate Change Adaptation

Climate Change Five Year Strategic Plan

Disaster Risk Management Five Year Action Plan

STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE

- Climate Data and Information Management
- Institutional Adaptation & Sectoral Adaptation
- Financing Adaptation

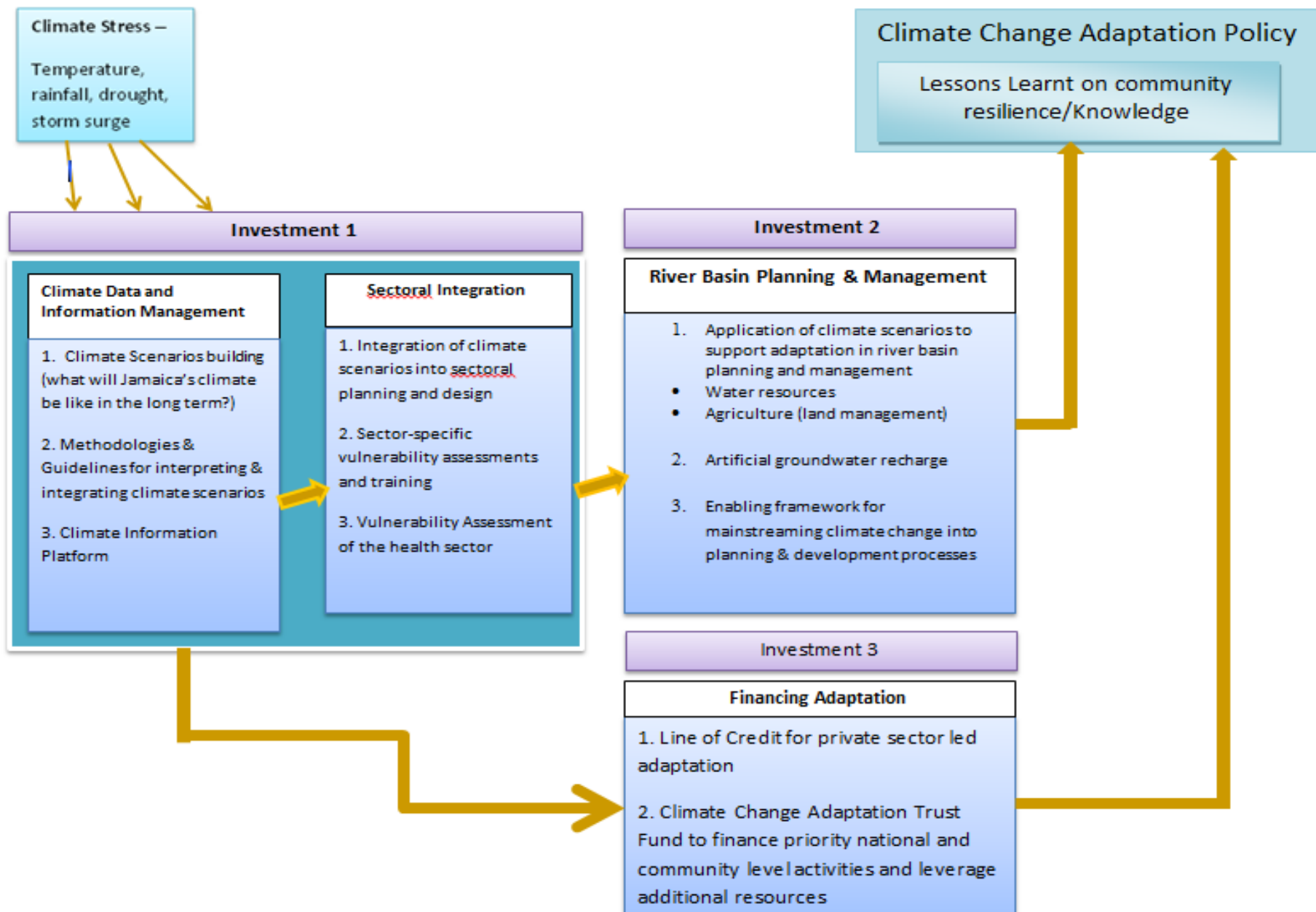
INVESTMENT PROJECTS

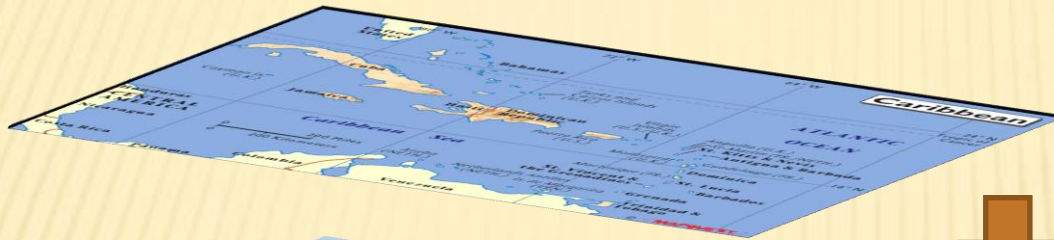
- Improving climate data & information management
- Mainstreaming climate change into planning and decision-making processes and integrating climate change into River basin planning and management
- Financing Mechanisms for Sustained Adaptation (private sector & Community -based organizations)

STRATEGIC PROGRAMME COMPONENTS

1. Improving climate data and information management
2. Mainstreaming climate change adaptation in local, sectoral and national plans, and implementing integrated adaptation strategies in river basin planning and management
3. Financing mechanisms for sustained adaptation initiatives by private sector and CBOs

PROGRAMME INTERVENTION LOGIC





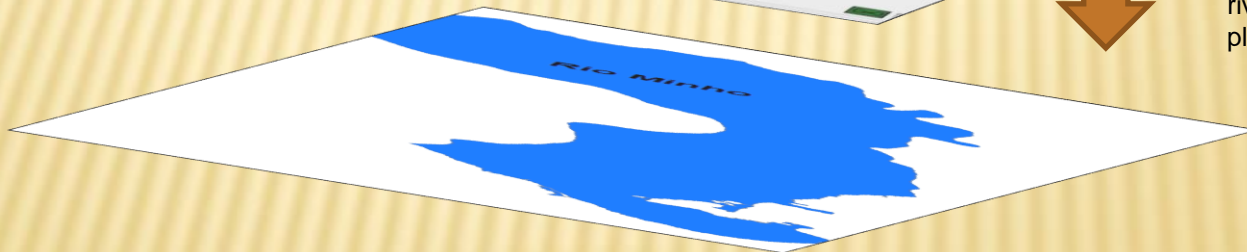
Model results downscaled to Jamaica



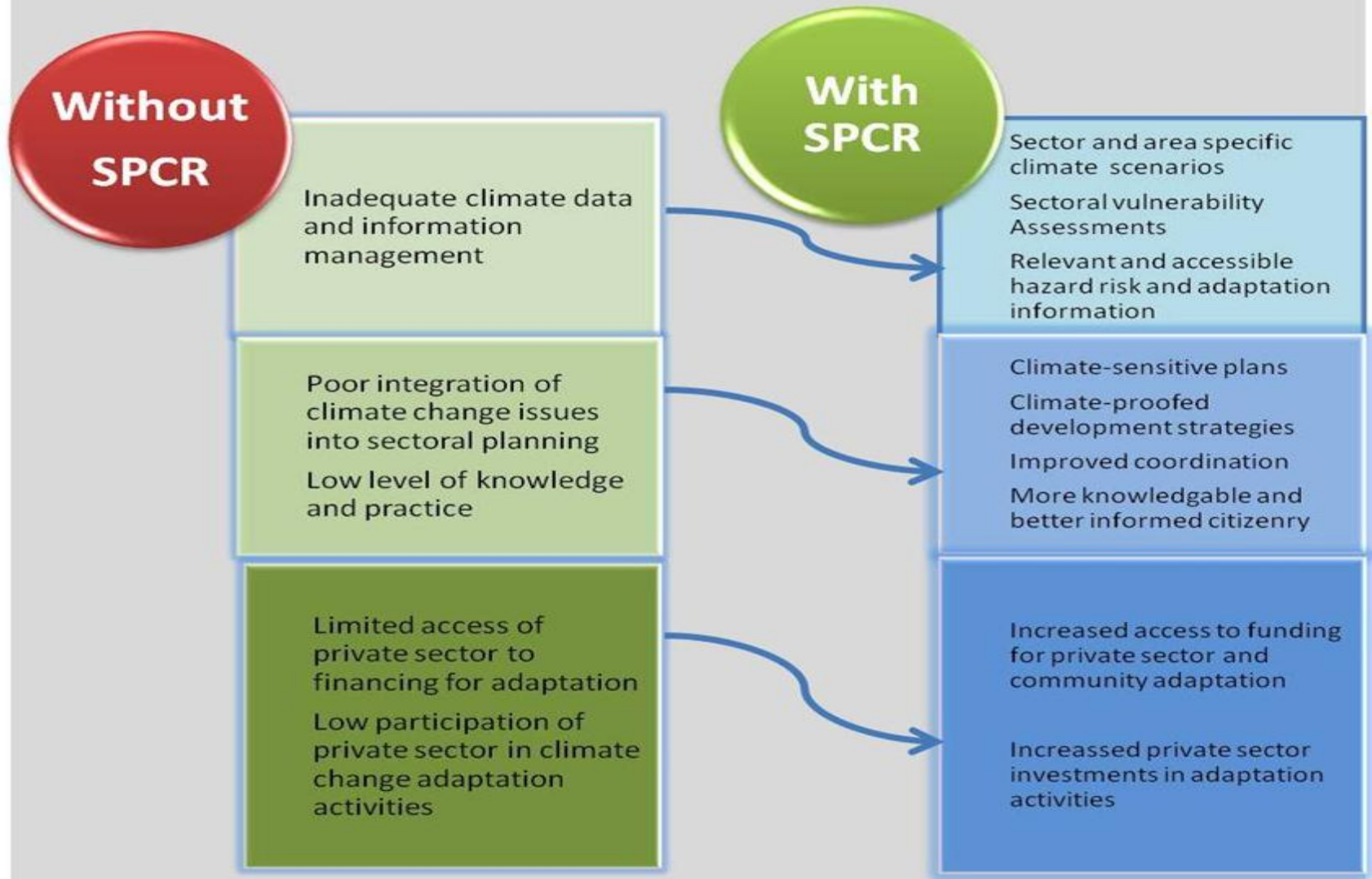
Model results integrated into sectors



Vulnerability assessments inform adaptation strategies integrated into river basin management and planning



Expected Impact of the SPCR



PARTICIPATORY PROCESS

2 workshops

- NGOs
- Academia
- Private Sector
- Public Sector

Consultation
with agencies

Steering
Committee
Meetings

Thematic
Working Group
on CCA&DRR

National level consultation

Community
Groups

Farmers

Environment
Groups

Local
Government

Women's
Groups

Sector Interest

Regional Workshops

Conducted by:

RADA

NIC

MOAF

WRA

Interacted
with
communities

Site Visit

MONITORING & EVALUATION

✘ Three levels:

- + Policy – PIOJ, Thematic Working Group on Hazard Risk Reduction & Climate Change Adaptation (Vision 2030)
- + Programmatic/Operational – MDAs
- + Community

✘ Results-based Framework

- + Performance Indicators (programme & projects)

PROGRAMME SUSTAINABILITY

- ✘ Development of Governance framework
- ✘ Capacity building and institutional strengthening
- ✘ Knowledge Management
- ✘ Promoting buy in and ownership through involvement of civil society, community & other interest groups

PROGRAMME SUSTAINABILITY

- ✘ Development of self-sustainable financing mechanisms for private sector and community level adaptation
- ✘ Diversification of funding sources including leveraging funds from other donors and the private sector

INVESTMENT PROJECTS

IP1: IMPROVING CLIMATE DATA & INFORMATION MANAGEMENT CONT'D

✘ Sub-component 1

Enhancing climate monitoring, weather forecasting and early warning systems

- Radar
- Installation of 40 automatic rain gauges
- Review of business processes
- Feasibility study for the provision of climate services

IP1: IMPROVING CLIMATE DATA & INFORMATION MANAGEMENT CONT'D

Sub-component 2

- ✘ High resolution climate change scenarios at the national and sectoral levels
- ✘ Sector specific methodologies for climate resilient planning and design (manuals and guidelines)
- ✘ Capacity of professionals to apply the scenarios in development planning

IP1 : IMPROVING CLIMATE DATA & INFORMATION MANAGEMENT CONT'D

Sub-component 3

- ✘ Vulnerability assessment for priority sectors and utilize assessments for climate resilient planning and decision making

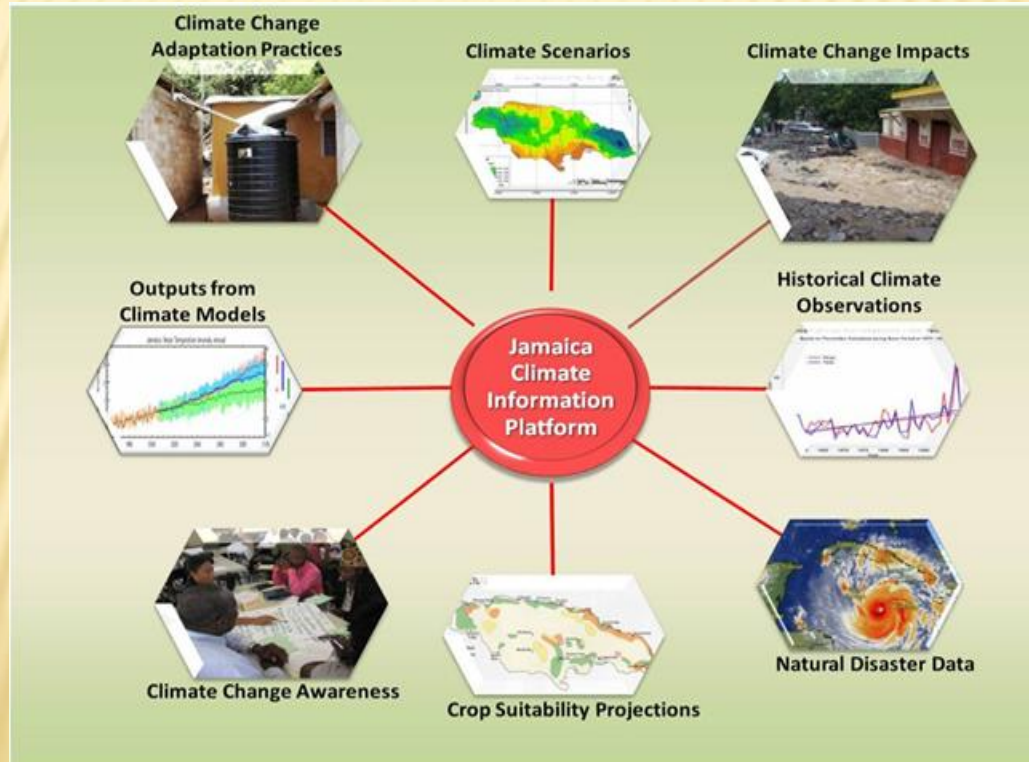
Sub-component 4

- ✘ Vulnerability assessment of the health sector
 - + Investment Plan for climate proofing selected health care facilities

IP1: IMPROVING CLIMATE DATA & INFORMATION MANAGEMENT CONT'D

Sub-component 5

- ✘ Comprehensive climate information platform



IP1: IMPROVING CLIMATE DATA & INFORMATION MANAGEMENT CONT'D

Sub-component 6

- ✘ Improve the knowledge, attitudes and practices of the Jamaican public towards climate change by 50%

IP2: INSTITUTIONAL & SECTORAL ADAPTATION

- ✘ Mainstream CC Adaptation into Local Sectoral and National Plans, and implement Integrated Adaptation Strategies into River Basin planning and management

IP2: INSTITUTIONAL & SECTORAL ADAPTATION (CONT'D)

Sub-component 1

- ✘ Coherent and multi-sectoral institutional framework for climate change adaptation
- ✘ Framework for mainstreaming created
 - + at the local and national levels
 - + for policies, plans, regulations, and legislation
- ✘ Indicators for monitoring the climate change mainstreaming efforts

IP2: INSTITUTIONAL & SECTORAL ADAPTATION (CONT'D)

Sub-component 2

- ✘ Characterization of project area using baseline data
- ✘ Vulnerability assessments
- ✘ adaptation plans for the prioritized sectors, the infrastructure and vulnerable communities in the project area developed and implemented

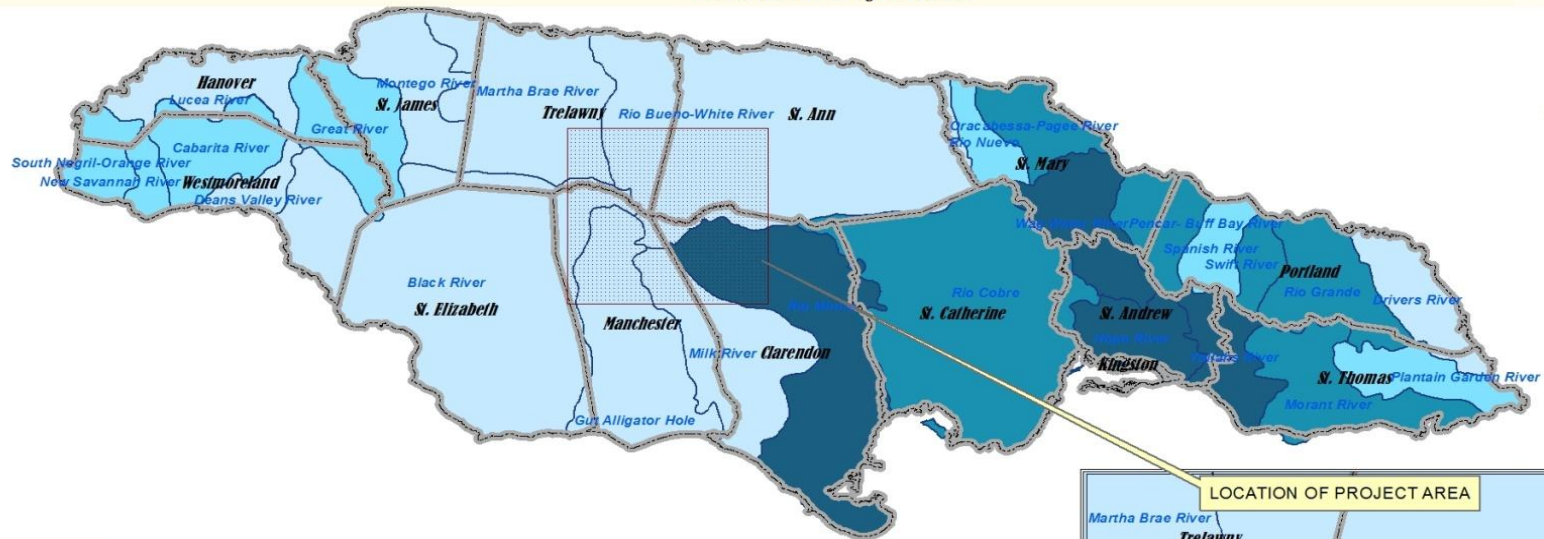
IP2: INSTITUTIONAL & SECTORAL ADAPTATION (CONT'D)

Sub-component 3

Integrated adaptation strategies (water, land, infrastructure) to address the anticipated impacts of climate change in the Rio Minho- Rio Bueno River Basins

INVESTMENT PROJECT 2: PROJECT SITE

Watershed Management Unit (WMU) Classification (1999)
LOCATION OF PROJECT AREA

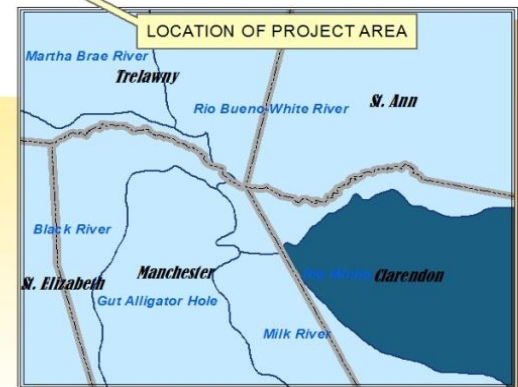


Legend

Final Ranking

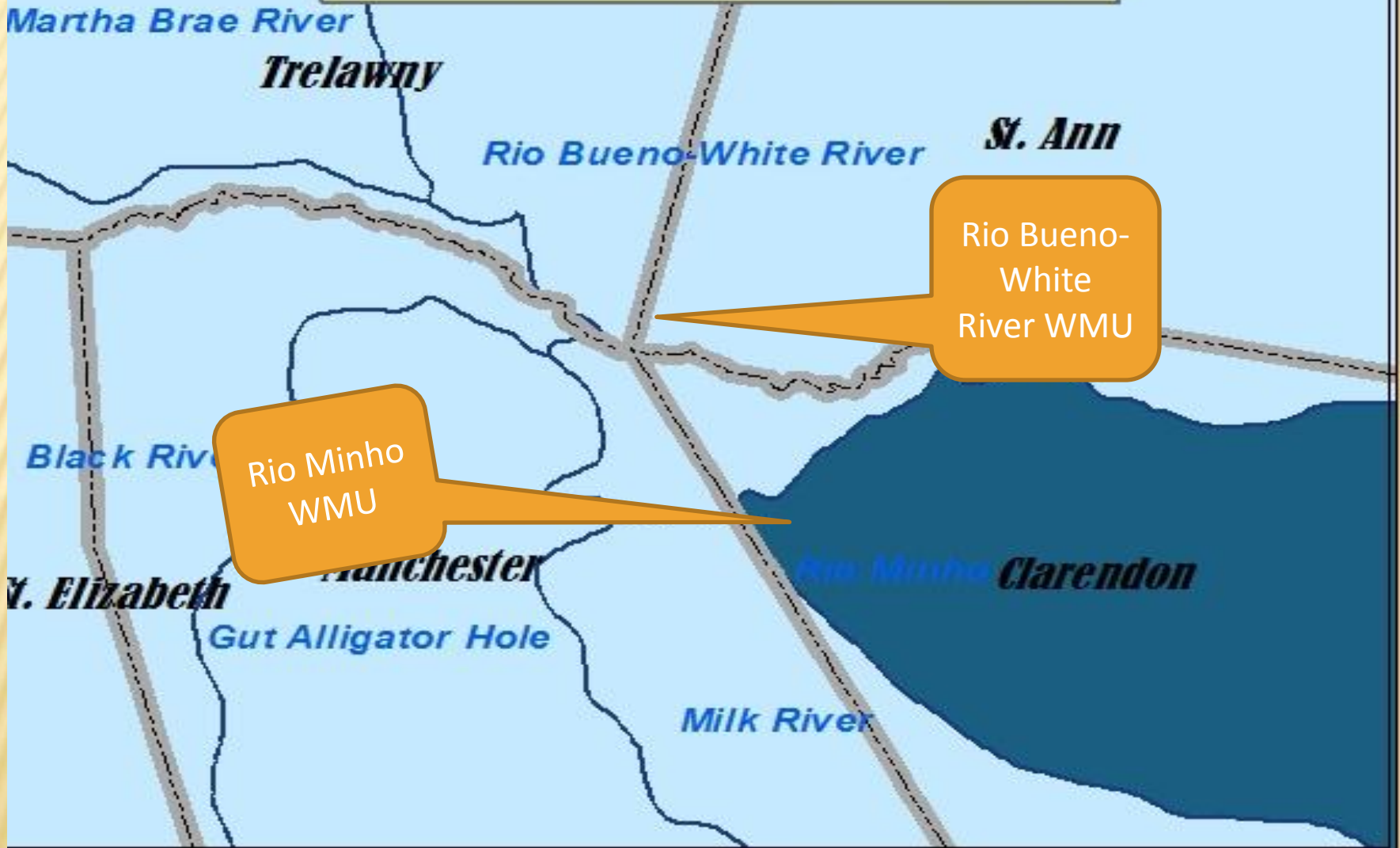
- Least Degraded
- Less Degraded
- Degraded
- Severely Degraded
- Parish

0 4 8 16 24 32 Kilometers



Prepared by: Planning Institute of Jamaica
September, 2011
Source: Recreated from Map Prepared by the
National Integrated Watershed Management Programme

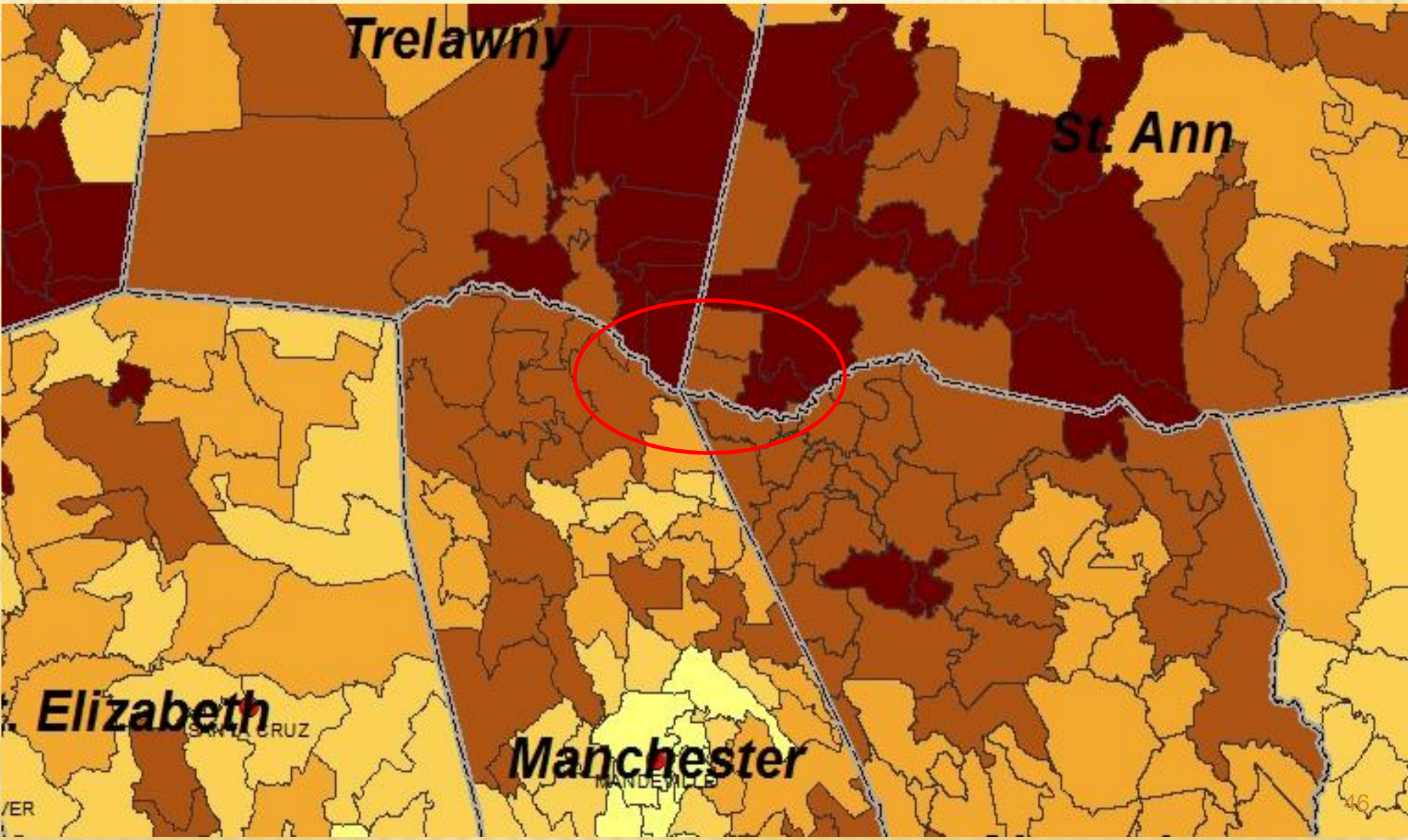
LOCATION OF PROJECT AREA



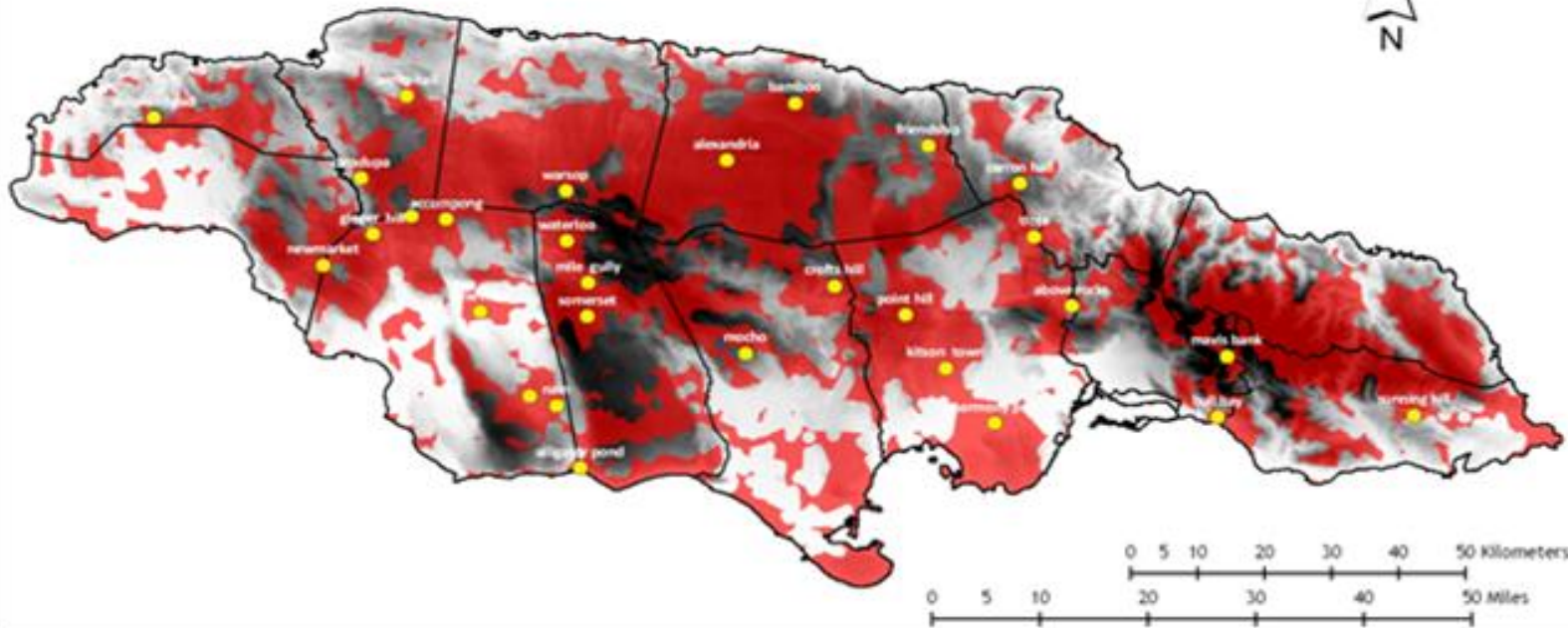
PROJECT LOCATION – SOME CHARACTERISTICS

- ✘ Agricultural importance
- ✘ Water-demand imbalance projected
- ✘ Over-abstraction and deteriorating water quality
- ✘ Severely degraded watershed -high levels of land degradation
- ✘ Steep slopes ranging from 10 - 30 degrees
- ✘ Highly vulnerable to soil erosion
- ✘ Rapid run-off during rainy season
- ✘ High levels of poverty

DISTRIBUTION OF POVERTY IN PROJECT AREA



Areas without Potable Facilities and Pipeline Network



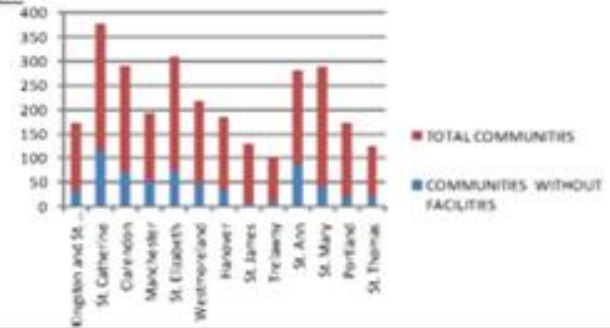
Total Communities without Potable Facilities/Pipeline Network

Legend

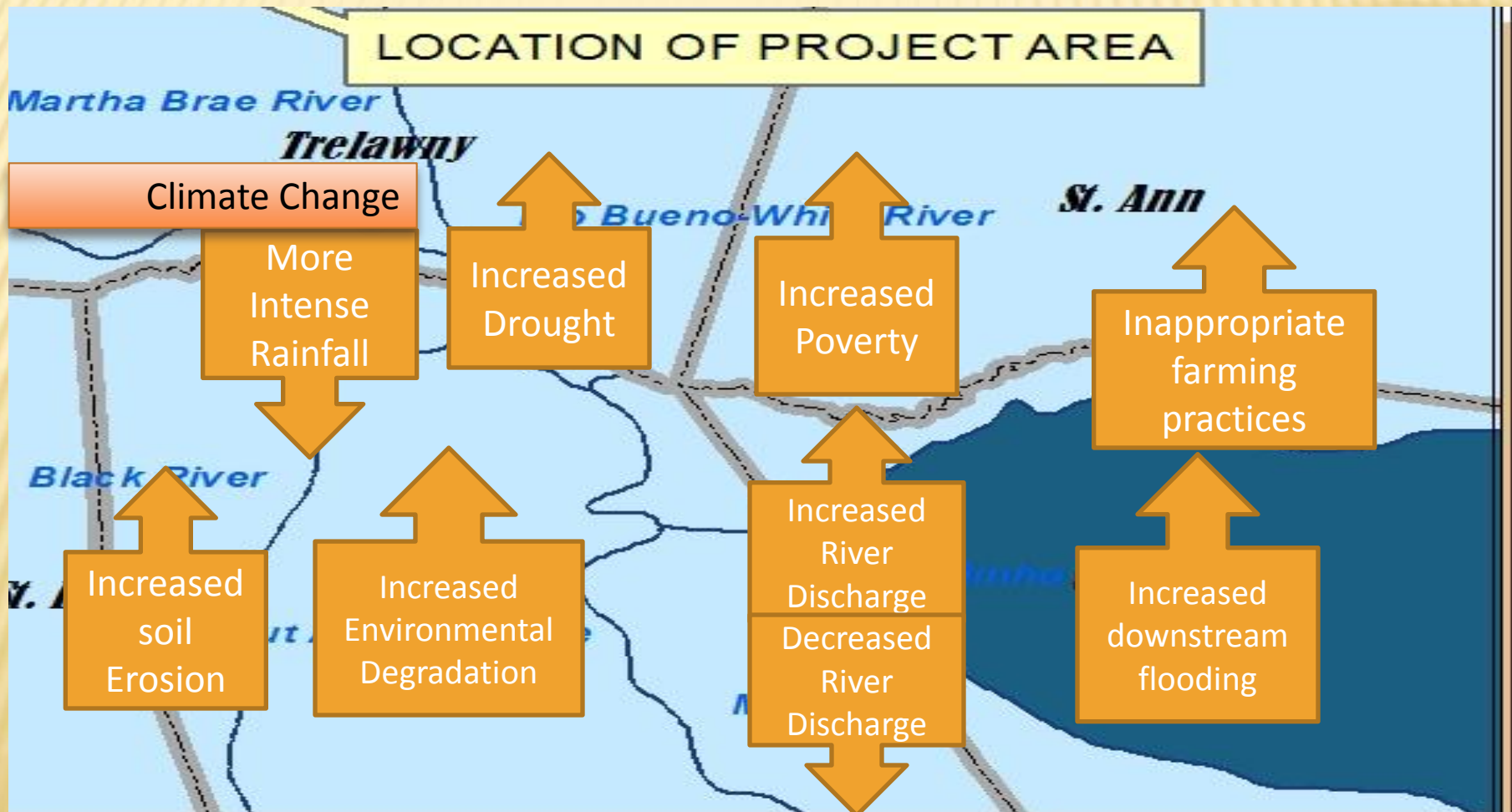
- Major Settlements without Potable Facilities or Pipeline
 - Areas without Potable Facilities or Pipeline
 - Parish Boundary
- Elevation (metres)
- Value
- High : 2258

Low : 0
- NOTES:
 Data Sources:
 National Water Commission
 Water Resources Authority
 PIOJ - RIVamp

PARISH	NO. COMMUNITIES
Kingston and St. Andrew	34
St. Catherine	116
Clarendon	72
Manchester	52
St. Elizabeth	75
Westmoreland	86
Hanover	33
St. James	10
Trelawny	11
St. Ann	86
St. Mary	42
Portland	22
St. Thomas	21
TOTAL	628



COMPONENT 2: PROJECT SITE



INSTITUTIONAL & SECTORAL ADAPTATION (CONT'D)

Adaptation strategies

- ✘ Sustainable Land Management – (land husbandry and soil conservation methods)
- ✘ Water Harvesting and Management
 - ✘ Reservoirs, mini-dams, rehabilitation /construction of water tanks and gravity drip systems

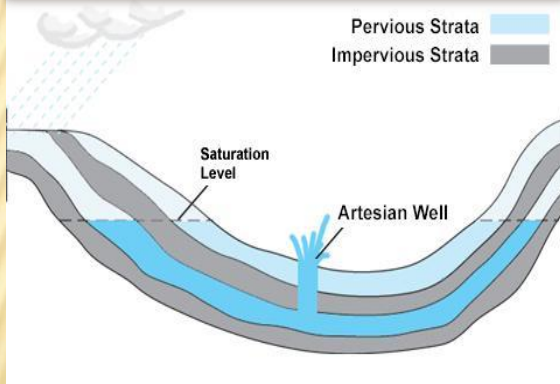
INVESTMENT PROJECT 2: INSTITUTIONAL & SECTORAL ADAPTATION (CONT'D)

Sub-component

- ✘ Managed artificial recharge scheme within the Rio Minho hydrologic basin, in the vicinity of Sevens, north of May Pen and the Clarendon Plains

SOME INNOVATIONS

Artificial groundwater Recharge



Water Storage in mined bauxite pits



Soil Conservation



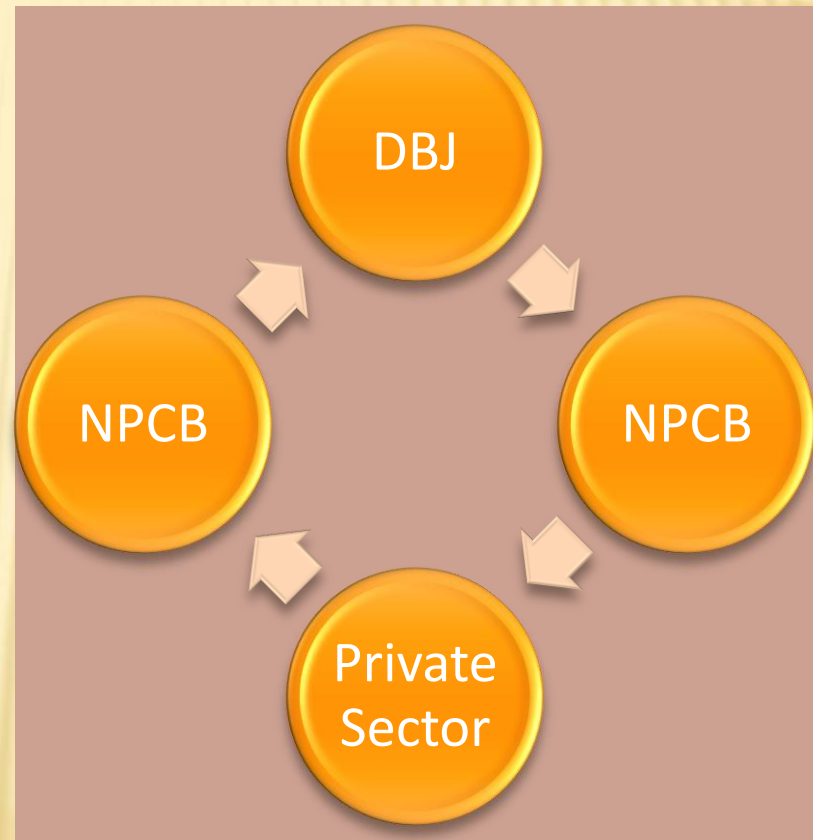
IMPACT ON VULNERABLE GROUPS

- ✘ Increased agricultural output
 - contribution to food security
- ✘ Reduced downstream impact (flooding, siltation)
- ✘ Better disaster preparedness – lower losses
- ✘ Alternative livelihoods
- ✘ Diversification of local economy
- ✘ Reduced poverty

INVESTMENT PROJECT 3: FINANCING ADAPTATION

Sub-component 1

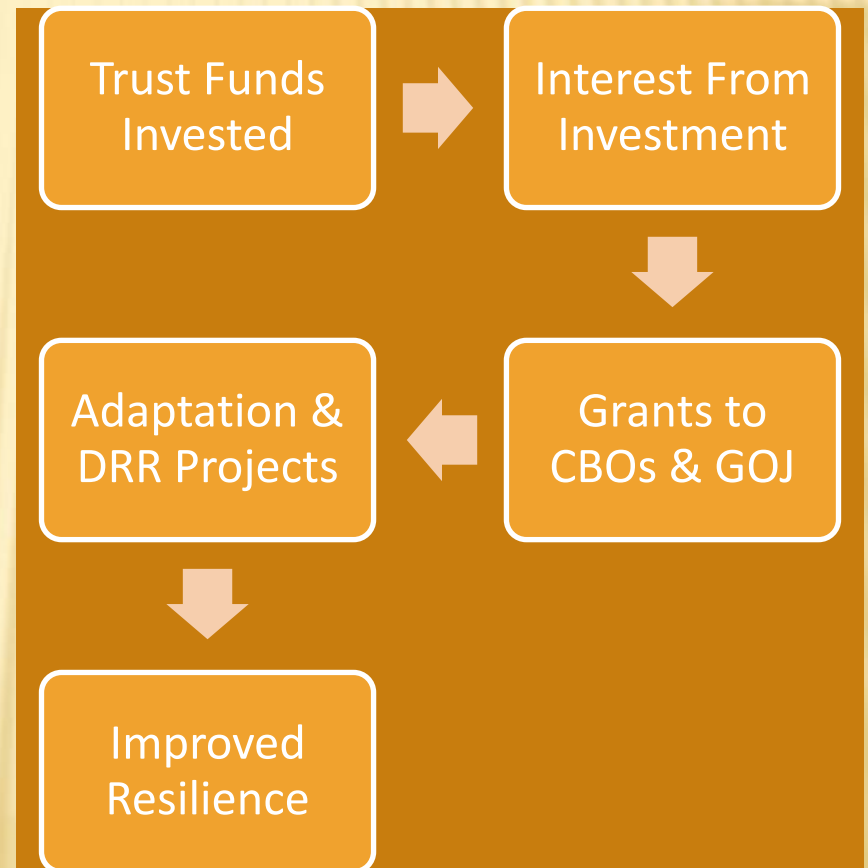
Mechanism for the provision line of credit through the Development Bank of Jamaica and the People's Cooperative Bank network to provide loan financing to farmers and other businesses in the agricultural sector



INVESTMENT PROJECT 3: FINANCING ADAPTATION

Sub-component 2

Trust fund for the financing climate change initiatives at the community level by NGOs CBOs and selected public sector agencies established. Grants from the trust fund will be accessed for clearly defined high priority activities, particularly related to building the resilience of the natural environment and contributing to livelihoods protection and poverty reduction



Investment Costing

IP1 – INVESTMENT COSTING

No	ITEM	PPCR GRANT	PPCR LOAN	Co-financing	TOTALTOTAL
1	Climate Data collection Systems				
	Radar System & Spares	2,300,000			2,300,000
	Automated Weather Station (40)	300,000			300,000
	Capacity development at the Met. Service	100,000			100,000
2	Climate Change Scenarios	500,000			500,000
	Vulnerability Assessment of the Health Sector	1,200,000			1,200,000
3	Risk Information Platform	7000,000			700,000
4	Scaling up of Voices for Climate Change & Implementation of Climate Change Communication Action plan	600,000		700,000	1,300,000
5	Demonstration Projects	400,000			400,000
6	Project Management, Monitoring, Evaluation and Auditing	700,000			700,000
7	Programme Preparation Grant	300,000			300,000
	TOTAL (US\$)	7,100,000		700,000	7,800,000

IP2 INVESTMENT COSTING

No	ITEM	PPCR GRANT	PPCR LOAN	CO-FINANCING	TOTAL
1.	Mainstreaming climate resilience in development plans, regulations & legislation	1,500,000		100,000	1,500,000
2	Vulnerability Assessments & Adaptation plan for Project Area	500,000			500,000
3	Artificial Aquifer Recharge	1,000,000	3,600,000		4,600,000
4	Land Management Measures	1,500,000		1,250,000	2,750,000
5	Water Harvesting and Management Infrastructure	2,500,000		1,250,000	3,750,000
6	Project Management, Monitoring, Evaluation and Auditing	700,000			700,000
	TOTAL (US\$)	7,700,000	3,600,000	2,500,000	13,800,000

IP3 INVESTMENT COSTING

No	ITEM	PPCR GRANT	PPCR LOAN	TOTAL
1.	Line of Credit for the Private Sector	0	1,400,000	1,400,000
2	Seed Funding for the Trust Fund	0	5,000,000	5,000,000
	TOTAL (US\$)	0	6,400,000	6,400,000

INVESTMENT PROJECTS – TOTAL COST (US\$ MILLION)

ITEM	PPCR GRANT	PPCR LOAN	TOTAL
Investment Programme I Climate Data & Information	6.4	0	6.4
Investment programme II – Mainstreaming Climate Resilience River Basin Planning & Management	7.0	3.6	10.6
Investment Programme III – Sustainable financing Mechanisms	0	6.4	6.4
Knowledge Management/ Preparation & Dissemination of Lessons Learnt	0.2	0	0.2
Sub-Total Investment Programmes	13.6	10.0	23.6
Project Management	1.2	0	1.2
Project Auditing & Evaluation	0.20	0	0.20
Sub-Total	1.40	0	1.40
TOTAL (US\$)	15.0	10.0	25.0

SUMMARY

- ✘ Three components:
 - + Climate data & information management
 - + Institutional & Sectoral Adaptation
 - + Adaptation Financing
- ✘ Response to the needs of vulnerable groups
- ✘ Co-financing

The End!

Keep the vision alive:

**“Jamaica, the place of choice
to live, work, raise families
and do business”**

– VISION 2030 Jamaica