



NATIONAL METEOROLOGICAL SERVICE OF BELIZE
Climatology & Climate Services

Current Drought Monitoring Products... Way Forward

PRESENTED BY:

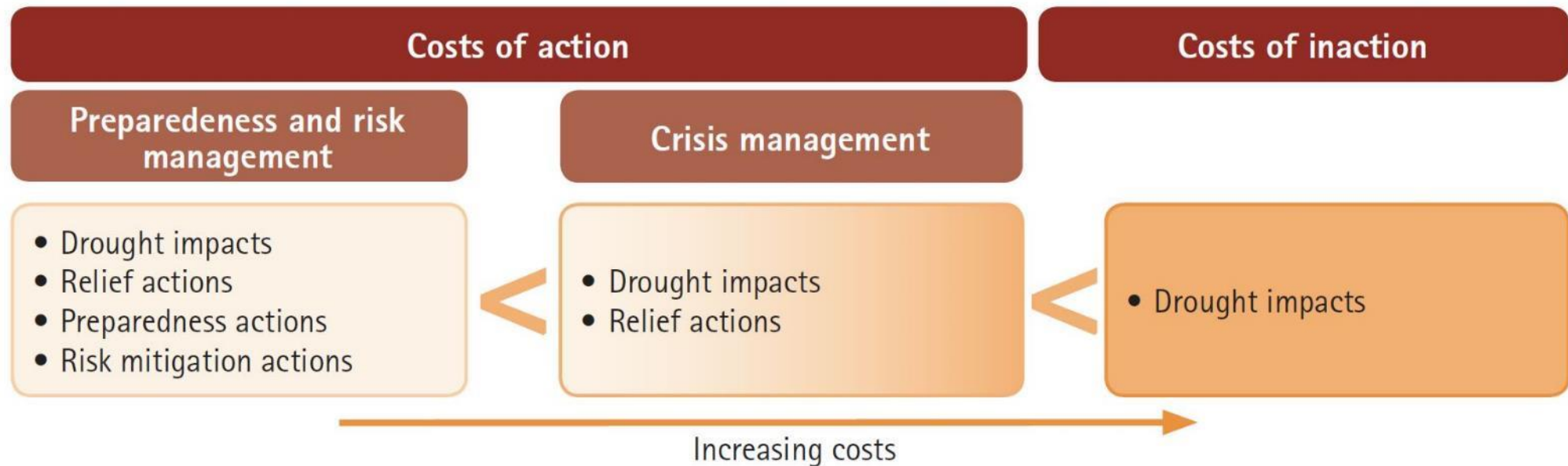
MS. SHANEA YOUNG, METEOROLOGIST
NATIONAL METEOROLOGICAL SERVICE OF BELIZE

What is drought?

Types:

- Meteorological: a result of prolonged absence of precipitation, high temperatures, low humidity which increases evapotranspiration for a specific region
- Hydrological: a slow process drought occurring when meteorological conditions causes reduction in the water levels from reservoirs, streams, lakes, rivers, aquifers etc.
- Agricultural: drought affecting agricultural production and occurring when there is precipitation shortages and soil moisture deficit and water requirements of plant are not met.
- Socio-economic: the correlation of the supply and demand of water resources for household water supply and hydroelectric power with the above- three mentioned drought types resulting in huge socio-economic impacts.

Drought Management in Belize (National)



Drought Management in Belize (NMS)



Current Drought Monitoring Products

Climatic Zone	Station	April Rainfall Total (mm)	Percent of 30-year Mean (%)	Observed SPI (6-month)	Observed SPI (12-month)
Northern Areas (Orange Walk and Corozal Districts)	Libertad	50.8	122	-0.35	-1.09
	Towerhill	107.7	299	0.81	1.53
Central Coastal Areas (Belize District)	Airport	26.6	47	0.51	0.5
	Central Farm	48.9	98	0.35	0.47
Central Inland Areas (Cayo District)	Belmopan	53.1	138	0.29	-0.12
	Spanish Lookout	74.1	220	1.45	-0.42
Southern Areas (Stann Creek and Toledo Districts)	Melinda	76	149	1.03	0.39
	Savannah	44.8	74	-0.22	-0.42
	Punta Gorda	165.3	200	0.42	0.73

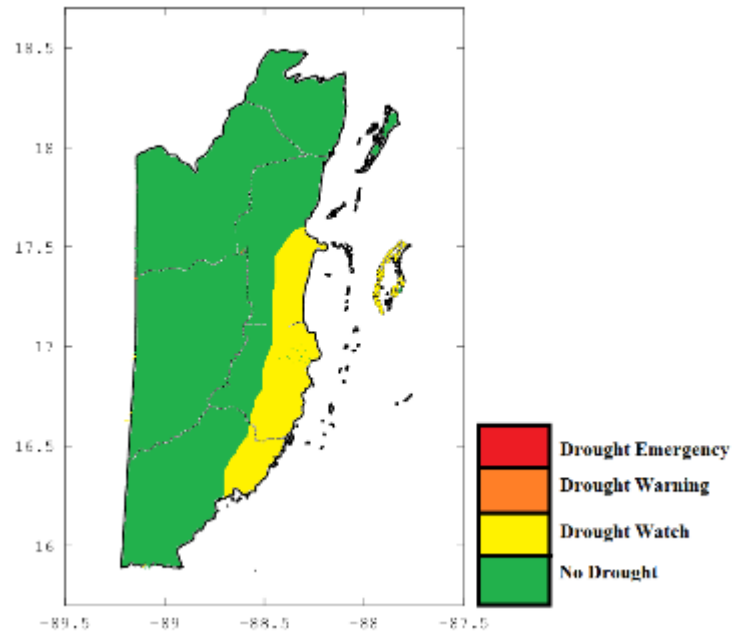
Note (6-month: Nov-2017 to Apr-2018 and 12-month: May-2017 to Apr-2018)*

Current Drought Monitoring Products

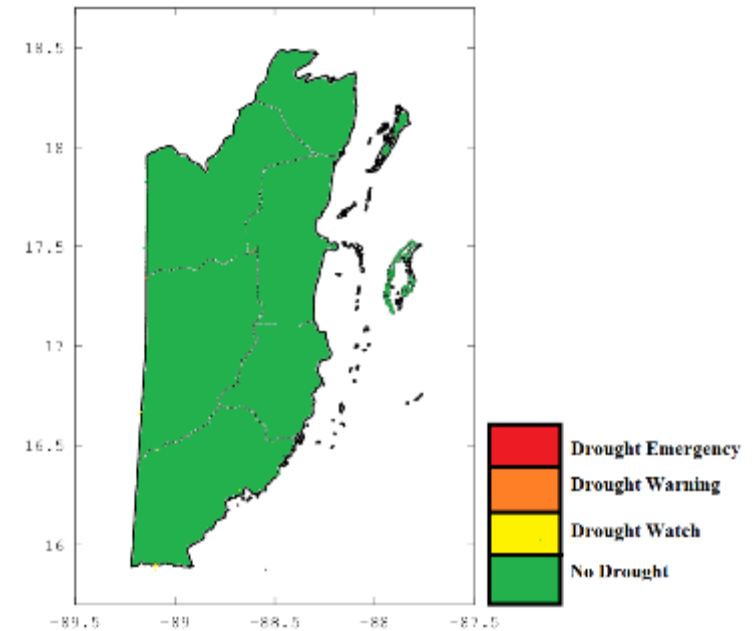
6 MONTH-SPI

12 MONTH-SPI

6 MONTH DROUGHT OUTLOOK (Mar - Aug 2018)



12 MONTH DROUGHT OUTLOOK (Dec 2017 - Nov 2018)



Current Drought Monitoring Products

ALERT LEVEL	MEANING	ACTION LEVEL
NO CONCERN	No drought concern	<ul style="list-style-type: none"> ✓ monitor resources ✓ update and ratify management plans ✓ public awareness campaigns ✓ upgrade infrastructure
DROUGHT WATCH	Drought possible	<ul style="list-style-type: none"> ✓ keep updated ✓ protect resources and conserve water ✓ implement management plans ✓ response training ✓ monitor and repair infrastructure
DROUGHT WARNING	Drought evolving	<ul style="list-style-type: none"> ✓ protect resources ✓ conserve and recycle water ✓ implement management plans ✓ release public service announcements ✓ last minute infrastructural repairs and upgrades ✓ report impacts
DROUGHT EMERGENCY	Drought of immediate concern	<ul style="list-style-type: none"> ✓ release public service announcements ✓ implement management and response plans ✓ enforce water restrictions and recycling ✓ enforce resource protection ✓ repair infrastructure ✓ report impacts

Drought Risk Management (Short Term)

Drought Preparedness:

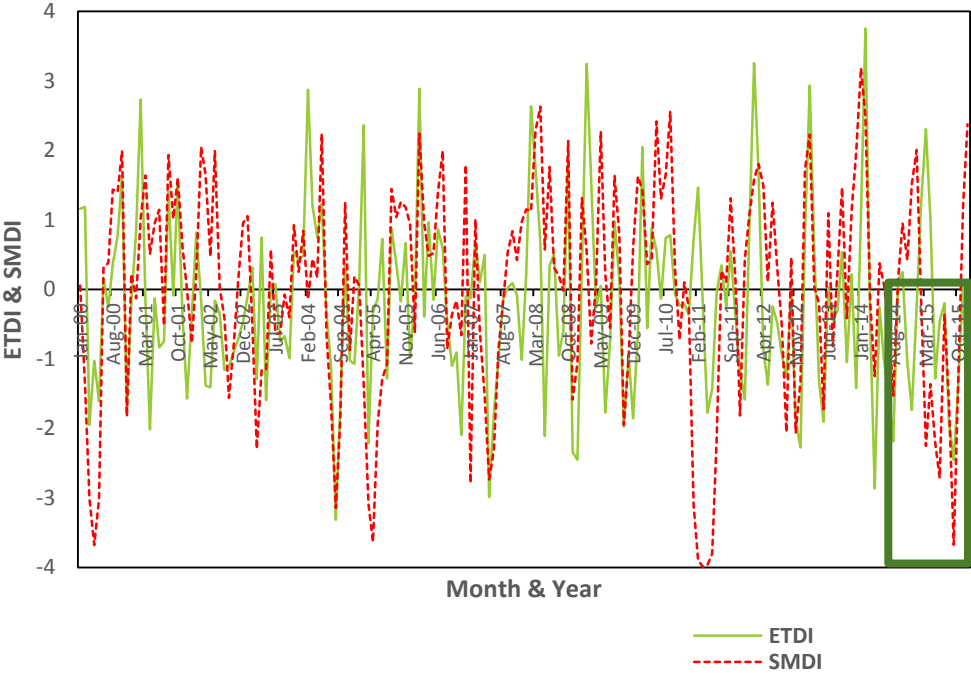
- Upgrade observing network (increase station coverage and include soil moisture probe e.g. SIRDI)
- Improve Monitoring and Data Collection
- Enhance Drought Forecasting and Early Warning Systems e.g. Common Alerting Protocol (CAP)
- Conduct Drought Risk Assessments (basis for drought preparedness and mitigation actions)

Mitigation of Drought Risks:

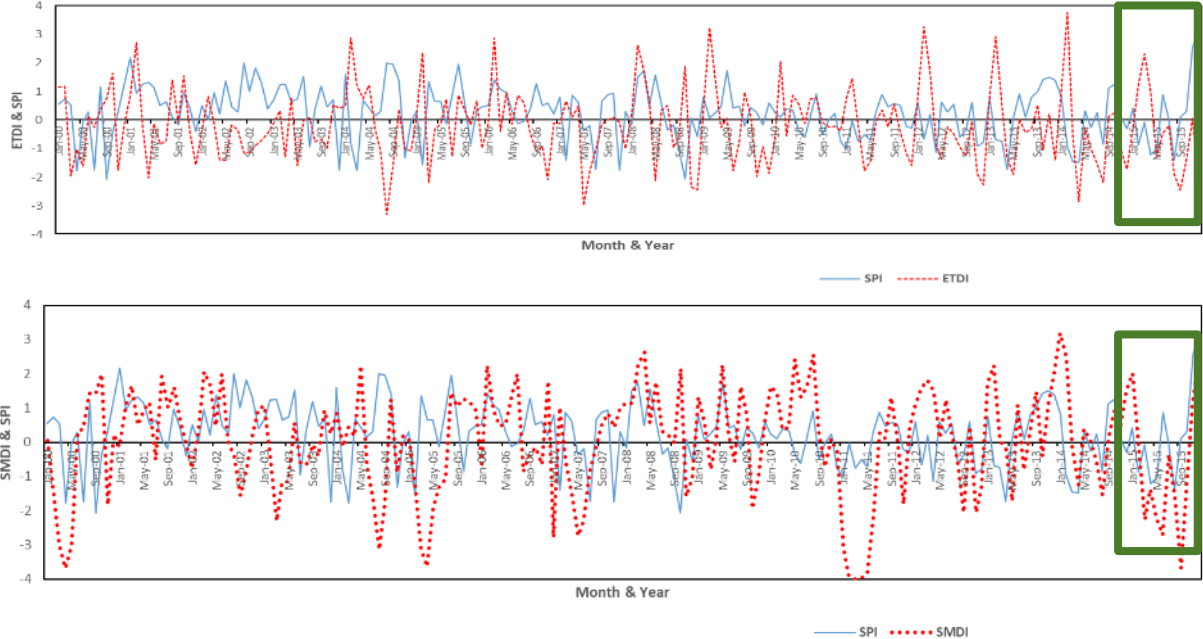
- Establishment of Irrigation Systems (Irrigation Application and Scheduling by Commodity)

Drought Indices (Central Farm, Belize)

AGRICULTURAL



METEOROLOGICAL & AGRICULTURAL



Government Policy on Drought (Medium to Long Term)

Enhancement and Implementation of Agriculture Disaster Risk Management Plan (Hurricanes and Floods, No drought Risks)

References

World Meteorological Organization (WMO) and Global Water Partnership (GWP), 2017. Benefits of action and costs of inaction: Drought mitigation and preparedness – a literature review (N. Gerber and A. Mirzabaev). Integrated Drought Management Programme (IDMP) Working Paper 1. WMO, Geneva, Switzerland and GWP, Stockholm, Sweden.

Wilhite, D.A.; and M.H. Glantz. 1985. Understanding the Drought Phenomenon: The Role of Definitions. *Water International* 10(3):111–120

Caribbean Institute for Meteorology and Hydrology (CIMH)., & Food and Agriculture Organization of the United Nations (FAO), 2016. Drought characteristics and management in the Caribbean. Rome: FAO

National Meteorological Service of Belize (NMS Belize), 2018.