Drought FAQs 2019

1. WHAT IS A DROUGHT?

Drought is generally defined as a long period – months or even years - of little or no rain, but there are also some more precise definitions for specific types of drought conditions. These differing definitions include:

a. *Agricultural drought* – a period when soil moisture is inadequate to meet the demands for crops to initiate and sustain plant growth.
b. *Hydrological drought* – period of below average or normal stream-flow and/or depleted reservoir storage.
c. *Meteorological drought* – a period of well-below normal precipitation (rainfall) that spans from a few months to a few years.

There are also different ways of measuring drought but all of them have negative implications for potable water systems.

While drought is often used inter-changeably with dry season, the two are not necessarily the same. Dry seasons, when they occur as expected and to the degree expected, are not droughts. Similarly, rain may indeed fall during a wet season, but if it is below 60% of what was expected based on historical trends, you may indeed have a drought in the middle of a supposed wet season. In the case of Jamaica, our expected dry season runs from December to April and again in July.

Most water supply systems around the world are vulnerable to drought conditions to varying degrees. Sections of Jamaica are currently experiencing drought conditions using any or all of the above definitions.

2. WHAT CAUSES DROUGHTS?

Droughts are caused by irregularities in weather patterns (including global warming, El Nino and other weather phenomena) that result in insufficient rainfall. Localized droughts may also be exacerbated by poor environmental and development practices including issues like de-forestation, watershed degradation and over-use or pollution of water sources.

3. HOW IS THE CURRENT DROUGHT IMPACTING ON THE NWC'S OPERATIONS?

A number of the NWC's systems are supplied by surface water sources (rivers, springs) that are especially vulnerable to drought. The below normal rainfall in sections of the island over the past months has severely affected the flow to these sources which in turn impacts the volume of water being available to supply customers. The dwindling inflows are not sufficient to sustain normal operations on these systems.

4. HOW SEVERE IS THE CURRENT DROUGHT?

The current drought affecting sections of Jamaica varies in severity from area to area or from one water supply system to the other. Inflows into 90 of 450 NWC water supply systems are now well below normal. Other systems are also seeing reduced inflows but have nonetheless been able to produce at or near their normal outputs.

Most affected water supply systems are in the Eastern Division. The worst affected systems are mainly surface-water-fed systems mainly in **Portland (8** systems), **St. Mary (8** systems), **St. Ann (10** systems), **St. Thomas (4** systems), **Clarendon (11** systems), **Kingston and St. Andrew (31** systems). The worst affected systems are in St. Ann where 3 systems (**Higgin Town, Dawson and Content**) have dried up entirely and 4 other systems (**Seville #1, New Ground, Avisfield and Blackstonedge**) have each declined to below 10% of their normal production; and in Rural St. Andrew where the **Violet Bank** system has also dried up.

Not only were the usual dry months drier than normal, the rainfall level expected during April and May did not materialize. For example, February is usually Jamaica's driest month but in February 2019, twelve parishes recorded below-normal rainfall. The islandwide rainfall was only 58% of the normal low rainfall expected in February with Kingston and St. Andrew receiving only 35% of its normal rainfall for February.

At the same time, we are also aware that supplies from other providers of all types of water are also being drought affected. Supplies from many minor water supply systems operated by the municipal authorities have dried up; and the demand for irrigation supplies have also

increased at the same time that the means to meet the need is reduced. The legal and illegal demand for NWC-supplied water has therefore grown by as much as 50% in some areas during the dry seasons, straining even those systems that have not reduced output significantly.

5. What is NWC doing about the current drought?

Drought comes at a significant cost to the NWC. The tariff does not cover these costs and NWC has no source of funding to recover these additional costs. Notwithstanding, NWC has implemented a range of short-term, medium-term and long-term measures to combat the current and future drought conditions. These measures include:

- Regulation of the water supply, whereby, water is provided to an area on particular days during specific hours;
- Measures to access additional sources of water for treatment and distribution;
- Measures to maximize existing sources and to reduce wastage and leakage;
- Sharing of water from least-affected systems with worst-affected areas, where possible;
- Trucking of water to worst affected areas (priority is given to hospitals, health centres, schools, other public institutions and communities which are severely affected for prolonged periods);
- Imposition of Prohibition Notice making it illegal for the excessive or wasteful or wrongful use of potable water in drought-affected areas (Please see Prohibition Notice for complete list of activities that are prohibited);
- Encouragement of significant conservation measures.
- Concentrated effort by the Commission to repair leaks on the system

Because the water supply disruptions in the Corporate Area is also caused by other things, the NWC has also:

- Completed emergency installation of 1.5 kilometres of interim 12” pipelines to bypass a section of the unrepairable 18” Ferry Transmission pipeline since Mid-April;
- Requested fast-tracking of the new replacement pipelines (900mm and 600mm) to the south of the Mandela Highway;
- Explored purchase and use of water from private providers -
- Engaged privately owned and NWC water trucks to deliver more than 700,000 gallons of water each week;

- Procured hundreds of water tanks for free distribution to help customers with water storage.

6. WHAT IS BEING DONE IN THE MEDIUM AND LONG TERMS?

Recent major projects such as the Jamaica Water Supply Improvement Project, a new 5 million gallons per day (MGD) Martha Brae Treatment Plant, rehabilitation of the Great River and Martha Brae Treatment Plants, the 8.5MGD Groundwater Aquifer Recharge Project, and many other projects to protect existing water sources, develop larger, more drought-resistant water supply systems, replace existing old and inefficient infrastructure, interconnect more water supply systems for improved manageability and various sewerage projects to protect the underground water supplies have all contributed in some way to building resilience.

The 5-year-long $4.9 Billion Kingston and St. Andrew (KSA) Non Revenue Water (NRW) Reduction Project now being implemented is also a major drought response. The major mains replacement initiatives along several road corridors and several others proposed will also build drought resistance.

Medium-term projects primarily aimed at reducing the Commission's dependence on small surface-source systems to larger and more underground-source systems as well as greater interconnection between systems and reducing losses are also being planned. Included are activities for developing new wells or rehabilitating existing unused wells and initiating changes to the distribution network to enable distribution of water from least affected systems to worst affected systems.

Many other planned projects will also have positive impacts on building drought-resilience.

7. Even when I am scheduled to get water, why is there none in my pipe?

As far as is possible, the National Water Commission continues to provide water through the pipes to its customers. There are instances however where an individual customer may receive very low pressure or no water at all even during the hours that water is scheduled to be supplied. This could be due to a number of factors, including elevation; location on the system; the distribution network; broken mains, loss of electricity, operational challenges or customer demand at the time in the particular area.

8. As it relates to trucked water, how is this coordinated?

Areas that are not able to be supplied via pipes have been placed on a trucked water schedule. Despite many difficulties inherent in the nature of trucking water, (particularly as it relates to time, turn-over, expanse and location of an area,) the NWC strives to deliver trucked water at least once per week.

9. Should customers pay for water that is provided by NWC trucks?

NO. Trucks and personnel deployed by the National Water Commission are not authorized under any circumstances to collect any monies from customers for water provided by the NWC.

10. What can customers and individuals do?

In this severe shortage of water affecting sections of the country, we all need to adjust and make do with less water. Voluntary, personal conservation can go a far way in both saving money and saving water for use another day or for use by others in need. Studies show that water use in an average household can be reduced by 30% by simply practicing good conservation measures without any significant inconvenience.

Conserve water by:

- **R**educing water use wherever possible and finding alternatives to water-intensive activities. For example, turn off all taps as soon as the water isn't being used and don't use the toilet to dispose of things that should be in a wastebasket, but do use disposables to eliminate the need to wash dishes.
- **R**epairing all leaks – whether they are a nuisance or not or whether they appear to waste a lot of water or not. Even small leaks waste a lot of water over time and various studies show that about 10% of water in homes is wasted due to leaks.
- **R**e-use or re-cycle water whenever possible. For example, re-use the water used to wash plates or clothes to water plants, wash cars or water lawns.

- **R**e-place water wasting devices such a 7- and 5-gallons per flush toilets or gushing showerheads with water-saving devices such as flow restrictors and aerators.

Also, do not leave taps turned on even when there is no water in the pipes as when water returns you may be unaware and the pipe would be left running.

11. What are the current drought affected systems?

See list below:

FACILITIES AFFECTED BY DROUGHT CONDITIONS

FACILITIES	AREAS SERVED
ST. ANN	
Seville #1	Seville, Top Seville, Priory, Farmers Heights, sections of Hartland, New Seville Housing Scheme, Farmer Scheme, Red Ground and Hospital
New Ground	Lime Hall, New Ground, Clamstead, Laycock and Gravel Hill
Higgin Town	Higgin Town and Johnny Spring
Dawson Town	Dawson Town
Content	Content
Avisfield	Avisfield
Mt. Zion	Mt. Zion and Mines
Blackstonedge	Blackstonedge, Castle Kelly and White Hall
Liberty	Liberty, Hartland and sections of Priory
Sturge Town	Sturge Town
ST. MARY	
Sand Hill	Port Maria, Mort Maria H/S, Sand side, Albion Mountain, Grey Street, Church Street, Bailey's Vale, Trinity, Cambridge, Free Hill, Oxford, parts of Cox Street
Hunts Town	Hunts Town
Martha Hall	Martha Hall and Marlborough
Palmetto Grove	Tremolsworth, Frazerwood, Kilancholy, Hopewell, Saltrum, Bartley Town
Salisbury	Wood Park and King Spring
Lucky Hill	Lucky Hill, Saltrum, Jeffery Town, Arcadia H/S, Coffee Walk, Barclay Town
Castleton	Castleton and Golden Valley
Fellowship Hall	Fellowship Hall
PORTLAND	
Turtle Crawl	Williams Field, San San, Friendship, Castle, Fair Prospect and Fair Prospect Garden
Kensington	Kensington

Packi River	Manchioneal, Hectors River, Dillon, Barracks
Windsor Forrest	Windsor Forrest, Hartford, Benjamin, Hill, Commodore
Long Bay	Rose Garden, Rural Hill, Long Bay
Windsor Castle	Windsor Castle, Hart Hill
Craig Mill	Craig Mill
Norwich	Snow Hill and Passley Garden
ST. CATHERINE	
Berkshire Hall	Cheesefield, Dover, New Works, Richard Pen, Enfield, Redwood, Parts of Bump
Guys Hill	Race Course, Jeffry Town, Decoy, Ragsville, Moreland, Redwood, Middlesex, Guys Hill, Windsor Castle, Barnett/Benbow, Bonnett
Goldmine	Bodose Hill, Bellas Gate, Cocoa Ridge, Sand Hole, Content, Rhule Town, Sandy Ground, Bellfield, Marlie Hill, Joe Ground, Bamboo Ridge, Bartons, Wood Hall, Brown's Hall, Gravel Hill, Blue Hole, Macca tree
Golden River	Waugh Hill and Golden River
Berry Hill	Berry Hill, Lucky Hill & August Town
KSA	
Hermitage/ Constant Spring	Norbrook, Cherry Gardens, Havendale, Half-Way-Tree, Lady Musgrave, Liguanea, Manor Park, Shortwood, Graham Heights, Aylsham, Allerdyce, Arcadia, White Hall Gardens, Belgrade, Kingswood, Riva Ridge, Eastwood Park Gardens, Hughenden, Stillwell Road, Barbican Road, Russell Heights Constant Spring Road & Gardens, Camperdown, Mannings Hill Road, Red Hills Road, Arlene Gardens, Roehampton, Smokey Vale, Lower Jacks Hill Road, Chancery Hall Heights, Jacks Hill, Tavistock, Trench Town, Essex Hall, Cavaliers, Areas between Pinto Tank and Clarke Hill, Calabar Mews, Zaidie Gardens, State Gardens
Mona	Mona, Cross Roads, Mountain View, Old Hope Road, Devon Square, Waterloo Road, Cassia Park, Eastwood Park, Red Hills Road, Half-Way-Tree Road, Upper Maxfield Avenue, Ziadie Gardens, Dunrobin Avenue, New Kingston, Liguanea, Mona Road, Ravina, Hagley Park Road, Harbour View,
Hope	August Town, Hope Flats, Papine, Gordon Town, Mona Heights, Hope Road, Beverly Hills, Hope Pastures, Gordon Town and environs, Papine, Kintyre, Hope Flats
West Rural Barnettwood	Padmore, Cooper's Hill, Swain Spring, Castle James and sections of Sterling Castle
Belboa	Red Ground, Belboa, Cavaliers
Belmore	Mount Charles And Belboa
Chuchu Bottom	Allman Hill, Rock Hall
Bucky Plain	Unity, Fern Hill, Pigeon Valley, Grant Hill, Goulbourne
Isaac Hole	Claypole Road, Lawrence Tavern, Burnt Shop, Unity,Top and Bottom Track

Kingweston	Section of Bucky Plain, Belmont, Grant Hill, Florence Hill, Lawrence Tavern, Mount Ogle, Matthew Road, Toms River, Cokely, Johnny Ridge.
Mahoney	Mahoney, Rose Hall, Lawrence Tavern, Cassava River, Moount Olive, Assett Hill
Second Breakfast	Mount Friendship, Lime Edge, Belmore Road, Brandon Hill, Mount Pleasant, Mountain Spring, Lawrence Tavern, King Weston, Florence Hill, Mount Ogle, Belmont, Toms River, Mount Zion, Blakes Bridge, Mount Prospect, Mount Horeb
McGowan	Paradise Road, Settlement Road, Salisbury Plain
EAST RURAL ST. ANDREW	
Craig Hill	Dublin Castle, Craig Hill
Drummond	Bull Bay, Windsor Lodge, Greenvale Road, Nine & Ten Miles, Taylor Lands, Tamarind Tree Old Road, Tana Hill, Clement Road
Flamstead	Top Hill, Flamstead, Little Content, Galloway Lodge, Dublin Castle, University Tank, Lower Guava Ridge
Friendship Brook	Sections of Butcher's Pass, Cane
Griffin	Red Light, Irish Town, Industry, Village, Cottage Hill, Wiltshire, Cornfield, Hart Hill, Gayle Mountain, Bermuda Mountain, Jackfruit Tree, Rodney Pen, Cameron Hill, Enfield, Ellislie Way
Halls Delight	Hall's Delight, Bryan Ridge, Robertsfield
Harbour River	Sections of Bloxburgh
Hibbert Spring	New Ramble, Westphalia Road
John Spring	Somerset, John Spring, Somerset Tank
Middleton	Middleton
Orchard Spring	Lower Mount Charles, Green Valley Housing Scheme
Pulpa Spring	Sections of David's Hill
Rose Hill	Free Town, Peter's rock, Cottage Road, Top Maryland, Woodford and Jack Allen
Solas Spring	Solas, Lower David's Hill
Stafford Hall	Dallas, Stafford Hall and section of Stable Park, Butcher's Pass
Sugar Loaf	Sugar Loaf, Penfield, Mount Industry
Suzie Spring	Belcour, Maryland, Mine Peace
Violet Bank	Violet Bank
ST. THOMAS	
Needham Pen	Ward River, Needham Pen and Environs
Arntully Grove	Grove, Ness Castle, Wilson Gap and Bethel
Airy Castle	Airy Castle, Grossett, Spring Top, Nickle Hill
Wilmington	Mount Stewart, Curry Hill, Wilmington, Brooksland
CLARENDON	
Low Ground	Wood Hall, Ennis, Suttons, Teak Pen, Turners, Four Paths Post Road, Chapelton, New Longsville, New Roads, Sangsters Heights, New Danks, Shingle Hut, Mt. Providence, Sine, Married Lane, Alexandria
Rock River	Rock River, Tanarchy, Gordon Wood, Tommy King, Morris Hall, Moores, Sheepen Hill, Low Ground Wood, Mt. Zion Road, Lime Hall.
Crooked River	Crooked River, Pennants, Mears, Bryans Hill, John Austin, Baptist, Ballards River, Orange Hill.
Campbell Hill	Trout Hall, Trout Hall H/S, Green River, Mais.

Frankfield	Frankfield, Water Works, Lampard, Cammesary, Lime Kilm, Andrew Hill.
Fairburn	Fairburn, James Hill, Bog Hole, Corner Shop, Salem, Desire
Patterson Spring	Sanguenetti, Peckham, Tweedside, Fearon, Wisbeach
Drummond Spring	Drummond Spring, Beckford Kraal, Iron Gate, Trumpet Tree
Peace River	Peace River, Gloucester, Victoria Lodge, Thompson Town, Cove, Weslyan Gully, Blackwood, Elgin
Aenon Town	Aenon Town, Pen Ring.
New Ground	New Ground, Peterkin, Suttons, Summerfield, Rose Hill, Chapelton, Sangsters Heights

DROUGHT AFFECTED AREAS:

PARISH	**SYSTEM**
St. James	Endeavour Pumping Station
	Mafoota Pumping Station
	Mt. Pelier
Trelawny	Wilson Run Pumping Station
	Ulster Spring Pumping Station
	Queen of Spain Deep well
Hanover	New Milns Pumping Station
Manchester	Moravia Treatment Plant
	YS Spring