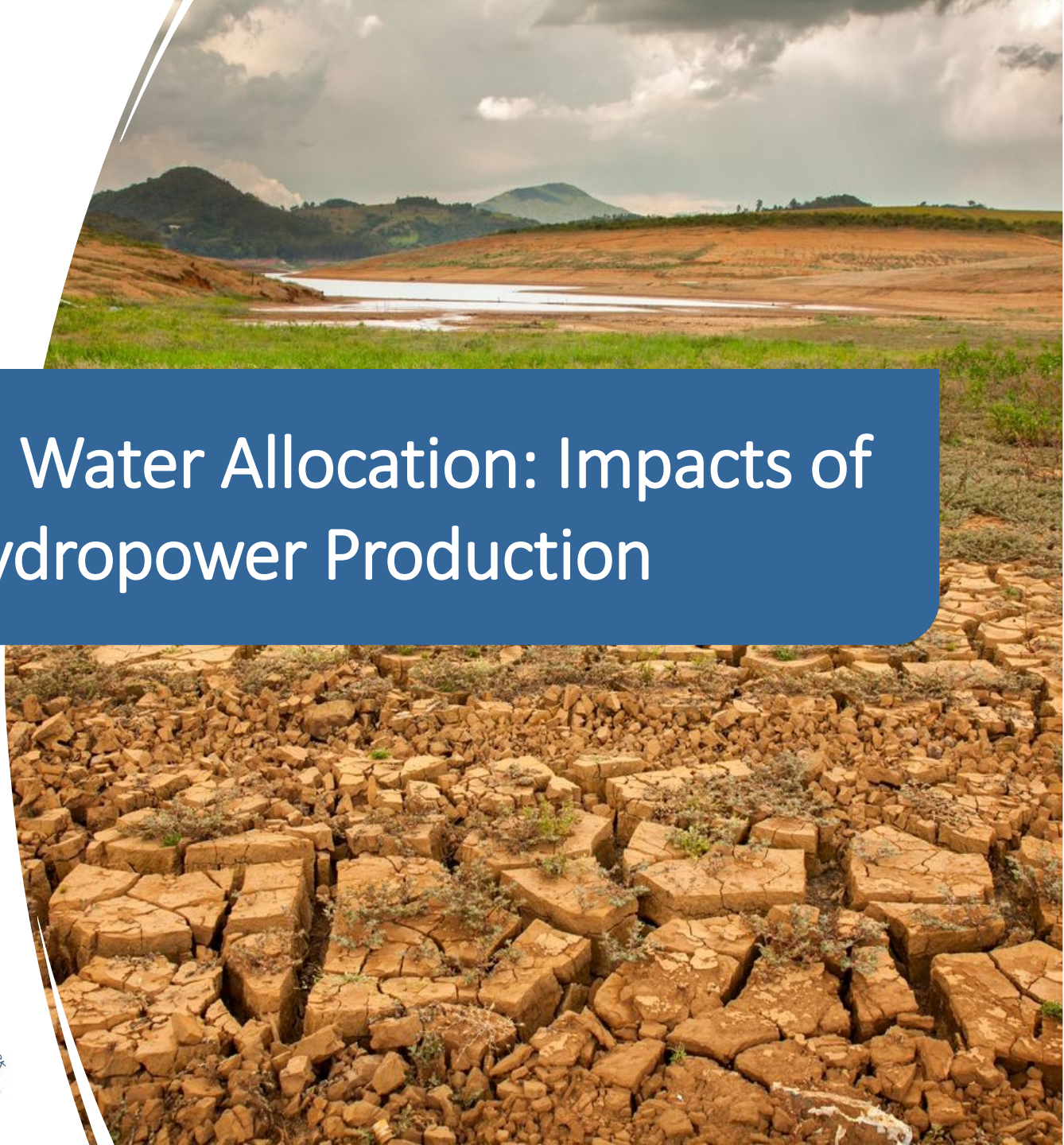




Global Workshop
on Droughts in Transboundary Basins
 26-27 February 2024, Geneva

Zambia's Activities on Water Allocation: Impacts of Drought on Hydropower Production

Mweshi Katongo
 Zambia/Ministry of Water Development and Sanitation

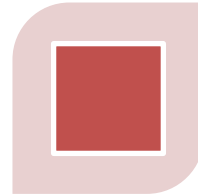




PRESENTATION OUTLINE



OVERVIEW
OF
TRANSBOUNDARY
BASINS IN
ZAMBIA.



UNDERSTANDING WATER
ALLOCATION



WATER
ALLOCATION
ACTIVITIES



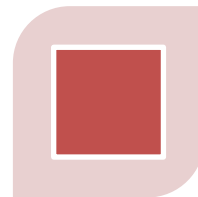
HYDROPOWER
GENERATION



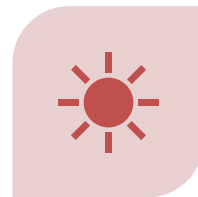
RAINFALL
SEASON



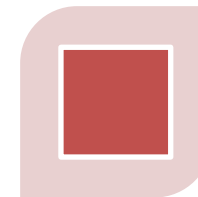
IMPACTS OF
DROUGHT
ON
HYDROPOWER



RESERVOIR
OPERATION
IMPACTS



CONCLUSION

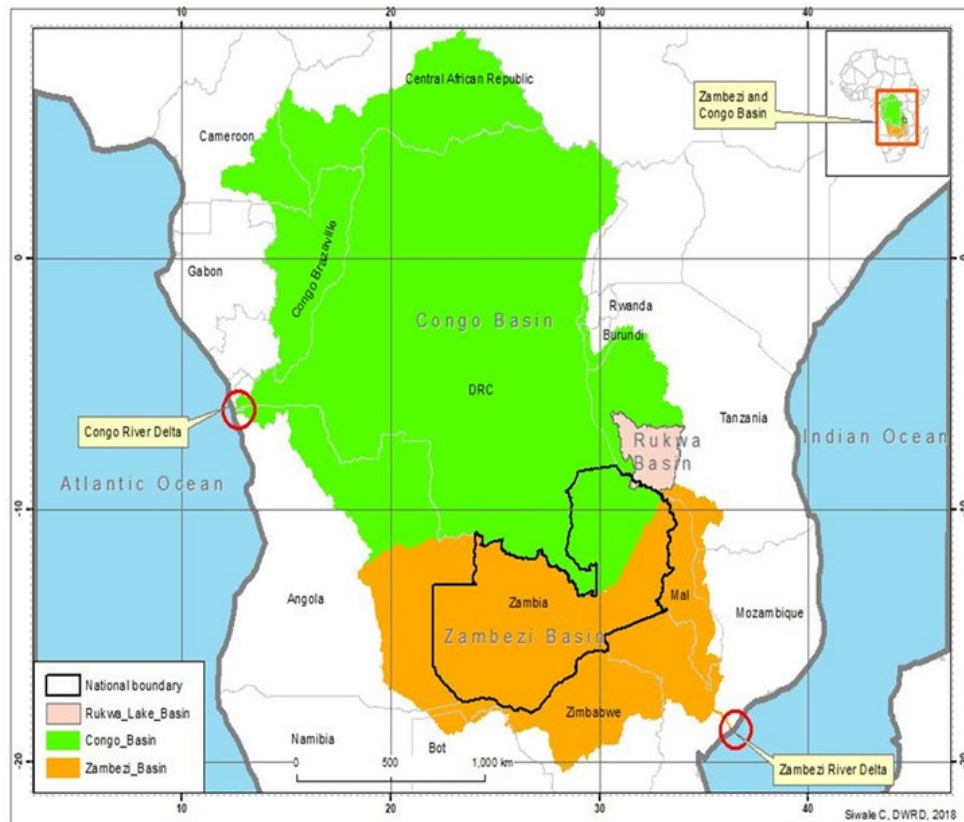


UPCOMING
WORKSHOP



Overview of Zambia's Transboundary Waters

Congo and Zambezi Basins



Role of TWR

- Zambia's Territory in 2 Internationally Shared River Basins.
- TWR - fostering social economic transformation among riparian countries and communities
- Boosting regional economic integration
- Government has placed a high premium on the management of transboundary water resources

Regulatory framework

Policies and laws governing the allocation and usage of water for various purposes to ensure equitable sharing and conservation.

- Water Resources Management Act No. 21 of 2011
- 2020 National Water Policy



Cooperation Frameworks for Transboundary Waters Management

The Convention on the sustainable management of Lake Tanganyika. This is an international instrument which established the Lake Tanganyika Authority comprising of Zambia, Burundi, Tanzania and DR Congo.

The Zambezi River Authority agreement is a bilateral instrument which established the Zambezi River Authority which is a jointly owned River Basin Organization by Zambia and Zimbabwe.

ZAMCOM Agreement 8 MS

Zambia is currently an observer member of the International Commission of Congo-Oubangui-Sangha (CICOS) Basin

Drafted Legal Bilateral Agreement for Establishment of the Luapula River Authority



Understanding Water Allocation

Water Resource Distribution



- SIX (06) Catchments
- WARMA manages the allocation of water resources to different sectors and regions for optimal usage and sustainability.



WATER ALLOCATION ACTIVITIES

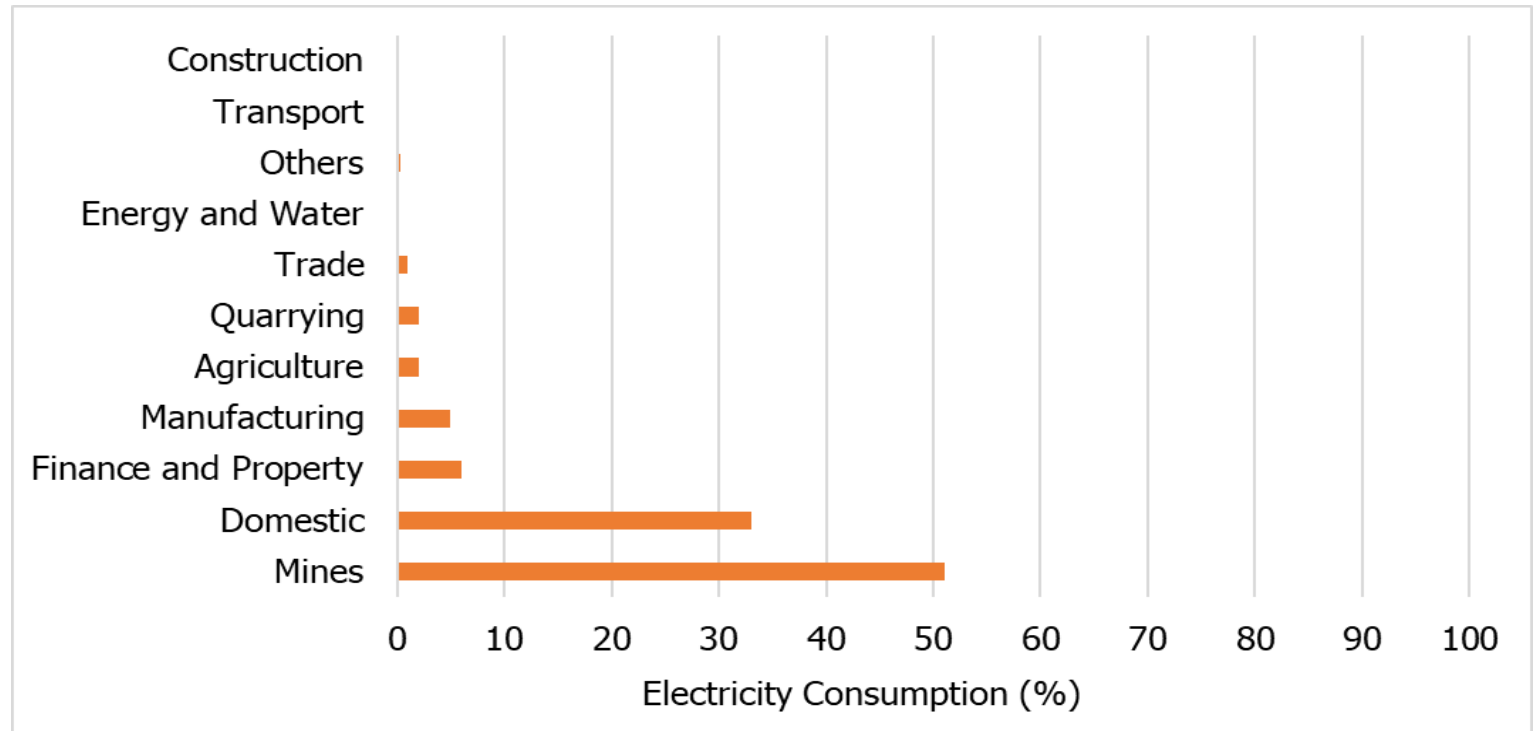
WARMA conducts:

- 1 Water Balance Quantification at sub-catchment level to determine water availability for use in various sectors-Energy, Agriculture, Domestic etc..
- 2 Water Resources Monitoring through a network of Hydrometric Stations in all catchments
- 3 Water Permitting –Priority areas
- 4 Water Allocation is also informed by forecasting done at the Regional level (SARCOF) and Met at the National Level



Hydropower Generation

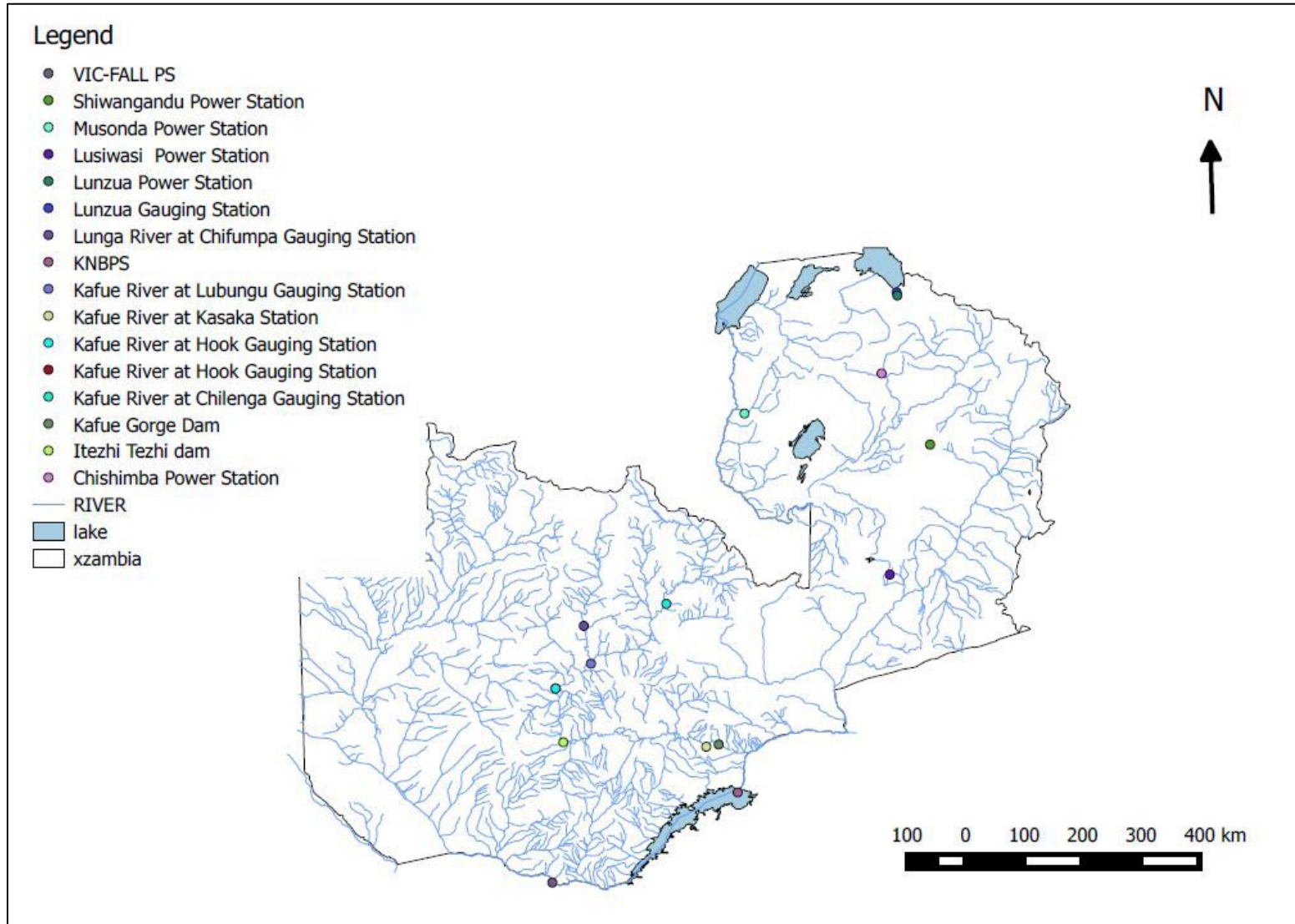
- Electricity is a key driver to the economic growth
- Zambia's total installed electricity capacity stands over 2,981.3 MW with 80% contribution from hydropower generation.



Zambia's energy consumption is dominated by Mining (51%) and Domestic (33%) consumption
At least 30% of the population have access to electricity

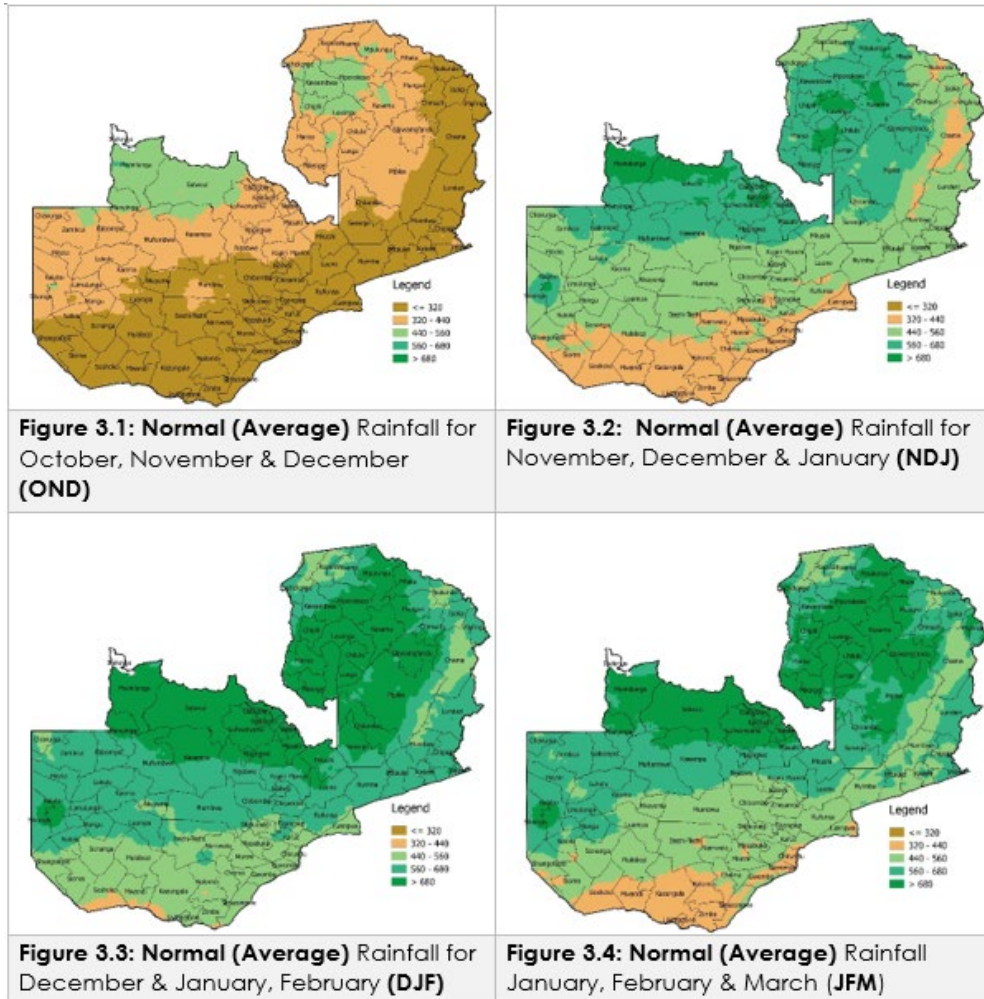


Distribution of Hydropower plants





RAINFALL SEASON



- Zambia's Rain season runs from October – March
- Mean annual precipitation is between 500 – 1400 mm
- Rainfall focus is done via SARCOF at regional level and the Met Dept at National Level.
- This informs Water Allocation

Figure : Average Rainfall OND - JFM



IMPACTS OF DROUGHT ON HYDROPOWER

- Meteorological Drought associated with hydrological drought
- Power Deficit + Low Water Levels affect generation
- Max Power Demand – 2300 MW
- Suppressed Average Demand – 1750MW
- Installed Capacity – 2,981 MW
- Available Generation – 1600MW
- Average Deficit in 2020 – 700MW





7. CONCLUSIONS

- Zambia depends highly on hydropower generation
- The Climate in Zambia is vulnerable to changes in water availability owing to variations in rainfall.
- Variation in rainfall impacts on water storage operations directly affecting hydropower generation and the demand side
- Current energy trends are focusing on renewables i.e. Solar accounted for 0.04% in 2018 but increased to 2.99% in 2019





Upcoming Workshop on Allocation in Livingstone

- Zambia's two transboundary river basins (Congo and Zambezi) play a key role in the livelihoods of the people
- Water Allocation in a Transboundary Context remains a complex issue .
- The workshop will provide an opportunity for riparian states in the shared basins to gain insights on the global practice of transboundary water allocation, including key elements, frameworks and modalities to consider in the application of transboundary water allocation.
- The regional workshops will raise awareness of the *Handbook* and build-capacity on transboundary water allocation which the country can benefit

