

WELCOME

# USE OF LOCAL KNOWLEDGE SYSTEMS IN DROUGHT PREDICTION AND WEATHER EXTREME MANAGEMENT

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# OBJECTIVES OF THE STUDY

- To explore and document local knowledge systems that were applied in drought prediction and extreme weather patterns management in the study area.

# METHODOLOGY

- The study was concentrated in six villages under six unions of six Upazilas in three districts from Barind which is situated at the northwest region of Bangladesh.
- Primary data were collected by using PRA tools.
  - A total 13 Focus Group Discussions (FGDs) were conducted (two from each village).
  - Among the villages, one FGD was conducted with homogeneous male group and another one was conducted with homogeneous female group.
  - Each focus group comprised of between eight participants.
  - one FGD was conducted with ethnic (santal) community.
  - Group and individual discussion
- Secondary data were collected using various literature.

# Drought prediction and local knowledge

- It is difficult to define drought in a simple word. It is just like chronic disease. Drought is a relative term that can mean different things to people from different backgrounds and with different viewpoints.
- Indigenous knowledge defined as a body of knowledge built up by a group of people through generations of living in close contact with nature (Johnson, 1992). Indigenous or local knowledge is widely used for the prediction of drought in the rural areas of Bangladesh. Beliefs like spirituality may control how resources are supervised and how enthusiastic people are to implement strategies (Morris, 2005).
- Drought prediction plays a significant function in the scheduling and management of the water resource. Drought prediction must endow with information on drought severity, duration and location in utter time (initial and termination time points). To reduce the impact of drought and to improve drought preparedness and response it is quite essential to predict drought (Sivakumar and Wilhite, 2002).

# RESULTS

- **Local methods used to predict drought and weather patterns**

Predictors/sign	Description
Pigeon feathers	Pigeon lying on the ground by spreading its feathers, the indication of drought.
Sound of wild cat	If the wild cat make sound with Dhul/Mul and people ask to the wild cat and response with dhul then drought may occur.
Ant's upward movement	If ant starts to move upward from down, rain may come.
Red colour in the west sky	If the sky shows bright red colour in the west sky during sunset, drought may come in the following year.
Chirping of Fatikjal bird (Common lora)	The chirping of Fatikjal (chatok) bird during October to April is a sign of rainfall.

- Local methods used to predict drought and weather patterns

Predictors/sign	Description
Sun light's kid	If consecutive sunny days show illusion like <i>roder bachha</i> , drought may occur.
Thunder in the east sky	If frequent thunder happens in the east sky at night, This indicates drought in the next year.
Abundance of termites	When large number termites found in the mound, drought is the immense issue for the year.
Visibility of black ant	Appearance of black ants and storing grain and eggs in safer places indicate that the rain follows for couple of days by ending drought.
Hoppers fly	If hopper fly randomly, drought may occur.
Frog's cry	At the end of summer, the cry of frogs is taken as the indication of approaching rainfall.
Dark clouds on the west sky	The appearance of dark clouds on the west sky, the immediate hail storm accompanied by thunder, lighting and <i>kalboishakhi</i> .

- **Local methods used to protect drought impact and extreme weather**

Practices	Description
Frog's marriage	Peoples in the study area were arranged marriage for the frog to invite immediate rainfall to end the drought.
Use mulch	Farmers were used straw and water hyacinth as the mulch materials in the horticultural production at their homestead to protect drought impact on production.
Orchard establishment	Farmers were established mango orchard at their homestead and the crop field to mitigate drought impacts as a whole.
Planting of trees	Long back peoples in the study area were planted trees especially palm trees to protect drought and its impacts.
Short term migration	Farmer alone or along with family members were migrated to the urban areas for livelihoods and return to the home after drought effect.
Home gardening	Peoples of the study area especially the women started vegetables gardening in their homestead to protect drought impact on agricultural production.

- **Local methods used to mitigate drought effects**

Practices	Description
Use of mud pot (kolosh)	Mud pots (Matir kolosh) were used to keep cool and store drinking water during extreme hot days
Use of mathal (hat)	Farmers were used special hat made of bamboo locally known as <i>mathal</i> to protect them from extreme sunlight during drought
Eat moringa leaves	Peoples in the study area were used moringa leaves as vegetable to balance their body temperature
Use palm brown sugar	Peoples in the study area were usually used palm brown sugar to keep them cool during hot event especially during drought
Wrapping with wet clothes	Farmers were used to wrap their body with wet clothes to make them comfortable in the field or home during drought period
Eat kolai ruti (bread)	Peoples in the study area eat kolai ruti (special bread) to meet hunger during drought. This type of bread keeps them away from hunger for long time.

## • Drought and weather extreme management

Extreme weather patterns	Impacts
High temperature	<ul style="list-style-type: none"><li>➤ In case of tin shed roof, spread grasses on the roof to keep it cool.</li><li>➤ Provide bamboo/wooden ceiling to protect extreme hot.</li><li>➤ Drink more water.</li><li>➤ Store water.</li><li>➤ Planting more trees.</li></ul>
Drought	<ul style="list-style-type: none"><li>➤ Excavate pond/well or mini-pond to store water.</li><li>➤ Treat water before drinking like boiling and use of fitkari.</li><li>➤ Harvest all fishes before ponds dry.</li></ul>

# DISCUSSIONS

- The study area was prone to natural disaster especially with drought and caused damage to the crops, livestock, fisheries, horticultural production and livelihoods. The local knowledge that is unique to every society. Indigenous knowledge is the fundamental for local level decision making tools in agriculture, natural resource management, economic activities, and host of other activities in rural societies (Warren, 1991; Tekwa and Belel, 2009).
- The prior to emerging modern technologies, peoples were tried at their best to use nature indication to predict natural disasters and extreme weather event (Irfanullah and Motaleb, 2011).
- It is the time to integrate local knowledge systems with modern technologies can contribute a lot in managing natural disasters of Bangladesh.

# CONCLUSION

- The local knowledge found in rural communities in Barind is a combination of skills and techniques gained through experiences to live and survive the own way of life. Not all the local knowledge still has remained relevant.
- Rural communities will need additional support to cope up with the drought and climate extreme, though their expertise offer a great help for the effective management of drought.



THANKS TO ALL