Coping strategy and vulnerability reduction to Climate Extremes

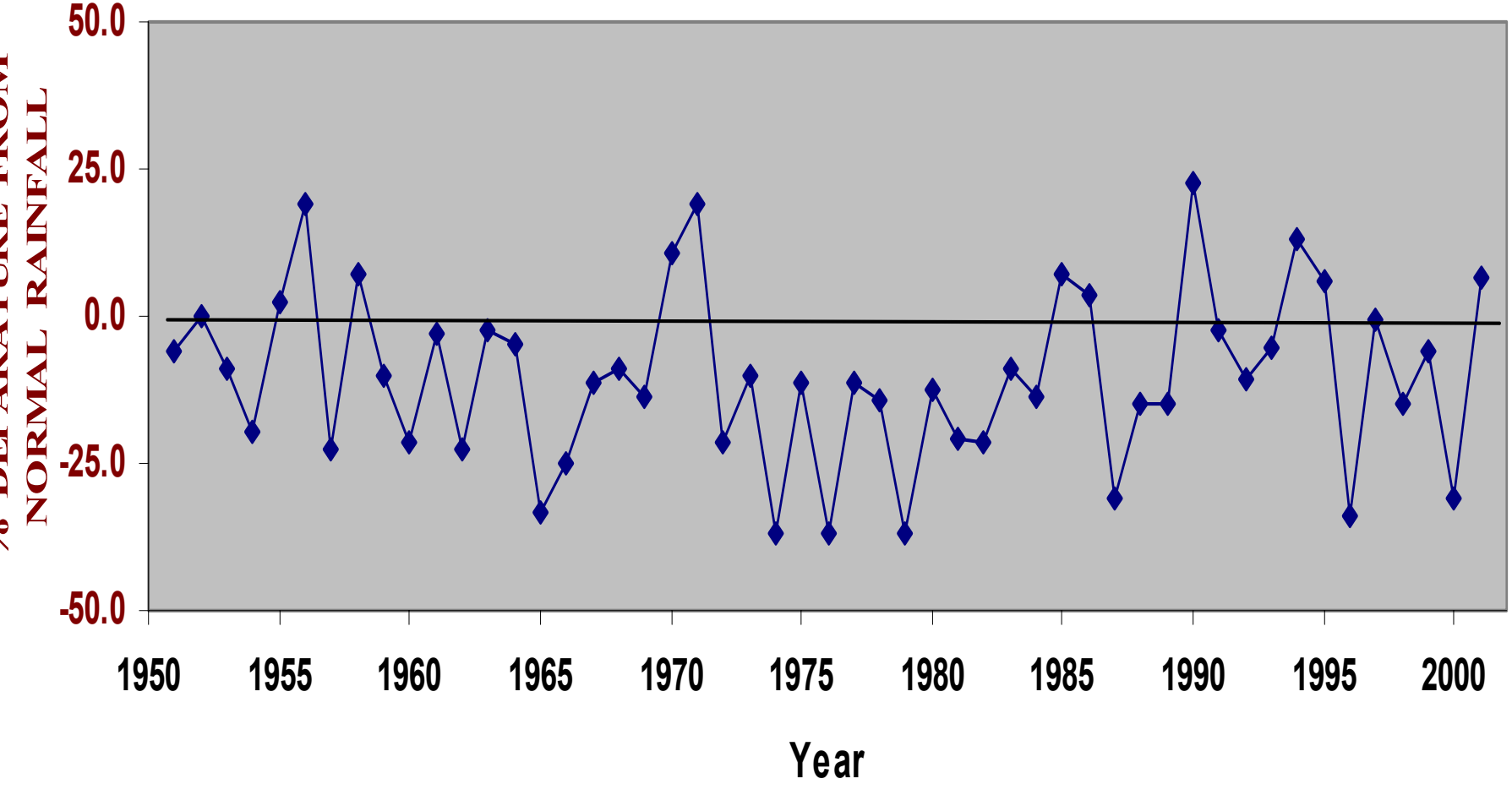
Objective:

- Better understanding of the coping mechanism of the community to climatic changes in a micro level.
- Preserve the current knowledge
- By technical intervention to strengthen the community coping mechanism with a view of vulnerability reduction
- To influence the policy that is sensitive to local issues

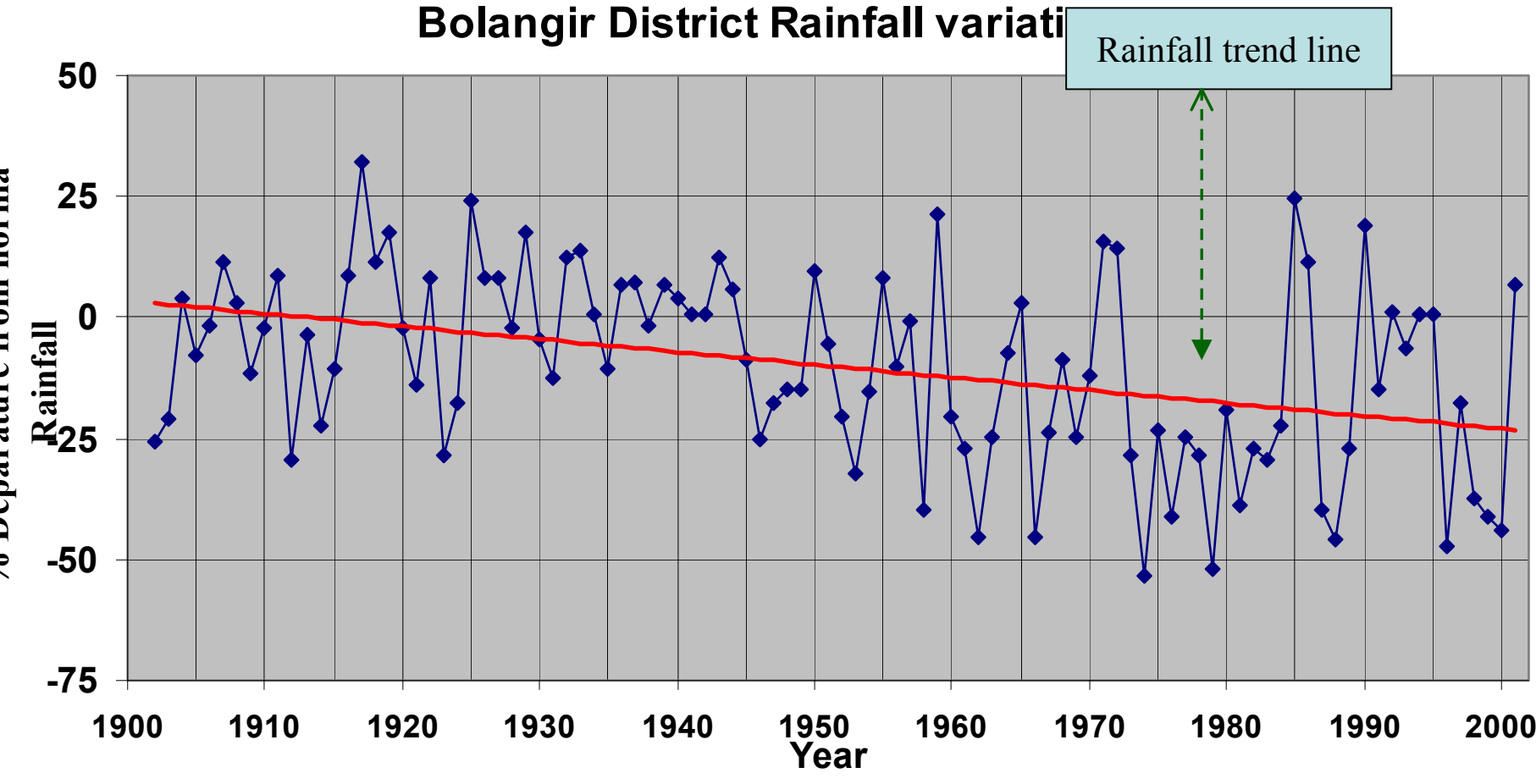
Influence of climate uncertainties on hinterland of Orissa

- ***drier weather conditions***
- **extended dry season**
- **early end of rainy season**
- **weak monsoon activity**
- **above normal air temperatures**
- **strong monsoon activity**

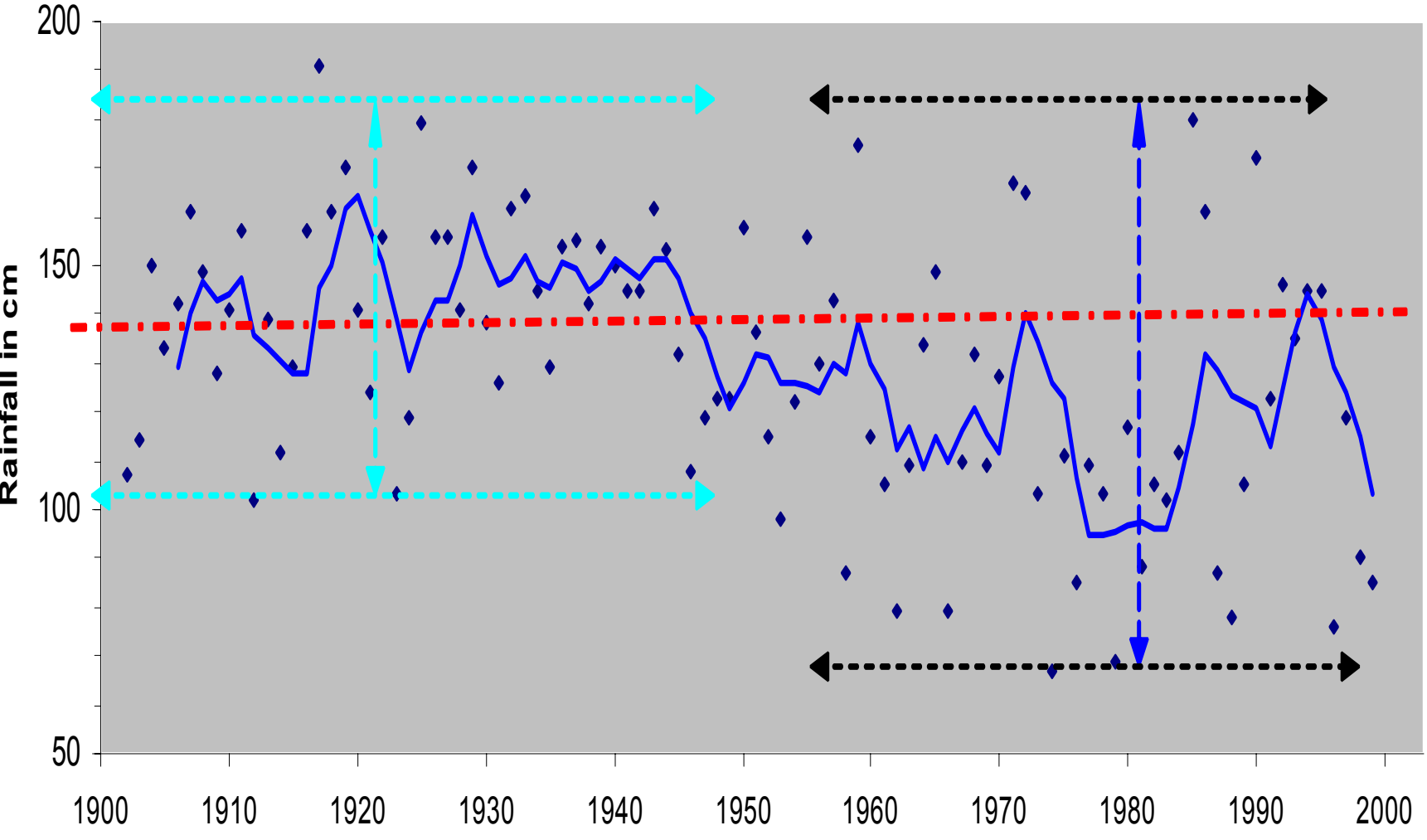
ORISSA STATE RAINFALL

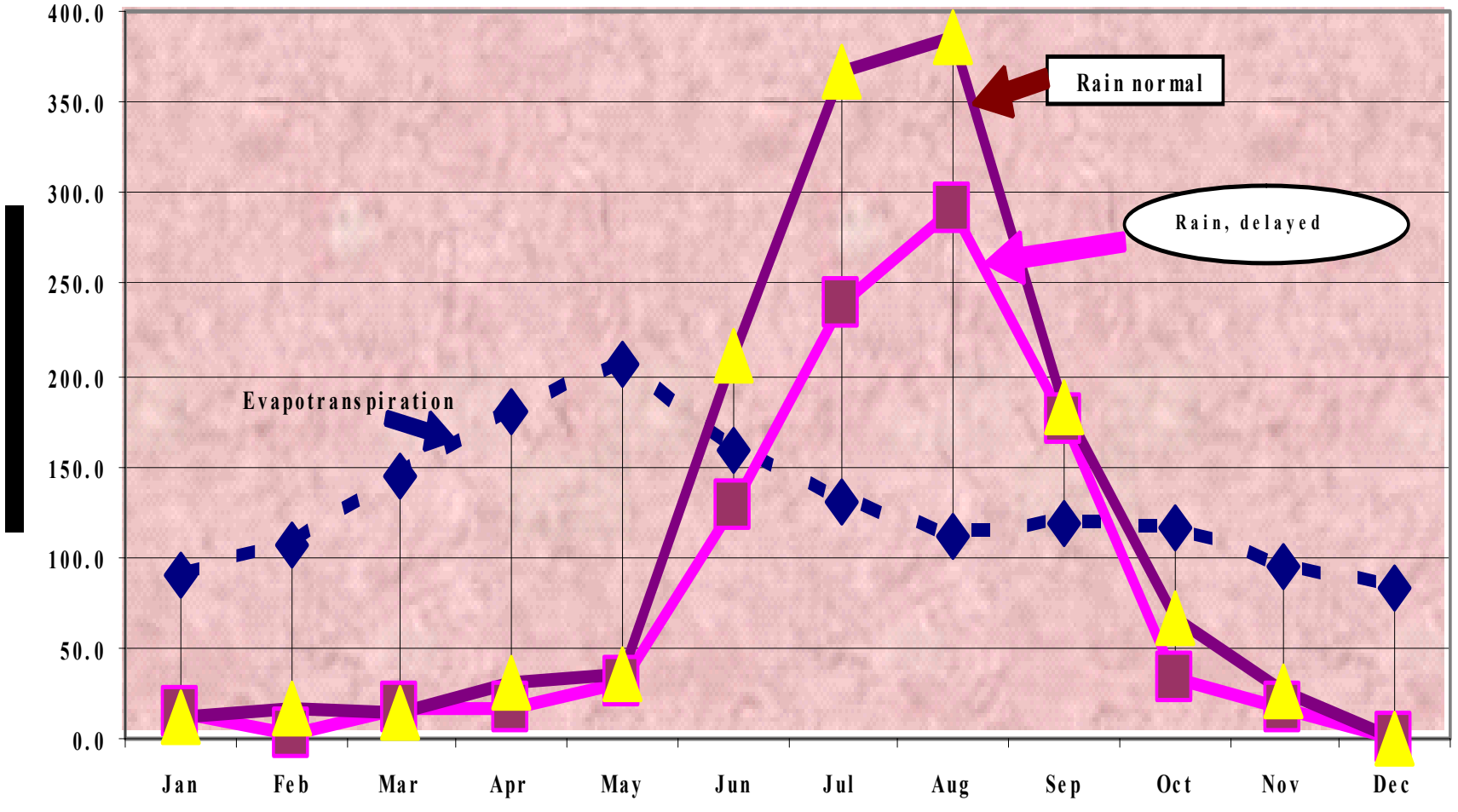


ormal rainfall of Orissa – 1502 mm, based on district rainfall between 1901 to 1950
The Long Period Average Rainfall-Orissa –1350 mm, based on district rainfall between 195
2001)

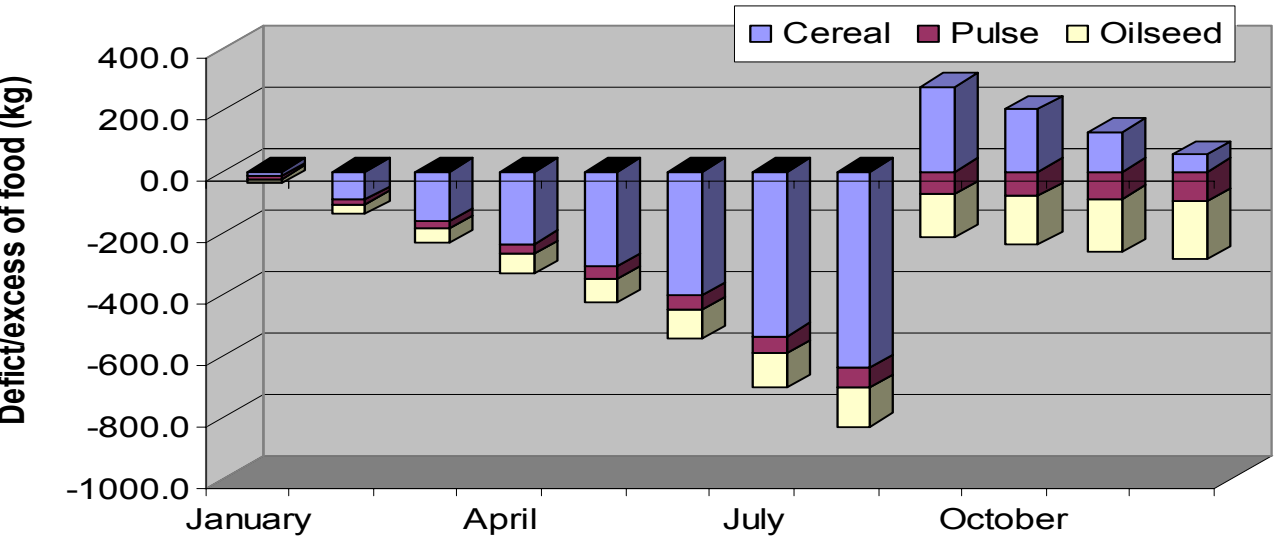

Bolangir District Rainfall variati
Rainfall trend line
% Departure from normal Rainfall
50
25
0
-25
-50
-75
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Year

BOLANGIR RAINFALL TREND (1900 - 2000)



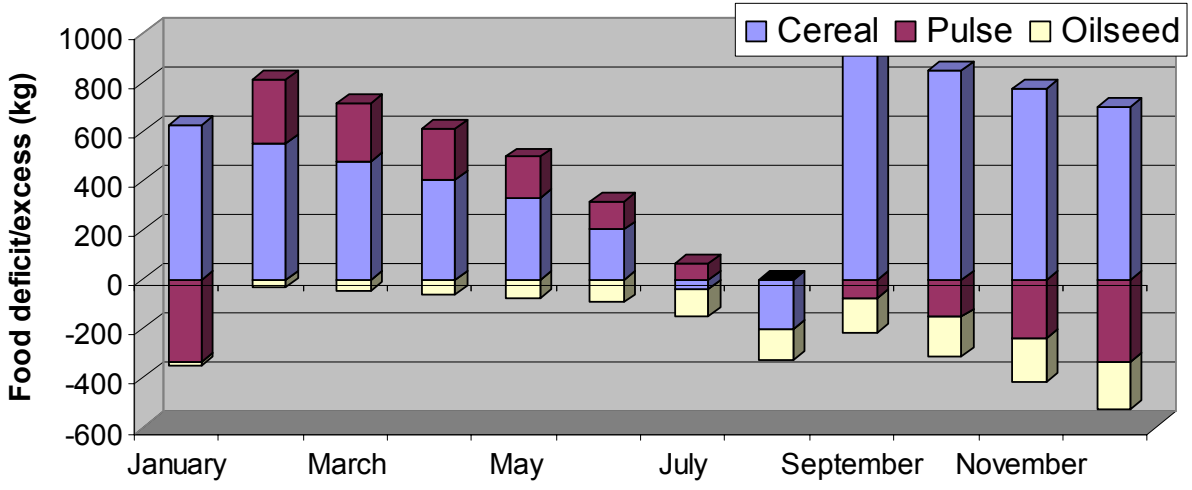

Climatic Water Balance - CBRWH Project Blocks
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Rain normal
Rain, delayed
Evapotranspiration
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Marginal farm - long food defict period leading to high vulnerability

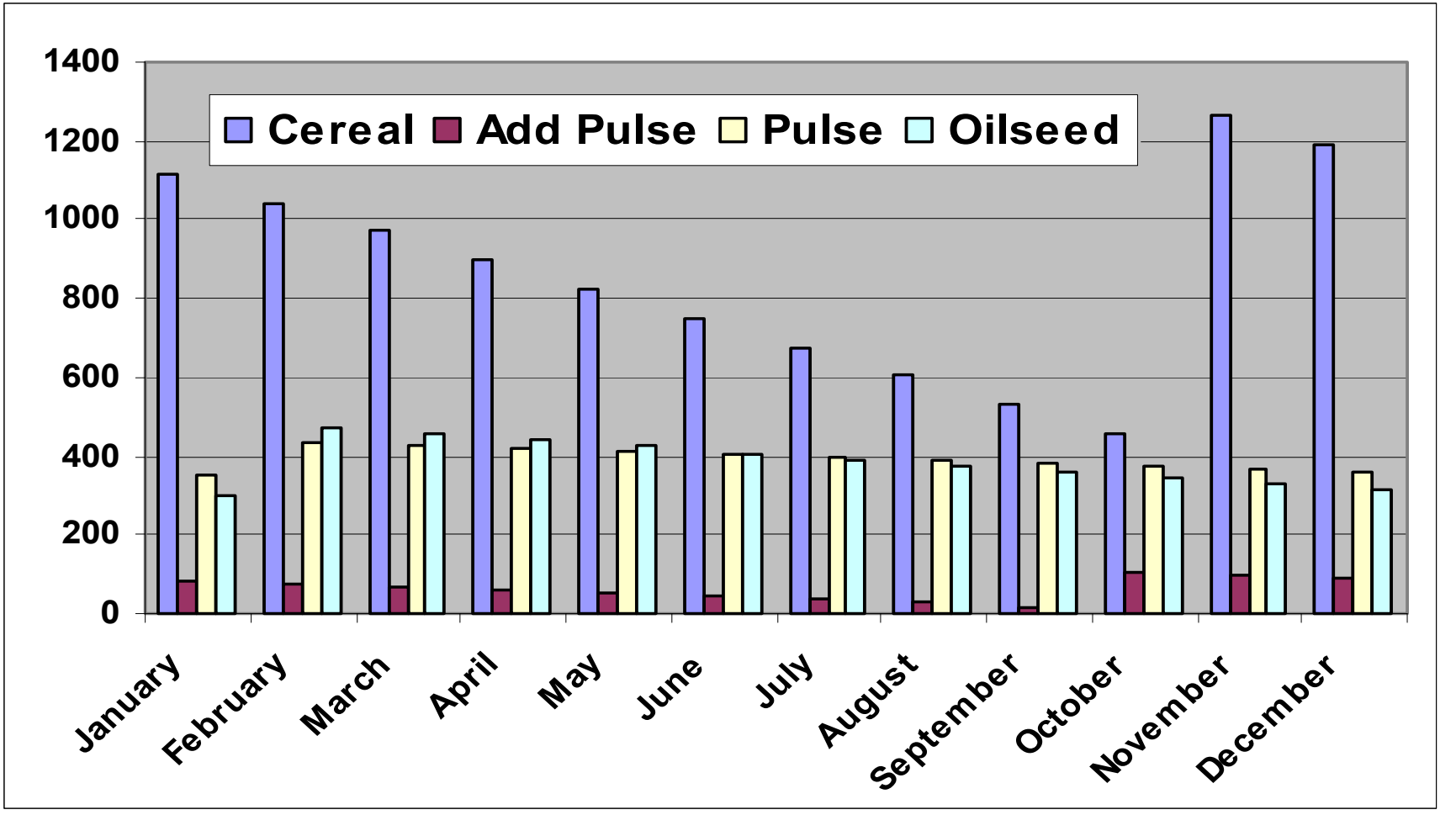


Recurrent & intermittent Drought in KBK districts leads to high vulnerability

Small farm with two crop- Still vulnerable due to food insecurity



Food security scenario in two crop – coastal area small farm



Coping Strategies

On *Water resources & Drainage System :* *Communities*

Short-term Coping strategies

- Community agreement & participation on water conservation & usage
- Water rationing in the tank within habitation areas for drinking & other use while upper reaches tank/peripheral tanks used for animal drinking purpose enforcing thru village leader
- Increased temporary water resources: Creation of water hole on dry river/rivulet/nala bed for drinking purpose as well as agriculture Increased supply of water
- Waste water recycle: Household waste water used for animal drinking/ dry duck usage

Long-term Coping strategies

- Tapping of new water sources: Convincing Govt for installation tube well /deepening of existing tube wells in strategic locations
- Development of old water resourcesReforestation of open grasslands to improve vegetative cover of watersheds

Coping Strategy

Local communities

- Agriculture

Delayed rain & expecting short monsoon period:

- **Changes in crop type using ITK (EWS/ Past experiences)**
- ***Farmers choose crops that consume less water***
- ***Adjust crop management practices for upland/fragile land situations***
- ***Reduction of planned crops***
- ***Adjusting cropping calendar and farming activities'***
- ***Re-use of drainage water for vegetable crop***

Mid Season drought due to weak monsoon

Late season drought/Early monsoon withdrawal

- **Food habits**
  - Change of food habit
  - Withholding consumption.
  - Distribute food to children pregnant women and aged people.
- **Livelihood**
  - Migration
  - Divert attention from agriculture to forest based livelihood

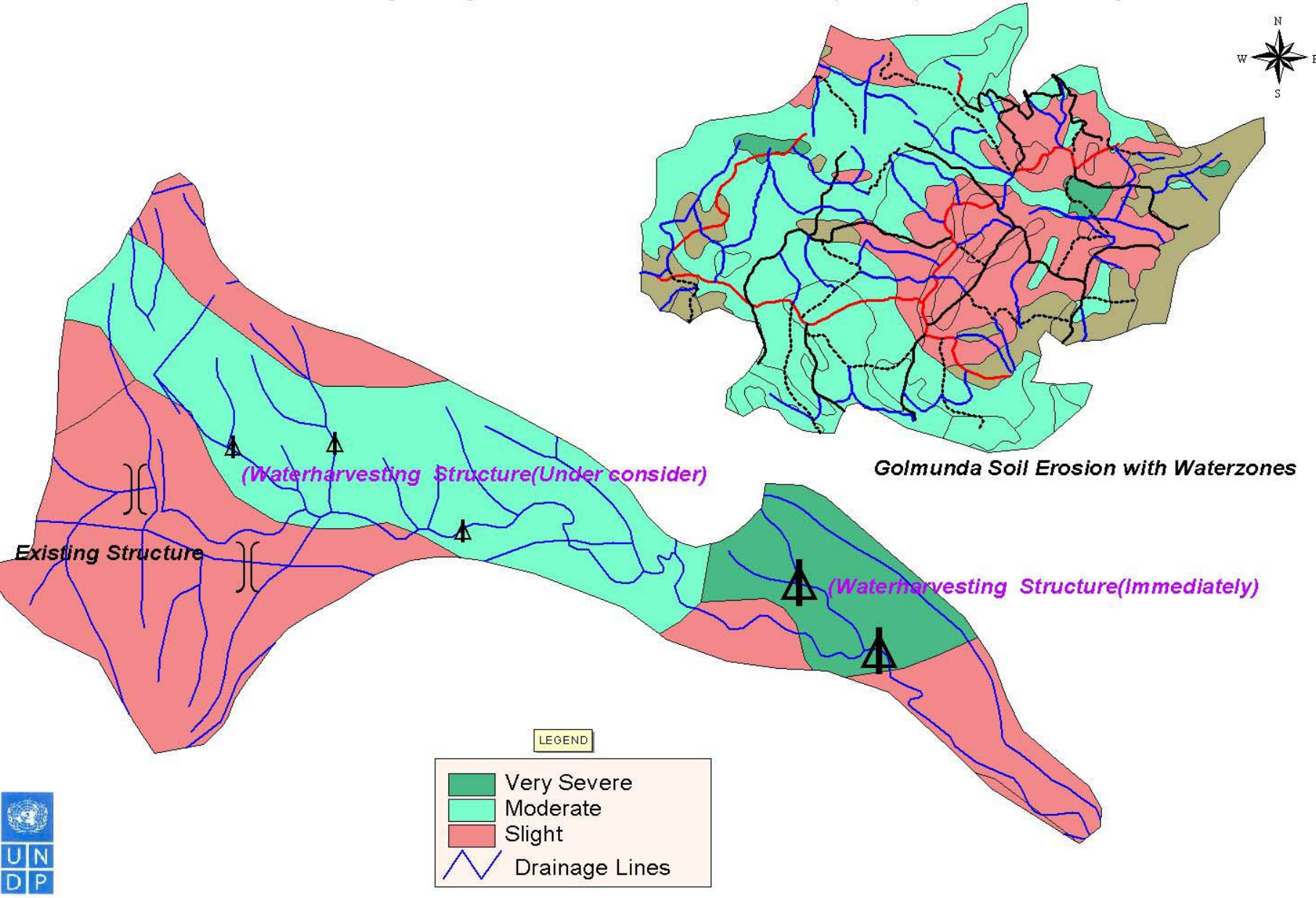
- **Animal Husbandry**
  - Regeneration of village grazing land
- **Forestry**
- **Fisheries**

Technologies for strengthening local coping mechanism

1. **Early Warning System**
2. **Agriculture**
3. **Rainwater management**:
4. **ERP as a tool for identification and implementation of drought mitigation**
5. **Designing of WHS-** concept of dead storage (mean rainfall – 2*standard deviation)
6. **Networking of Village pond/ WHS**
7. **Cattle proof trenches to protect CPRs and control grazing**
8. **Community based drought proofing plans (CBDPP) and convergence with village plan as approved by Pallisabha**
9. Capacity building, training & awareness generation

APPLICATION OF ERP CONCEPT IN ADOPTATION OF CLIMET EXTREME-LONG TERM PLAN.

A Micro-Zone of Golmunda Showing Drainage and Soil Erosion With Best Possible place to place Waterharvesting Structure



Golmunda Soil Erosion with Waterzones

UNDP India

Conclusion:

Integrated coping mechanism as a part of Climate Risk Management

- Adaptation to climate change should consider past but must foresee the scenarios- what might happen in next 20-25 years
- Learn to manage your “now” to be prepared for “future”
- past experiences and lessons learned are excellent guide for future adaptation of climatic extremes by the community
- Risk management for a wide range of elements at risk, ranging **from communities to ecosystems**, at **short and long** time scales and **across spatial scales**.

Integrated coping mechanism as a part of Climate Risk Management

- **Adaptation will require continual adjustment of ITK & Techno-Social application for risk management practices thru coherence and coordination across**
    - Geographical scales
    - Time scales
    - Institutional support & techno-social counselling
    - Policy changes

Thank you!

UNDP

Orissa