A photograph of a flooded rural area. In the foreground, a person is in a small boat on the water. To the left, a thatched hut is partially submerged. The background shows more of the flooded landscape and some trees. The text is overlaid on the top half of the image.

INCREASING ADAPTIVE CAPACITY OF FARMERS TO EXTREME CLIMATE EVENTS AND CLIMATE CHANGE THROUGH CLIMATE FIELD SCHOOL PROGRAM: Indonesian Experience

Rizaldi Boer

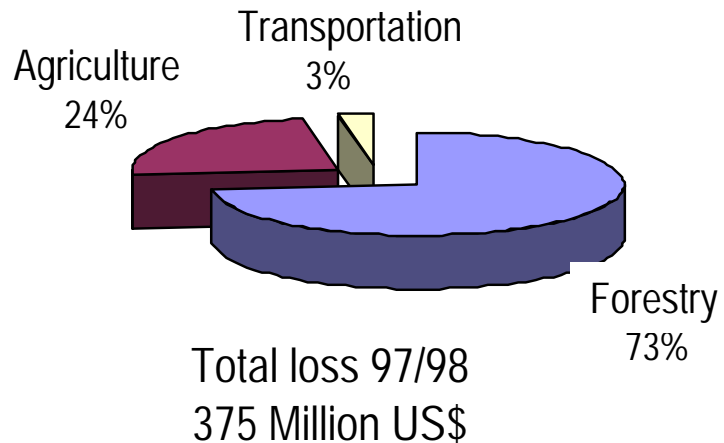
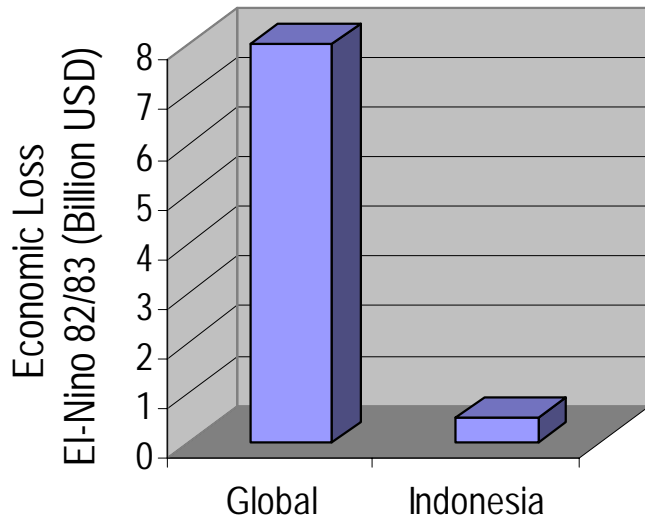
Bogor Agricultural University,

*Applied Research Centre on Climate and
Technology*

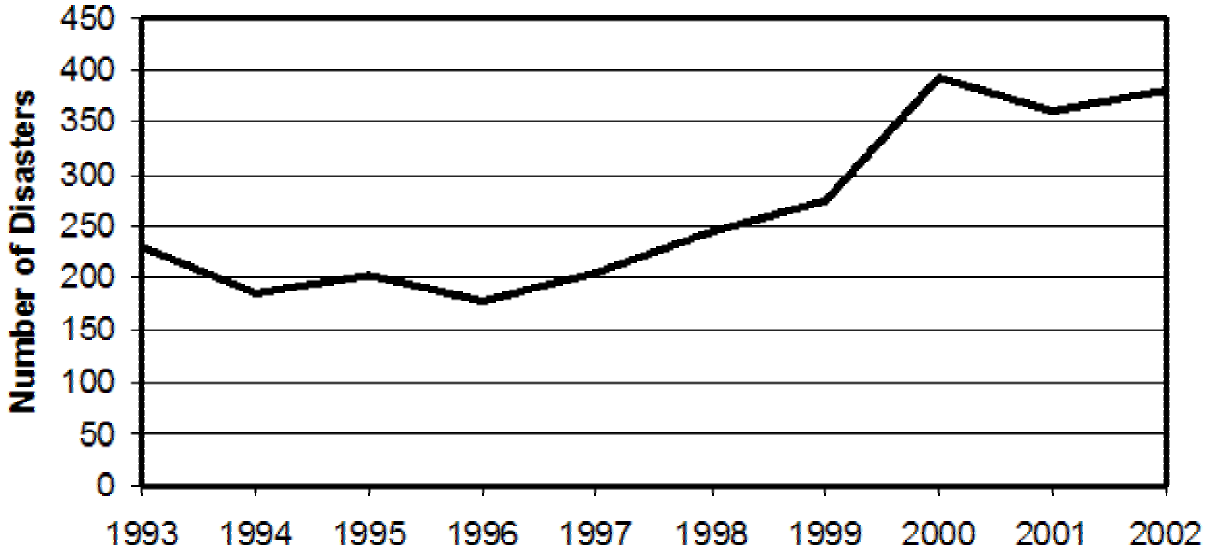
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Introduction

- Extreme climate events have caused serious impact in the region including Indonesia

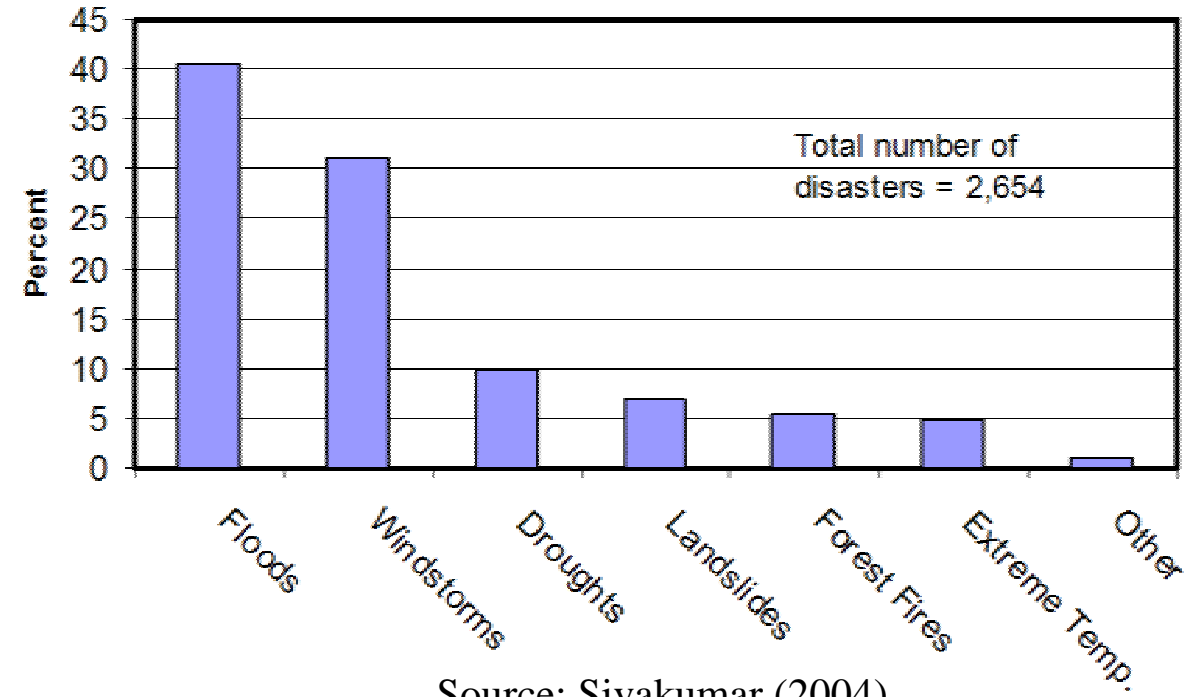


NUMBER OF NATURAL DISASTER BY YEAR AND BY TYPE



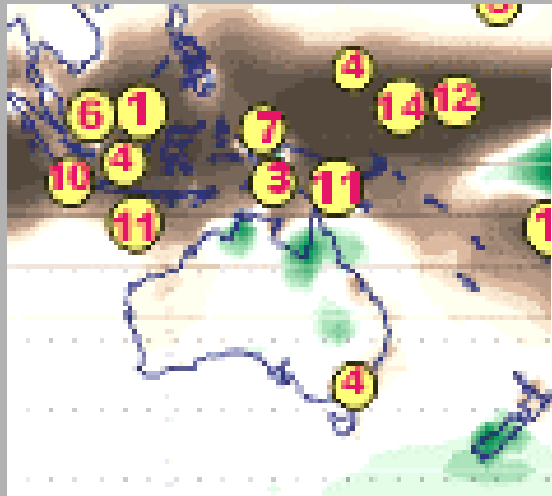
Number of people being affected about 2.5 million

Number of loss 415 billion USD



Source: Sivakumar (2004)

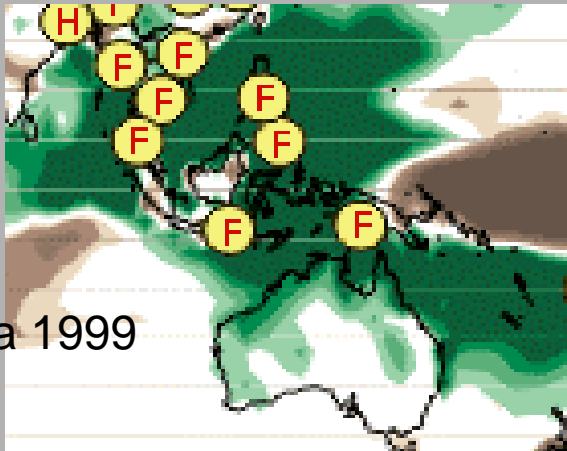
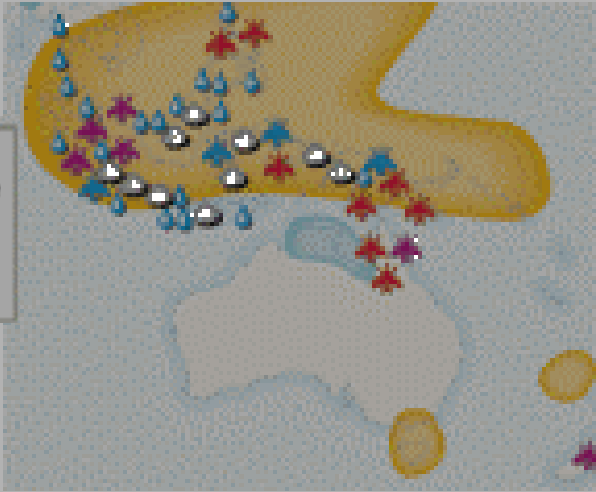
EL-nino 1997/98



- | | |
|-------------------------|-----------------------------|
| 1. Crop/Stock Damage | 8. Pests Increased |
| 2. Energy Savings | 9. Property Damage |
| 3. Famine | 10. Tourism Decreased |
| 4. Fires | 11. Transportation Problems |
| 5. Fisheries Disruption | 12. Social Disruptions |
| 6. Health Risks | 13. Wildlife Fatalities |
| 7. Human Fatalities | 14. Water Rationing |

Disease Outbreaks

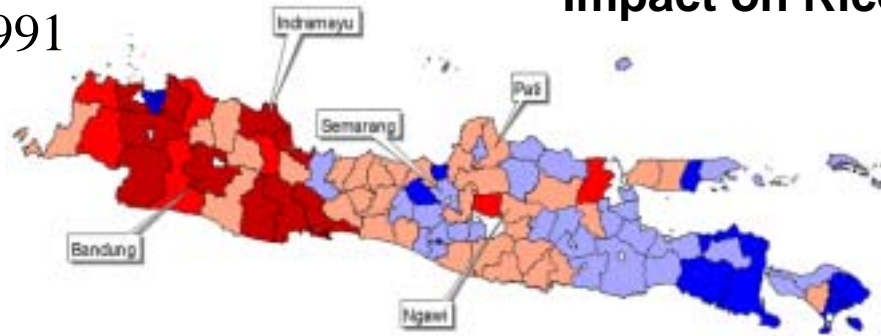
| | | | |
|-----------------|---------------------|----------------|--|
| Mosquito-borne: | ★ Dengue fever | Rodent-borne: | 🐭 Hantavirus pulmonary syndrome |
| | ★ Encephalitis | Waterborne: | 💧 Cholera |
| | ★ Malaria | Noninfectious: | ☹️ Respiratory illness resulting from fire and smoke |
| | ★ Rift Valley fever | | |



La-Nina 1999

Impact on Rice Production

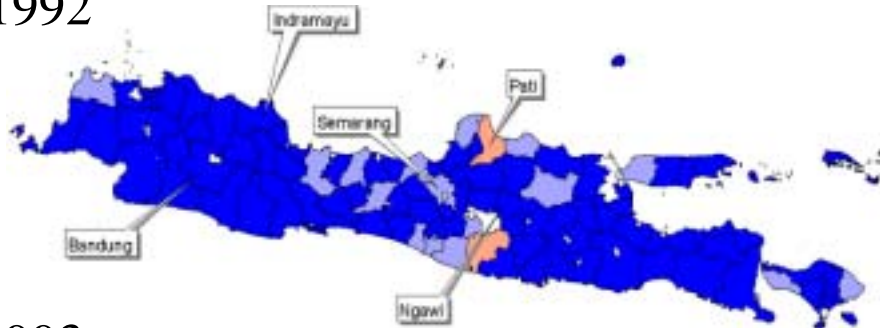
1991



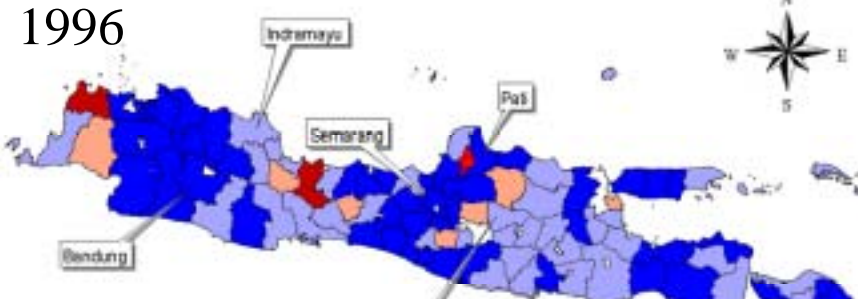
1995



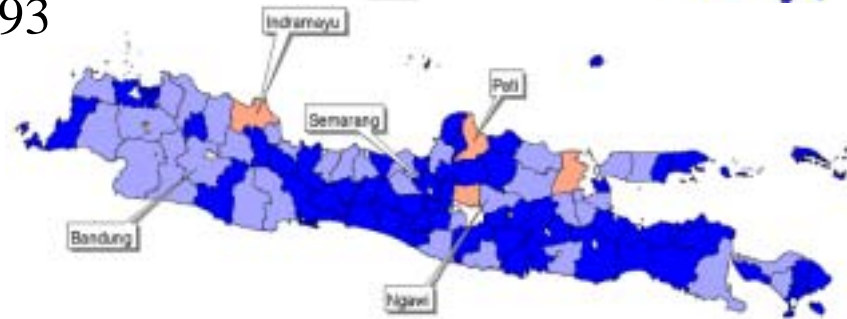
1992



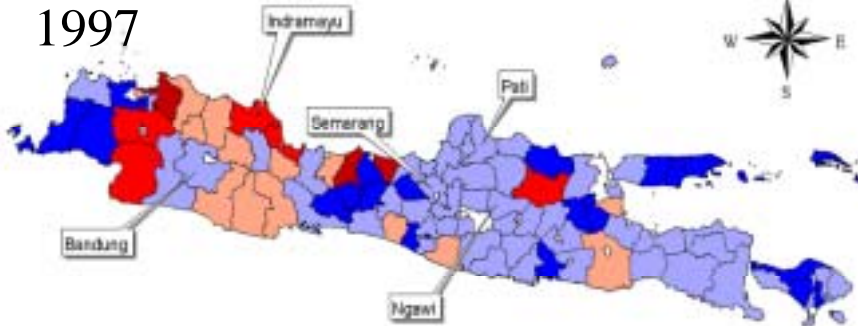
1996



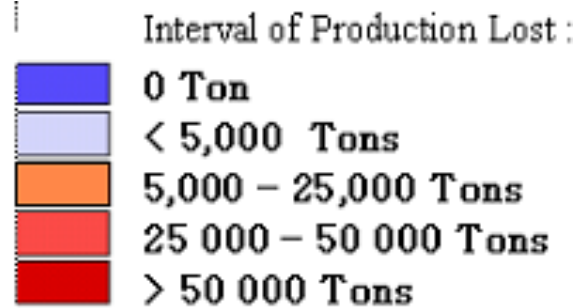
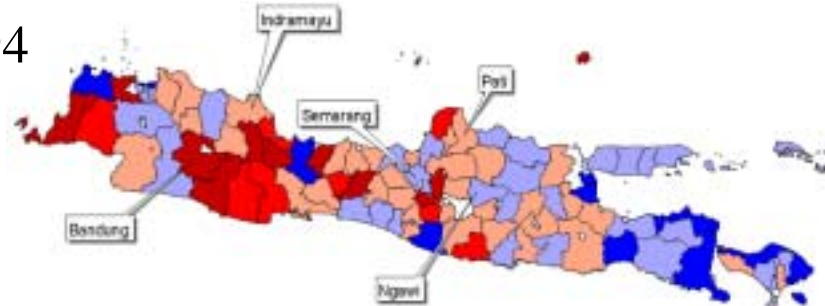
1993



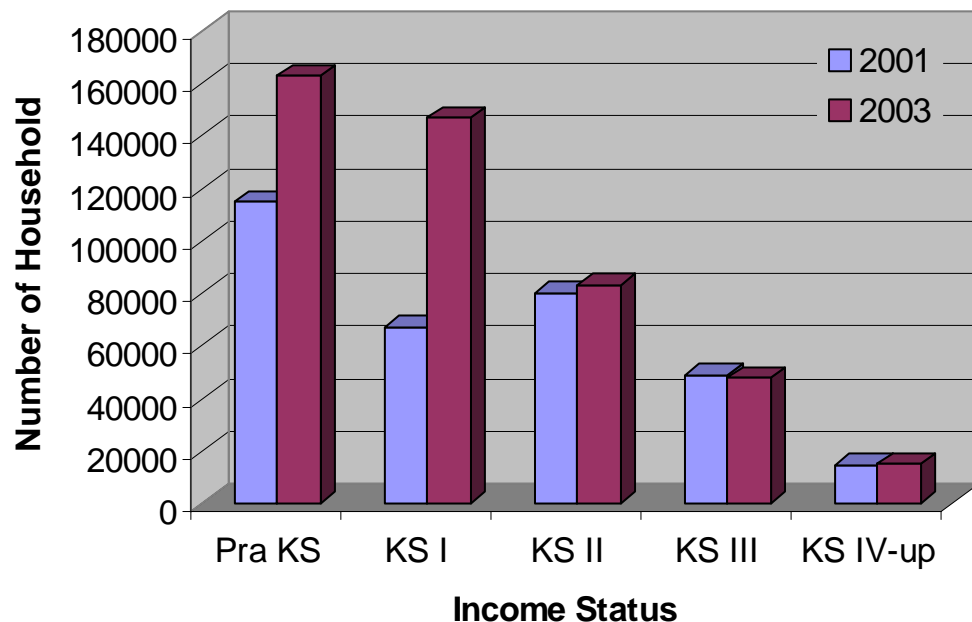
1997



1994



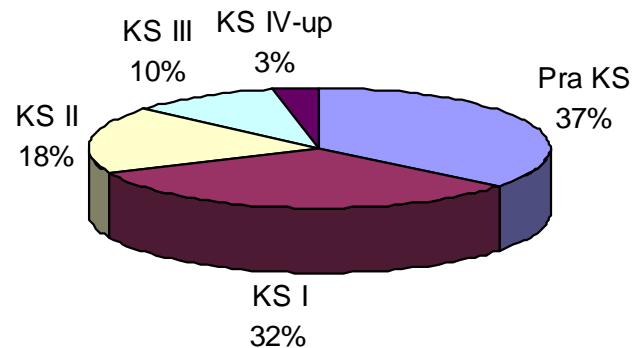
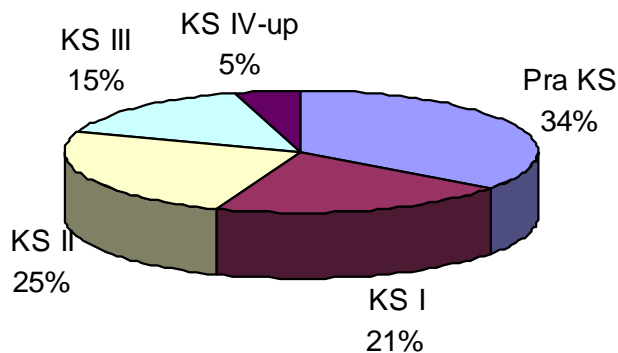
Number of Household based on Welfare Status



2001

The increase in number of Pra-KS (*below poverty line*) in 2003 was primarily due to devastating impact of drought (long dry season) occurred in 2002-2003

2003



What government response?

- **Government has paid serious attention on climate hazards, especially after devastating impact of El-Nino 1991.**
 - **A number of programs have been implemented but focus of the programs is more on hazard release (*passive response*) rather than anticipation or prevention program (*active response*): food aids, seeds supply etc.**

Why passive actions?

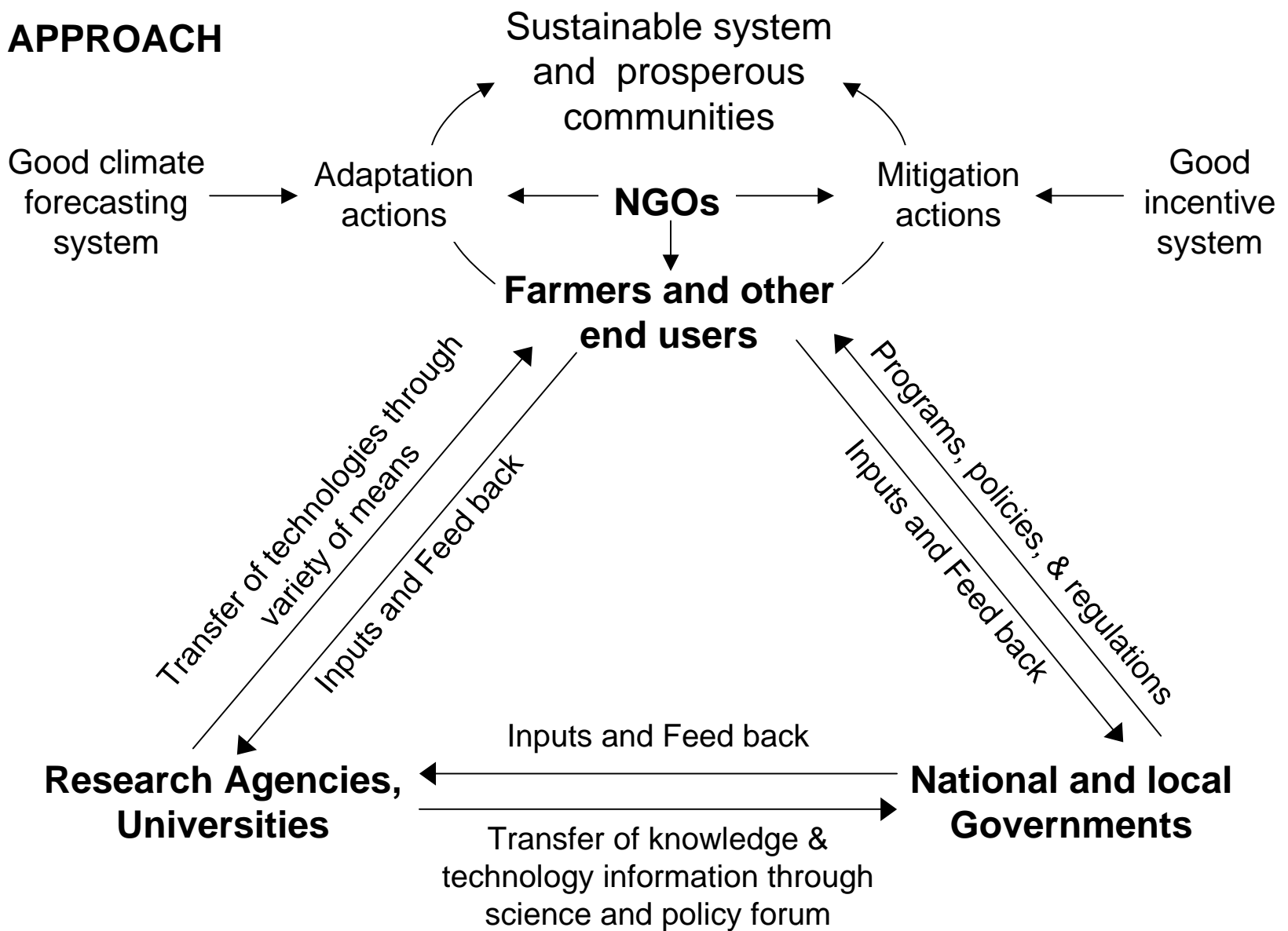
- Unavailability of good early warning system due to limited skill in climate forecast
- Limited knowledge of users on probability concept used in climate forecast
- Unavailability of effective climate information dissemination system
- Low capacity of users in translating climate (forecast) information for practical uses or actions, and
- Unaware of economic value of climate information

- These facts suggest that production of good climate forecast and timely is very important in improving adaptive capacity to extreme climate events
- Production of the forecast should not be considered as the end results of a climate forecast system but it is only one of the early links in a long chain of tailored climate information and forecast products that should be feed into a Climate Information System (Ropelewski and Lyon 2003).

WHAT CLIMATE INFORMATION SYSTEM?

- Climate information system will cover not only production of the climate information but also dissemination, translation and application of the information and this needs to be institutionalized
- Jones *et al.* (2004): “*Planned adaptation to future climate will be based on current individual, community and institutional behaviour that, in part, have been developed as a response to current climate*”

APPROACH

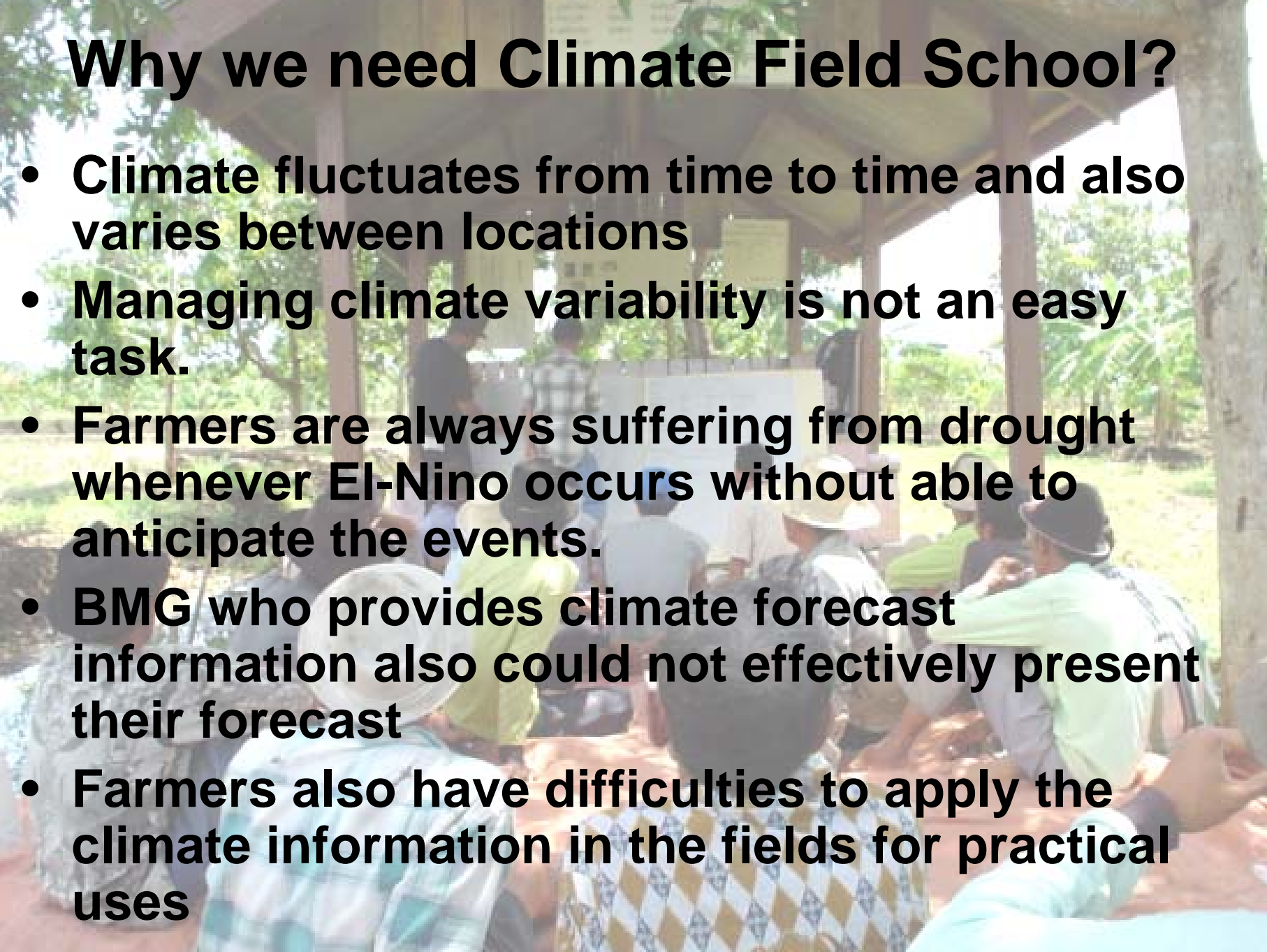


Communicating climate knowledge & climate information applications to increase adaptive capacity and community participations in mitigating climate change

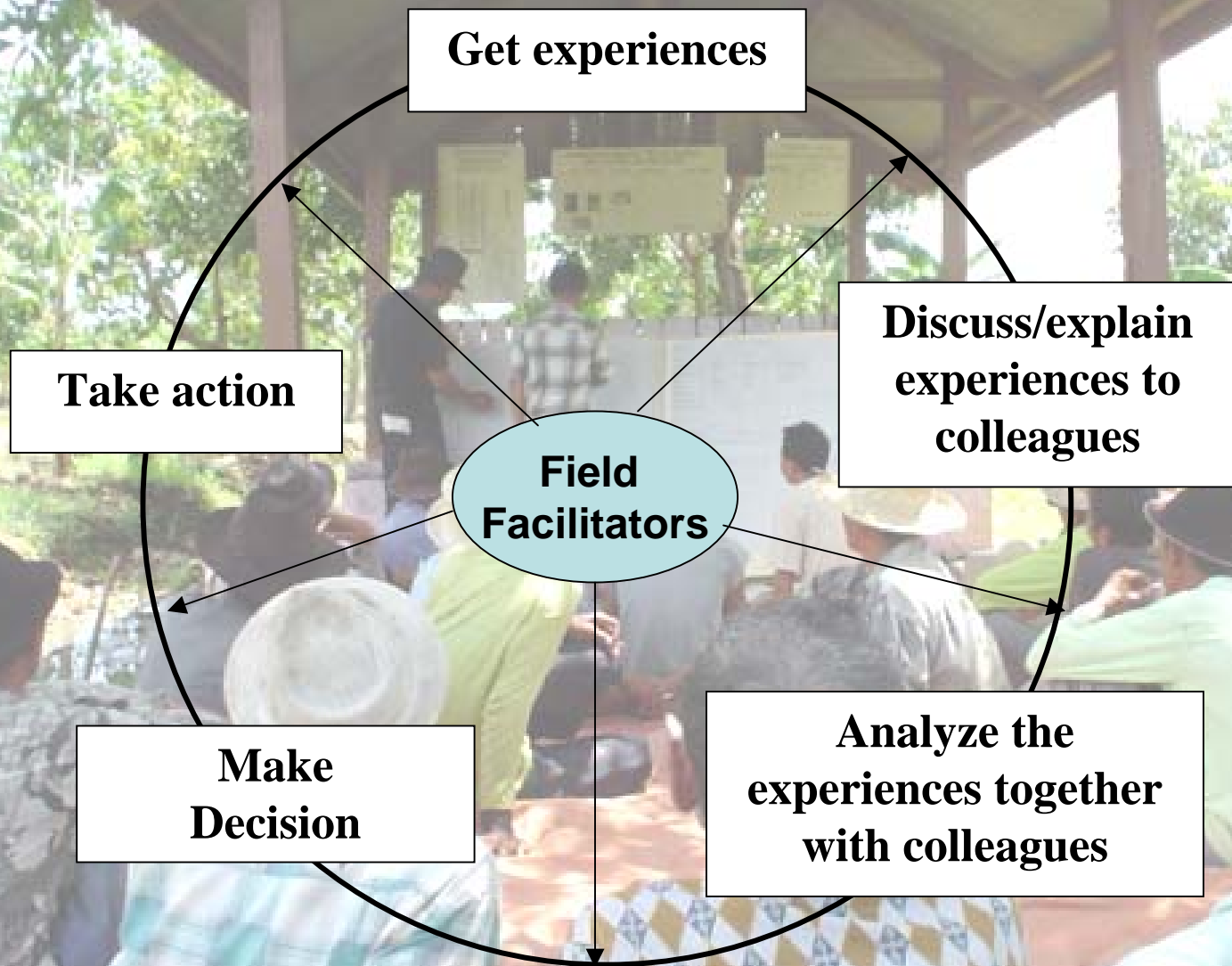
A group of farmers, including men and women, are gathered under a simple wooden structure with a thatched roof. They are sitting on the ground, some facing away from the camera, others looking towards the center. The setting appears to be an outdoor field school or training session. The background shows lush green trees and a clear sky. The text is overlaid in the center of the image.

**A SMALL STEP:
INCREASING ADAPTIVE CAPACITY
OF FARMERS TO EXTREME
CLIMATE EVENTS THROUGH
FIELD SCHOOL PROGRAM**

Why we need Climate Field School?

- **Climate fluctuates from time to time and also varies between locations**
 - **Managing climate variability is not an easy task.**
 - **Farmers are always suffering from drought whenever El-Nino occurs without able to anticipate the events.**
 - **BMG who provides climate forecast information also could not effectively present their forecast**
 - **Farmers also have difficulties to apply the climate information in the fields for practical uses**
- 
- A group of people, including farmers, are gathered under a wooden structure, possibly a field school or training session. They are looking towards a whiteboard or display board. The setting appears to be outdoors, with trees and a bright sky visible in the background. The people are dressed in casual, practical clothing, some wearing hats. The overall atmosphere is one of a community meeting or educational session.

What is the concept of FS ?



Objectives of CFS

In the initial phase (short term):

- To increase farmers knowledge on climate and ability to anticipate its phenomena such as extreme events for their farming activities base on their past experiences and current knowledge;
- To assist farmers in observing climate phenomenon and using it to set up better planting strategies
- To assist farmers how to translate climate forecast information for supporting their farming activities

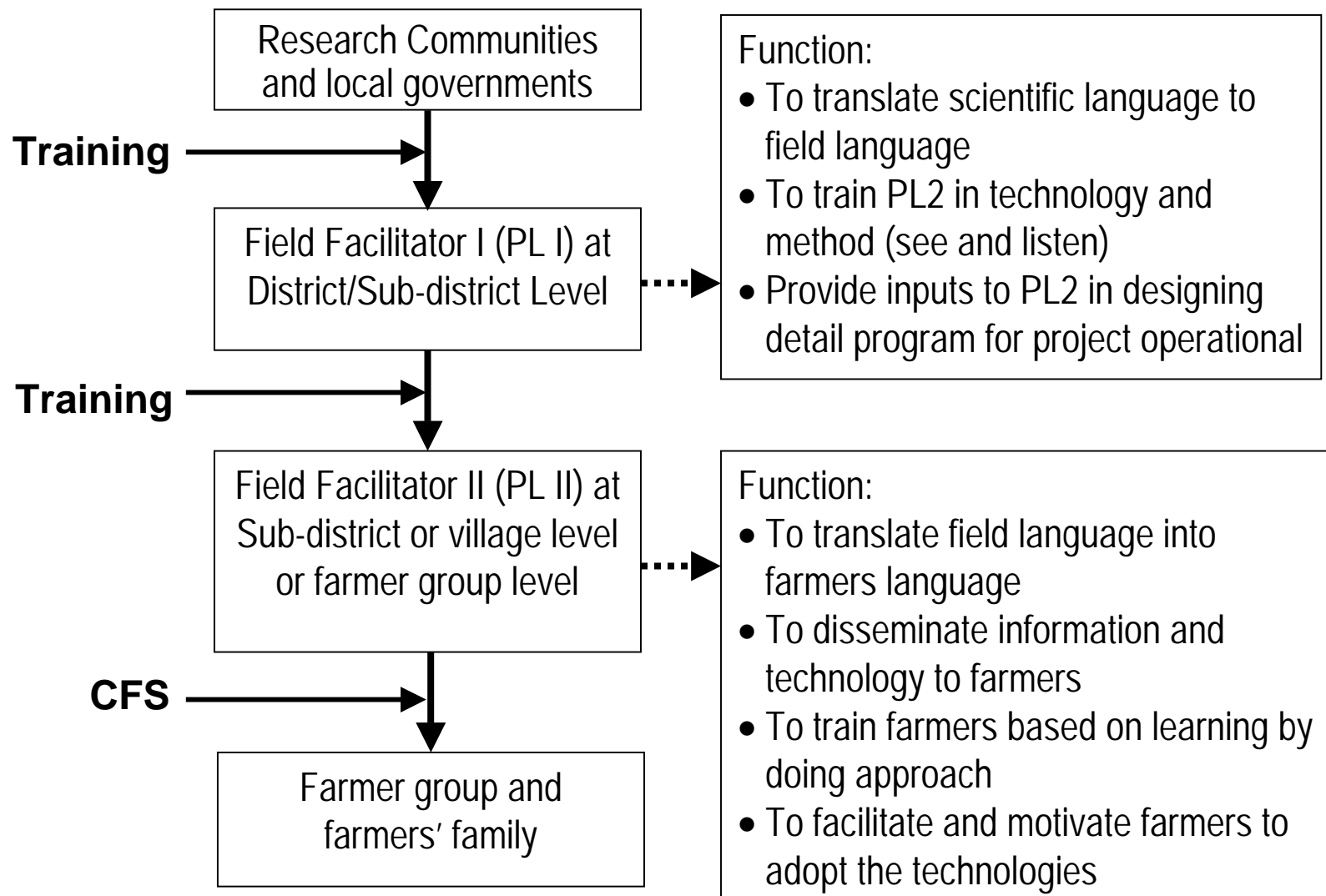


Objectives of CFS

Long term objective:

- **To form farmer groups that have strong motivation to develop their own agribusiness activities where climate information is used as inputs for making better plans, strategies and decisions, and to protect the environment through their active participation in climate change mitigation programs**

How we conduct CFS?



How we conduct CFS?

- Curriculum for CFS
 - Key Climate Modules for 1st Phase:
 - To develop understanding on climate forecast terminology
 - To develop understanding on probabilistic concept
 - To develop capacity to tailor cropping strategies to climate forecast
 - To develop understanding on the use water balance for assessing drought and flood risks
 - To develop capacity to assess economic value of climate forecast



What should be the long-term program of the CFS?

- Modules for CFS program should cover many aspects of climate information applications not only in the area of farm management systems but also in agriculture institutional system (off farm activities) and partnership system and bring climate change perspective into the program
- The problem is
 - how to design the modules that can fulfill the above aspects?
 - How to institutionalize the process?





THANK YOU