



# **Agriculture and Forestry Research Strategy to cope climate Risk**

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# Background

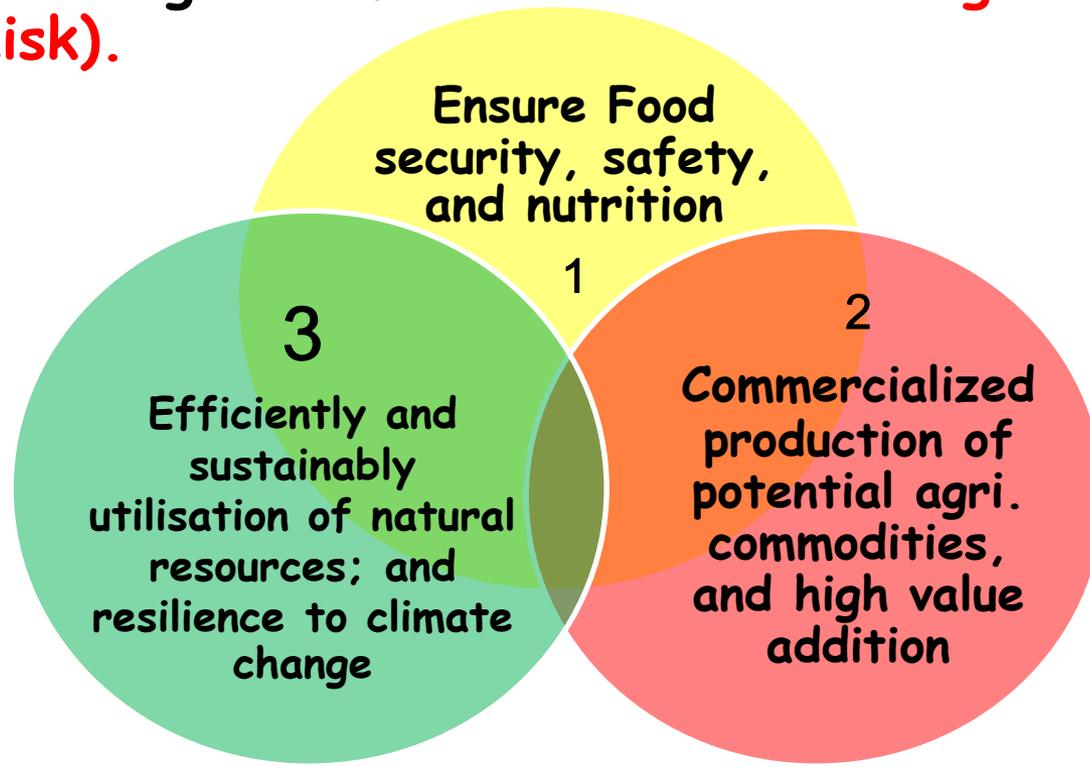
- Agriculture is still accounted as the primary sector of the national economy, it contributes to food security, poverty alleviation, and natural resource management.
- > 70% of the Lao people living in the rural are engaged in agriculture, produce food and income generation,
- MAF has finally developed Agri. Development Strategy (ADS) 2025 and vision up to 2030; a number of prominent goals have to be achieved, these include:
  - Food security; MDGs (Zero hunger by 2025 (FAO, 2015))
  - Commercialized commodity production; rural livelihoods and poverty alleviation
  - Sustainable forest utilization and conservation.

# Constraints to agricultural development

1. Smallholder-based production with low productivity; minimal farmer experience with modern agriculture technologies and marketing,
2. Post-harvest loss still high and lack of value-addition,
3. High international marketing competitiveness (i.e. need quality and standard products),
4. Low labor availability and productivity,
5. Emerging impact of climate change (flood, drought, break out of crop and animal diseases, soil erosion and nutrient degradation),
6. Degraded and loss of agro-biodiversity, and natural resources.
7. Deficient financial support, facilities and Capacities for R&D.

# Agricultural Research Strategy 2025, and vision to 2030

The strategic goal of research strategy is to better define and articulate how NAFRI intends to carry out “research for development” to achieve the goals of ADS 2025, in food security and nutrition, commercialized agriculture and sustainable agro-biodiversity and forest resources management; **and resilience of Agri. to climate change (Risk).**



# Agricultural Research Strategy 2025

## Mission:

- NAFRI aims to contribute to ADS 2025 by carrying out integrated 'research for development' to overcome specific problems limiting production and causing degradation of natural resources and Agro-biodiversity, and **Climate risk**,
- Work closely with different levels of policy-makers to provide feedback and advice to ensure a more supportive policy environment,
- Strengthen research culture, capability and collaboration, and
- Develop an effective communication and information systems, so that a range of actors have better access to information and knowledge.

# Strategic Research Programmes

- 6 Programmes: Four research programmes and two support programmes
- Sustainable Agro-biodiversity Programme
- Improved agri. Productivity Programme,
- Resilient Agri. to Climate Change Programme
- Policy Research Programme
- Capacity Building Programme (human resource, institution and infrastructures),
- Information and Communication programme.

**What are NAFRI's research to cope with Climatic Risk Management (Climate Change) ?**

# Climate Risk impacts in Lao PDR

Table: Summary of Natural Disasters in Lao PDR 1966-2010

Type of Event	Number of Events	Number of People Affected
Flood	16	3,244,154
Epidemic	7	19,929
Drought	5	4,250,000
Wind Storm	4	1,307,312

In 2008, the country was hit by the worst flooding with more than 200,000 people were affected and some 75,000 hectares of agricultural land were losses.



# Climate Risk impacts in Lao PDR

This year 2015, Locusts invasion in Northern province (Phonthong District, Luang Prabang province)



ໃບໄມ້ປ່ອງທີ່ຖືກທຳລາຍ ໂດຍຕັກແຕນຝຸງ ໂຕແກ່



ຕັກແຕນຝຸງ ເລີ່ມເຂົ້າທຳລາຍຕົ້ນເຂົ້າໄຮ່



ຕັກແຕນຝຸງ ໂຕແກ່ ໄລຍະທີ 3



# Strategic Research programme on Climate Change

The programme aim:

- **Develop Climate information services (Agro-climate Advisory):** Establish Agro-meteorological information and services, develop and deliver improved farmer advisories for better management of safety nets, and enhanced design of adaptation capacity to farmers.
- **Develop Climate-smart agricultural practices:**
  - Test and scale up technologies and improved practices that are needed to build farmers mitigation and adaptive capacity to ensure food security and livelihoods;
- **Policies and Institutions for climate-resilient.**
  - Modeling, scenario assessment and policy analysis to provide the information and tools for decision-makers to target support for agriculture and food security under climate change.

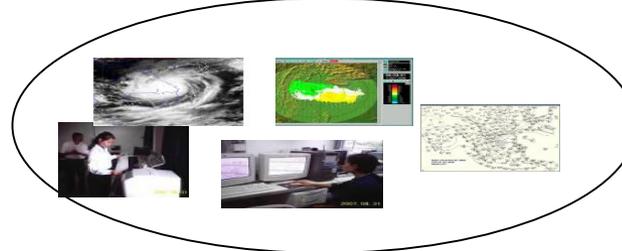
# What we have done so far

National  
Agriculture and  
Forestry Research  
Institute



Department of  
Meteorology and  
Hydrology

Weather Forecast Division



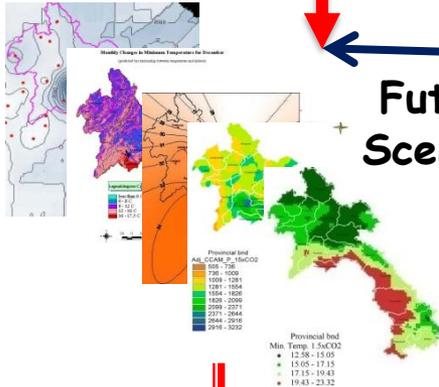
SEA START & ACIAR

Future climate  
Scenario analysis

Cropping systems  
resilience

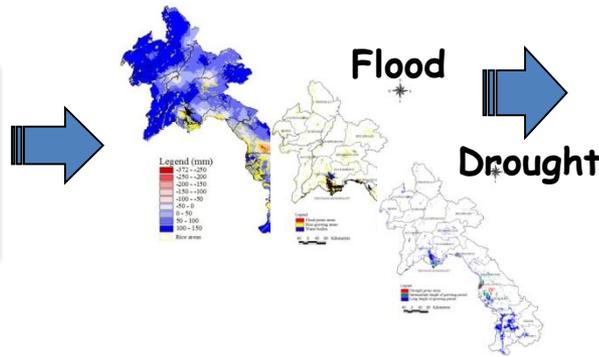


Characterization  
of Agro-climate  
information



Agricultural  
vulnerability  
mapping

Water availability



Flood

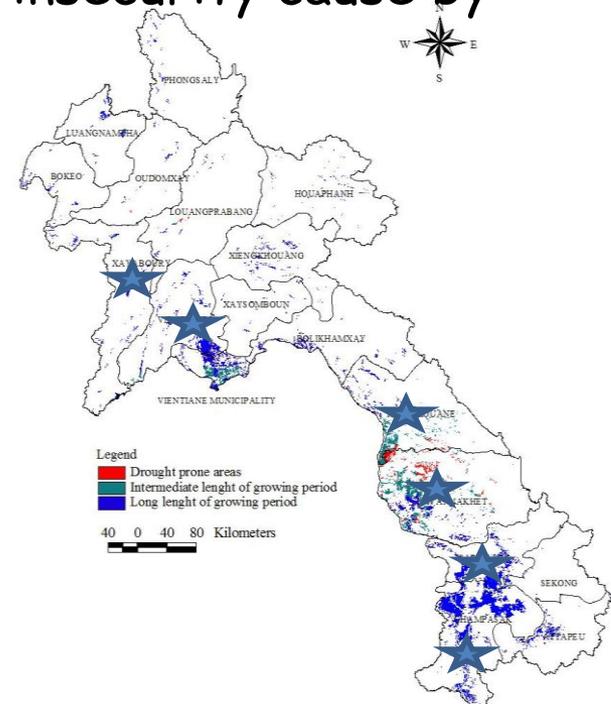
Drought

Adaptation  
option  
formulation

# The severe impact of climate change in Lao PDR (Drought)

## Impact of drought (future climate scenario analysis)

- Dependent on isolated agricultural systems in semi-arid and arid regions
- Crop yields will decrease 2.5-10% by 2020 and 5-30% by 2050
- Around 188,000 HH are at risk of food insecurity cause by drought
  - Xayabury,
  - Vientiane,
  - Khammuane,
  - Savannakhet,
  - Saravane,
  - Champasck.



# Research Outcome

- **Rice Varieties:** Flood and drought Tolerant Rice variety developed by RRC (Naphok)

e.g. **TDK1-sub1, Aerobic Rice,**  
On-farm trials flood tolerant rice variety (TDK1-sub1), Tohaen village, Xaibouli district, Savannakhet province

- **Improving the water use efficiency of rice:**  
**Alternate wetting and dry (AWD)**

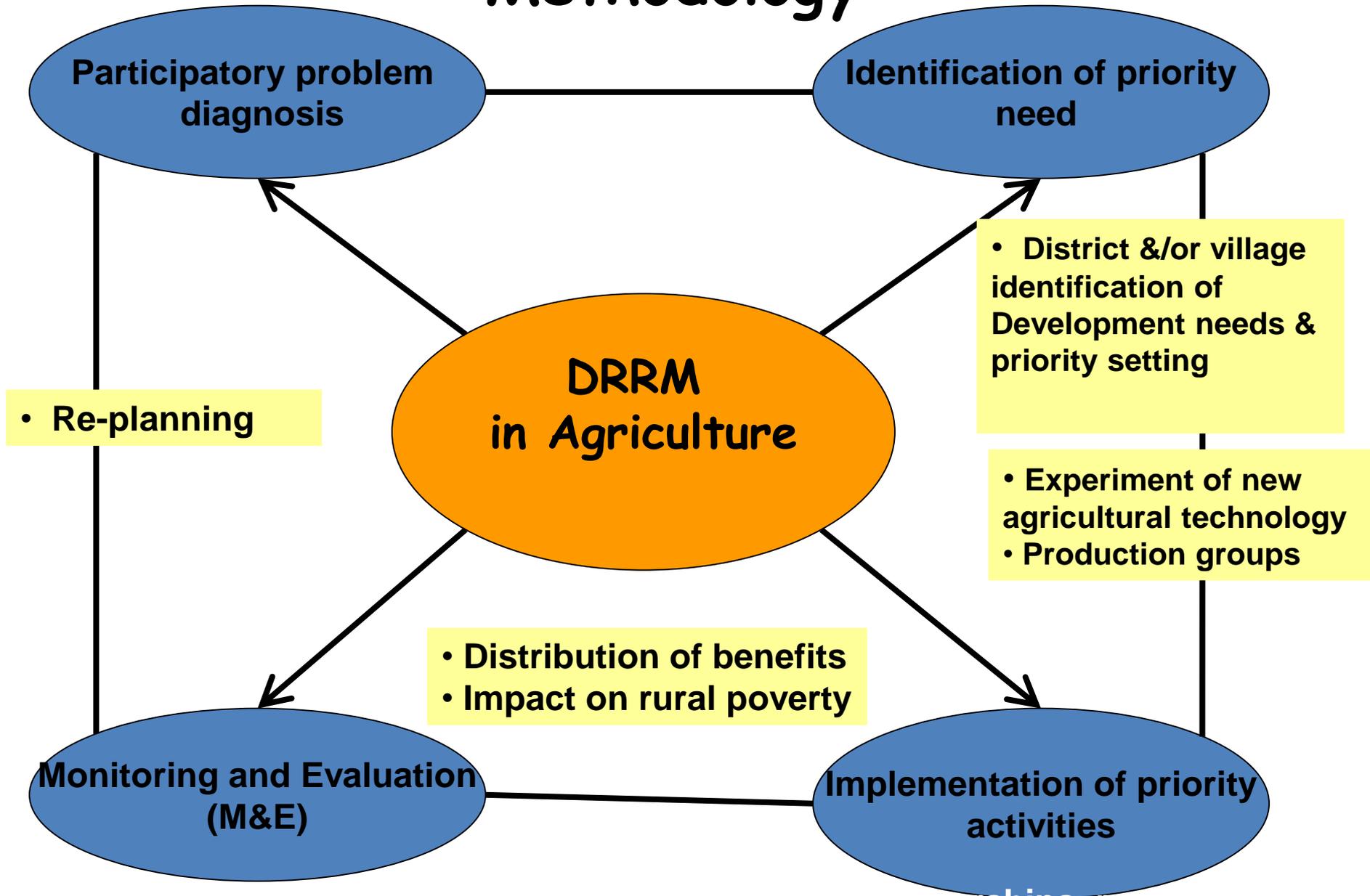
- **Direct seeding:**

**Developed appropriate planting Technique for rain-fed lowland**

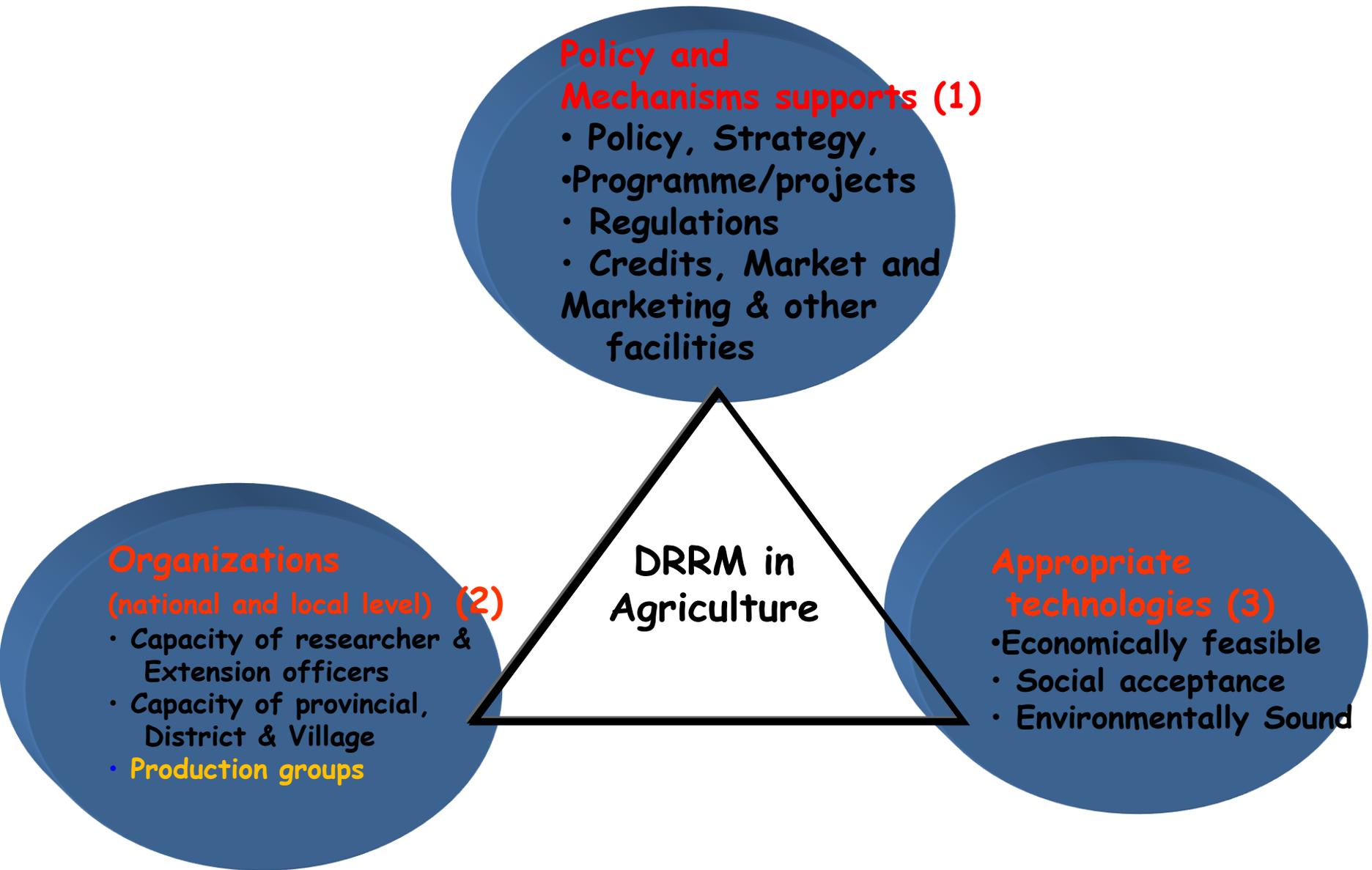
- **More improved techniques and Technologies has been developed by project (Improve Resilient Agriculture Sector to Climate Change (IRAS))**



# Methodology



# Lesson Learnt "to be success"





**Khob chai**  
**Thank you**