

# ACIAR SDIP Highlights

Improved food, energy and water security for sustainable food systems in the Eastern Gangetic Plains  
ACIAR SDIP Final Review Meeting August 2021



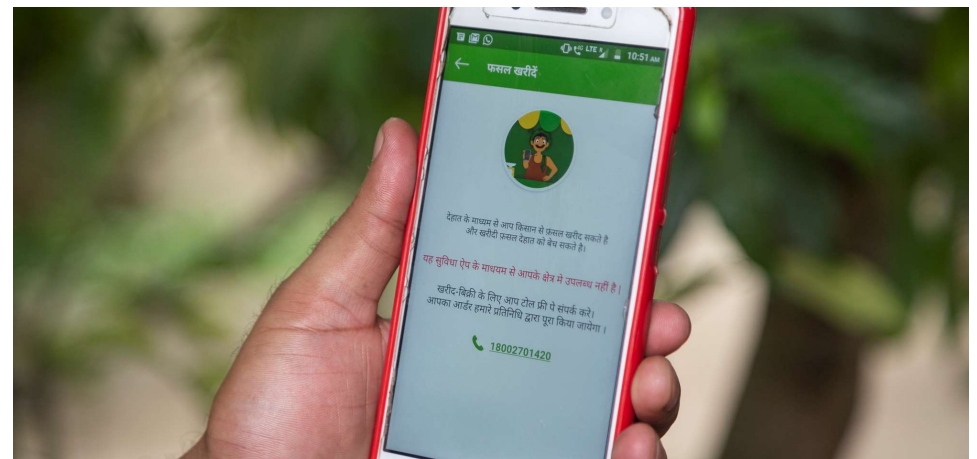
Australian Government

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International Agricultural Research

**Australian  
Aid** 

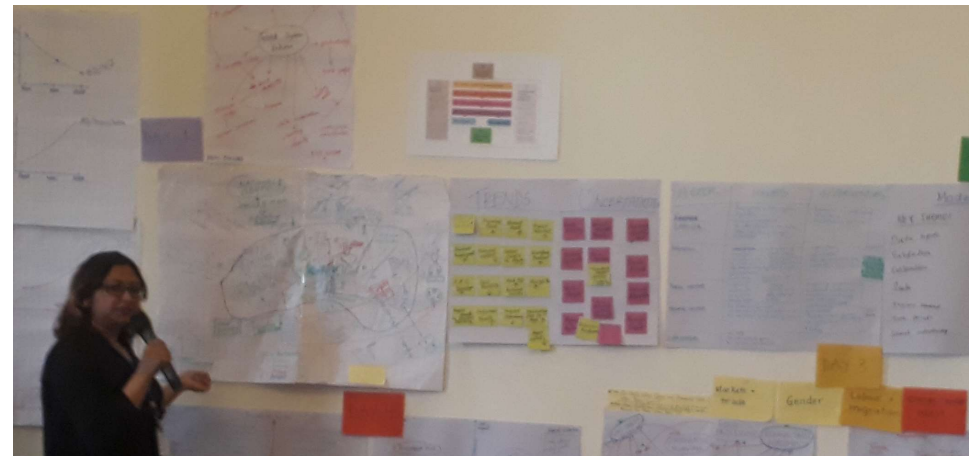
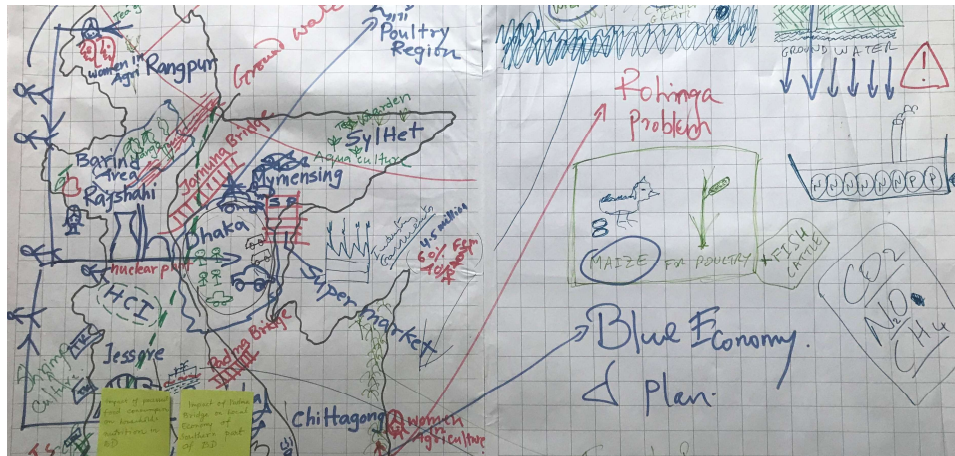


# Scaling of Conservation Agriculture based Sustainable Intensification (CASI) approaches, with an increasingly nuanced understanding of the science behind the scaling

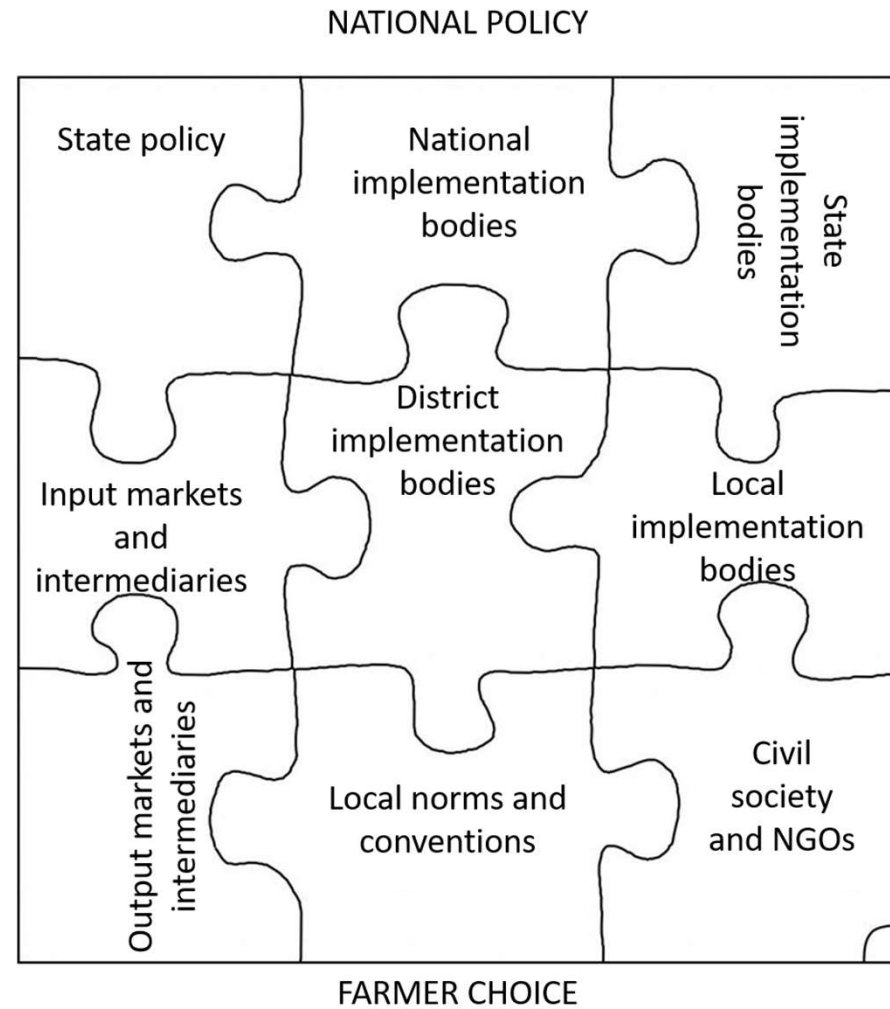




# Helping bring together the 'big picture' related to sustainable food systems through application of Foresight processes



# Exploring effective institutional arrangements to support sustainable food systems





## New approaches to research and new knowledge to promote a more nuanced understanding of women's role in agriculture & the impacts of system change



## Contributing new knowledge to support sustainable groundwater development in the EGP





# Identifying options that contribute to mitigation of emissions and adaptation to climate change

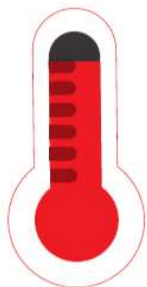
## HOW WILL THE CLIMATE CHANGE?



### RAINFALL

#### INCREASED VARIABILITY, DRIER WINTERS

- Total rainfall will increase by 10%, mostly during the monsoon period
- Winters will be drier
- Floods and droughts will occur more often and be more intense



### TEMPERATURE

#### MORE HOT DAYS, AND HIGHER WINTER TEMPERATURES

- Temperatures will increase by 1.5 degrees
- Extreme heat days will increase 2 - 3 x
- Warmer winters and night time minimums



### EVAPOTRANSPIRATION

INCREASED BY 5 - 7%

## IMPACTS ON AGRICULTURE



### GRAIN YIELDS

- Grain yields will fall 10 - 15%
- Higher CO<sub>2</sub> concentrations will boost crop growth rates and yields for C<sub>3</sub> plants (e.g. rice, wheat, soybean)
- High temperatures will reduce growing season length (particularly rabi) and push many regions beyond optimal growing conditions



### NUTRITION

- Higher CO<sub>2</sub> concentrations may cause lower nutritional content, e.g. zinc (9%), iron (5%) and protein (6%)
- Regimes of pests and pollinators will change



### PEST AND DISEASE

- Regimes of pests and pollinators will change, but not enough is known about how

**BY 2100, MANY PARTS OF THE EGP WILL BE UNSUITABLE FOR GRAIN PRODUCTION**

## New knowledge and approaches to help address challenges for Nepal's food systems in the context of federalisation



“The COVID-19 crisis and on-going federalisation related challenges offer an opportunity for Nepal to rebuild its stagnant and fragmented agriculture and food systems, and make it resilient to future shocks and disturbances ensuring environmental sustainability and healthy diets”

- Dr Madhav Karki, CGED Nepal





A photograph of three men in a field, likely a wheat field, examining the plants. The image is overlaid with a semi-transparent blue filter. The men are dressed in light-colored shirts and are looking down at the wheat stalks. The background shows a vast field of wheat under a clear sky.

**Thank You!**

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