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FACILITATING CLIMATE CHANGE ADAPTATION ON SMALLHOLDER FARMS THROUGH FARMERS' COLLECTIVE LED ON-FARM ADAPTIVE RESEARCH – THE SAF-BIN PROJECT

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Background

South Asia is home to over 20% of the world population and is most densely populated region in the world [7] . The majority lives in rural areas and agriculture is their main livelihood. Yet food and nutrition security remains very poor.

Major challenges include small, fragmented farms; restricted input and information access; lack of trust in traditional knowledge and climate change.

Farmers' perceptions on climate change

- Increased temperatures
- Delayed monsoon
- Increased rainfall variability
- Decreased winter rainfall
- Increased frequency of drought

Climate change trends in the project countries

Country	Change in temperature	Change in precipitation
Bangladesh	Annual maximum and minimum temperature increasing by 0.018 and 0.0150 C [8]	No significant change. Increasing trend in pre monsoon and monsoon. Decreasing trend in winter [8]
Madhya Pradesh (India)	Annual mean temperature increasing by 0.010 C [9]	Decreasing by 1.81 mm/year [9]
Nepal	Annual mean temperature increasing by 0.050C [10]	Increasing by 13mm/year. Number of rainy days decreasing by 0.8 mm days/year [10]

Figure 1 : Climate change trend in the project countries

The SAF-BIN project

SAF-BIN is a regional project funded by the European Commission and headed by Caritas Austria. The project supports smallholders to build resilience to climate change through strengthening adaptive small scale farming systems in rain-fed areas in South Asia.

The project is implemented by Caritas organizations in 10 districts of Bangladesh, India and Nepal with more than 270 smallholder farmers collectives and over 3000 families.

Objective

promote local food and nutritional security through adaptive small scale farming in four rain-fed agro-ecosystems in South Asia in the context of climate change

Activities

Diagnosis
- primary appraisal of smallholder farmers' (SHF) food production, distribution and consumption systems (FPDCS) (Literature review, baseline survey, PRA, screening/documentation local innovations)

Design
- blending of local and scientific innovations into FPDCS models
- communication and dissemination strategy

Institution and capacity building
- establishment of smallholder farmers' collectives
- initiation multi-stakeholder networks
- capacity building (e.g. resource centers for farmers; project team)

Implementation and monitoring
- testing of FPDCS models in on-farm adaptive research (OFAR)
- multi-stakeholder monitoring
- annual model refinement

Sharing and dissemination
- dissemination activities on local, national and international levels (awareness creating events, exposure visits, conferences,...)
- online and social media presence

Farmer collective led on-farm adaptive research (OFAR) - example

In Bardiya, Nepal consequences of delayed monsoon and variable rainfall are reduced rice harvest and increased food insecurity. Within SAF-BIN OFAR the performance of newly released drought tolerant rice varieties (Sukkha Dhan 1, Sukkha Dhan 2, Sukkha Dhan 3) in comparison to the resident rice variety (Radha 4) was tested in 2012, 2013 and 2014.

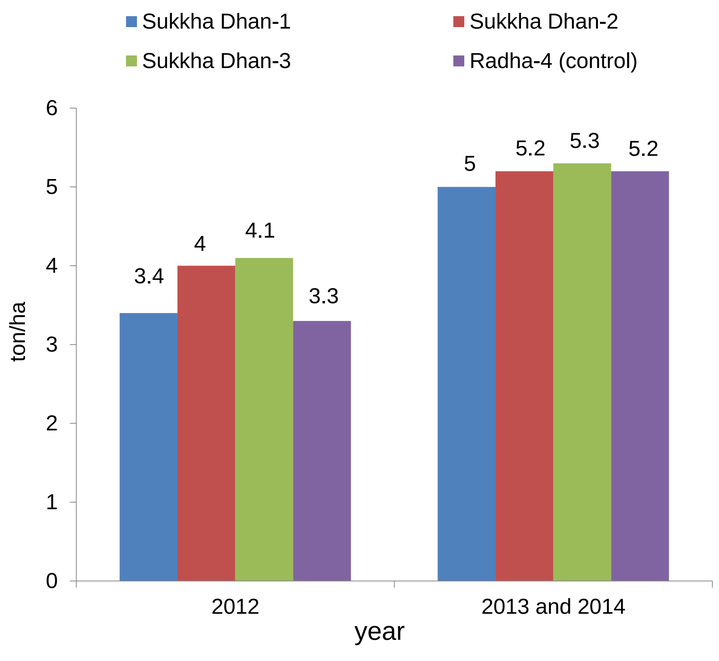

Figure 2. Grain yield (t/ha) of different rice varieties tested during OFAR in Bardiya district, Nepal between 2012 and 2014.

In 2012 (moderately dry) yields of the new varieties were substantially higher. In 2013 and 2014 (normal rainfall) there was no notable yield difference among the varieties (Figure 2). This shows that new varieties perform well under local drought conditions but resident varieties are acceptable in normal years. Introduced improved seeds increase the selection base for farmers and mitigate climate change related risks.

SAF-BIN and food security

Food items and the number of food secure days have increased (Table1). Activities such as kitchen gardens, revival of traditional foods (e.g. upland rice, millets, snails and oysters) and introduction of new crops have diversified the agricultural production system. This is increasingly recognized as important in managing climate change adaptation.

Table1: Impact of SAF-BIN on selected food security parameters in the project areas

Country	Items in local food basket*		Food secure days/year	
	Before SAF-BIN	After SAF-BIN	Before SAF-BIN	After SAF-BIN
Bangladesh	9	10	178	211
India	5	10	200	330
Nepal	18	30	150	240
Total	Ø 10.6	Ø16.6	179	260

* Major food consumed in the particular location (Source: SAF-BIN PRA results, 2011 and focus group discussions 2014)

Conclusions

SAF-BIN project has effectively supported smallholders to identify and understand their major climate change related constraints. Through the project farmers are now better equipped to address these challenges and successfully develop sustainable approaches to increase their food and nutritional security. Dialog and collaboration among all actors involved in the food production, distribution and consumption systems of the region have been enhanced.

References

[7]. Sivakumar M.K.V and R.Stefanski, 2011. Climate Change in South Asia, World Meterological Organisation, Geneva, Switzerland

[8]. Basak, J. K., R. A. M Titumir, and N.C Dey , 2013. Climate Change in Bangladesh: A Historical Analysis of Temperature and Rainfall Data, Journal of Environment (2013), Vol. 02, Issue 02, pp. 41-46.

[9]. Rathore . L S , S D Attri and A K Jaswal., 2013. State level Climate Change Trend in India, Government of India.

[10].DHM (2008). Department of Hydrology and Meteorology, Kathmandu, Nepal

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