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RESEARCH ARTICLE

IMPORTANCE OF INSTITUTIONAL ARRANGEMENTS FOR CLIMATE RISK MANAGEMENT IN RAINFED AGRICULTURE

Hanumanthu Nagesh*[1], [2]Jyothi, V., [3]Nagasree, K., [4]Ramarao, I.V.Y. and [5] Srinivasa Rao, V.

[1]Associate Professor, Department of Agricultural Extension, Agricultural college Tirupati; [2]Principal Scientist, Central Research Institute for Dryland Agriculture (ICAR-CRIDA); [3]Principle scientist, Department of Economics, Lam, Guntur; [4]Senior Professor and University Head, Department of Statistics and Computer Applications, Agricultural College Naira; [5]Professor & University Head, Department of Statistics and Computer Applications, Agricultural College Naira

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***Corresponding author:**
Hanumanthu Nagesh,

ABSTRACT

Rainfed farmers are among the most vulnerable farming communities to manage the risk because of the heavy resilience on rain for their cultivation and sustenance of their livelihoods. The best and most timely responses against climate change are suitable risk mitigation measures. Accurately perceiving the risks associated with climate change is an essential factor for planning and then implementing measure. A well-functioning institutional arrangement promotes the institutional environment in rural areas. As changing in climate the demands for natural resources and environmental awareness increases, understanding and strengthening these arrangements become essential for farming community to manage the climate risk in rainfed agriculture. The findings highlight the significance of collaborative governance as a valuable alternative for addressing governance challenges in managing the farming risk, particularly when hierarchical oriented approaches are less effective.

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INTRODUCTION

Rained agriculture is critical component of global food security, supporting millions of livelihoods, particularly in developing countries. However, it is highly vulnerable to climate variability and extreme weather events such as droughts, floods and erratic rainfall patterns. These climate risks threaten the agricultural productivity, food security and rural economies making effective climate risk management essential for sustainable agricultural development. Rural has always been a centre point in discussions on development. Despite much extensive efforts and time spent studying various aspects of life, persistent issues such as the significant income disparity between urban and rural areas remain longstanding problems that require further investigation and resolution. So many approaches are tackling the problems especially in rainfed areas due the changing the climate. Climate change poses an increasing danger to the continuation of life globally. It has unquestionably emerged as one of the world's most significant problems in the twenty-first century. All nations are vulnerable, although some have been identified as more so than others. The new approach and strategies are needed to address the existing and emerging problems faced by the rainfed communities, effective institutional arrangements are needed in the rural areas to allow the participatory approach to work in rural development through empowering the farmers by various technologies for their sustainability. Institutional arrangements play a pivotal role in facilitating the CRM by providing the necessary frameworks, policies and coordination mechanisms to enhance the resilience among the farmers. Strong institutions-research organizations, farm cooperatives, Village climate risk management committees (VCRMCs), Custom hiring centres (CHCs), seed bank and fodder bank helps in dissemination of climate information, promotion of adoptive farming practices and provision risk mitigation tools such as insurance and credit facilities. Furthermore, multistake holder collaboration ensures the climate adaptation strategies are locally relevant, inclusive and scalable. Without robust institutional support, smallholder farmers in rainfed system remain disproportionately exposed to climate shocks, perpetuating the cycles of poverty and food security. Numerous studies shown that institutional arrangements influence the human decisions, interactions and overall economic performance and development. Consequently, the importance of enhancing these institutional frameworks has been acknowledged in management science in many years. Therefore, strengthening the institutional arrangements for CRM is crucial for building the adaptive capacity, improving the resource efficiency and ensuring long-term agricultural sustainability in rainfed regions.

Objective: To know the importance of institutions arrangements for climate risk management in rainfed agriculture.

METHODOLOGY

Institutional arrangements are the policies, systems, and processes that organizations use to legislate, plan and manage their activities efficiently and to effectively coordinate with others in order to fulfil their mandate (UNDP).Institutional arrangements refer to the delegation, distribution, or sharing of power related to growth management decision-making and implementation authority. The investigation was carried out in the Kurnool and Anantapur district of Andhra Pradesh. These districts werechosen based on the vulnerability index and Heat risk index (HRI) according to the report of 'The Council on Energy, Environment and Water (CEEW)-2021.'

Five villages from Kurnool and four villages from Anantapur districts chosen purposively due to these villages with VCRMCs involved in TDC (Technology Demonstration Component) were selected for the study. Institutions are responsible to climate risk management in rainfed agriculture are Village climate risk management committees (VCRMCs), Custom hiring centres (CHCs), seed bank and fodder bank. Thirty respondents are taken from each institution in each district, thus total sample size were 240 members.

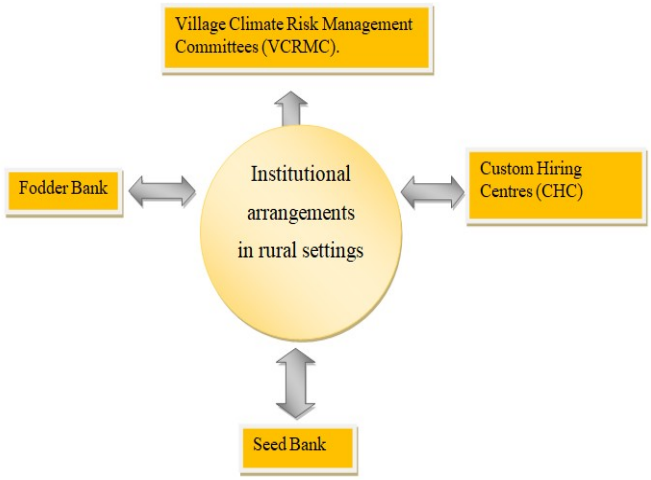

Fig.1 schematic representation of Institutional Arrangements in rural settings

RESULTS AND DISCUSSION

Risk management from climate change like other important subjects, requires institutional focus. Assigning an institution with the responsibility, accountability and authority to lead and coordinate is a crucial step in developing and implementation of different strategies to empower the farming community. The various mechanisms to articulate, monitor the agrarians and most importantly, to ensure they are taken into account of wide range of national policies from yield potential to sustainability of farmers income and country food security. Without institutionalized attention regarding to rainfed farmers due climate variability it is difficult to incorporate the environment of decision-making process. The importance of these institutions is:

Village Climate Risk Management Committees (VCRMCs)

1) **Decentralized climate governance:** Serve as a local governance platform for climate risk management planning, response and decision-making body.
2) **Risk assessment and planning:** Helps to identify local climate vulnerabilities and prioritize the adaptation plans.
3) **Coordination Hub:** Facilitate linkages among farmers, extension services, and various institutions related climate-resilience.
4) **Capacity building and awareness:** Organize the trainings, disseminate climate information and promote adaptation strategies.
5) **Equity and participation:** Include representation from marginalized groups (women, SC/ST) ensuring inclusive risk governance.

Custom Hiring Centres (CHCs)

1) **Access to machinery:** Provide easily access to climate-resilient and timely needed machinery to farmers.
2) **Cost effectiveness:** Reduce capital burden on small and marginal farmers.
3) **Timely operations:** Enable timely sowing/harvesting crucial under erratic weather patterns enhancing productivity and reducing risk.
4) **Promotion of climate smart agriculture:** Foster adoption of resource conserving technologies like Happy seeder and reduce GHG gases.

Seed Bank

1) **Resilience to climate shocks:** Act as buffer during seed shortages caused by delayed monsoons, floods and droughts.
2) **Conservation of indigenous varieties:** Supports local varieties for specific climatic conditions**.**
3) **Community Empowerment:** Managed by local groups like farmer clubs, these build collective ownership and preparedness.
4) **Reduce Dependency:** Minimize the reliance on external seed supply chains like private companies, improving timeliness and self-reliance.

Fodder Bank

1) **Livestock resilience:** Ensuring feed availability feed during drought or extreme weather.
2) **Livelihood protection:** Most of the rural communities depend on livestock as secondary or primary income source.
3) **Supports integrated farming:** The crop-livestock systems, improving overall resilience of the village.

CONCLUSIONS AND RECOMMENDATIONS

This investigation gas demonstrated awareness on institutional arrangements related to climate related issues to mitigate the risk management in rainfed agriculture. These institutions are indispensable part in farming community. We recommend stronger institutional collaboration in rural areas at community level especially in rainfed farming as way to ensuring the robust risk management. Also we recommend a integrated approach to mitigate the risk faced by the farmers.

REFERENCES

Agyenim, J.B. 2011. Investigating Institutional Arrangements for Integrated Water Resource Management in Developing Countries: The Case of White Volta Basin, Ghana. *[PhD-Thesis* - Research and graduation internal, Vrije Universiteit Amsterdam]

Alaerts, G.J.F.R. 1995. Institutional Arrangements in the Water and Sanitation Sector, European Country Studies. *IHE Working Paper*, Delft.

Christen, E and Van Meerveld, I. 2000. Institutional arrangements in theSheppartonIrrigation Region, Victoria, Australia. *International Water Management Institute.*

Easter, K.W. 2004. Introduction to the special section on Institutional Arrangements and the effects on Water Resources. *Water resources research*. *40* (12).

Evans, A. E. 2016. Institutional arrangements for resource recovery and reuse in the wastewater sector (Doctoral dissertation, Loughborough University).

Gunn, E. L., Rica, M., Zorrilla-Miras, P., Vay, L., Mayor, B., Pagano, A and Giordano, R. 2021. The natural assurance value of nature-based solutions: A layered institutional analysisofsocio ecological systems for long term climate resilient transformation. *Ecological Economics*. *186*: 107053.

Hannam, I. 2024. Institutional arrangements to decarbonise rural land in Australia. *Soil Security*. *14*: 100131.

Hassenforder, E and Barone, S. 2019. Institutional arrangements for water governance. *International Journal of Water Resources Development*. 1-25.

Jaspers, F. G. 2003. Institutional arrangements for integrated river basin management. *Water policy .5* (1):77-90.

Karmakar, A., Ganvir, N and Berrens, R. P. (2022). The Impact of Institutional Arrangements on Farmland Rents in India: A Ricardian Analysis. *Journal of Agriculture and Environment for International Development (JAEID)*, *116*(1), 29–58.

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