



Collective Action and Property Rights for Poverty Reduction in Watersheds

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Introduction

Collective action (CA) lowers the transaction costs for the farmers in the rural areas. It enables them to make investments to improve both the private and common property resources, which is otherwise a costly affair. But, the property rights to both privately and commonly held resources need to be well defined and respected. While some communities/societies engage in CA successfully and benefit from such activities, others fail. This study makes an attempt to (a) conceptualise and measure CA for watershed management in India, and (b) identify the determinants of successful CA.

Methodology

Eighty-seven watersheds were randomly selected from six districts (Figure 1) [representing two from each of the low (less than 700 mm), medium (700 mm to 900 mm) and high (more than 900 mm) rainfall zones of the state of Andhra Pradesh in India]. All the sample watersheds were implemented following the 1994 guidelines for watershed development. Data were collected at the community level from leaders, user groups and key informants on a range of issues that characterised the village and the watershed groups.

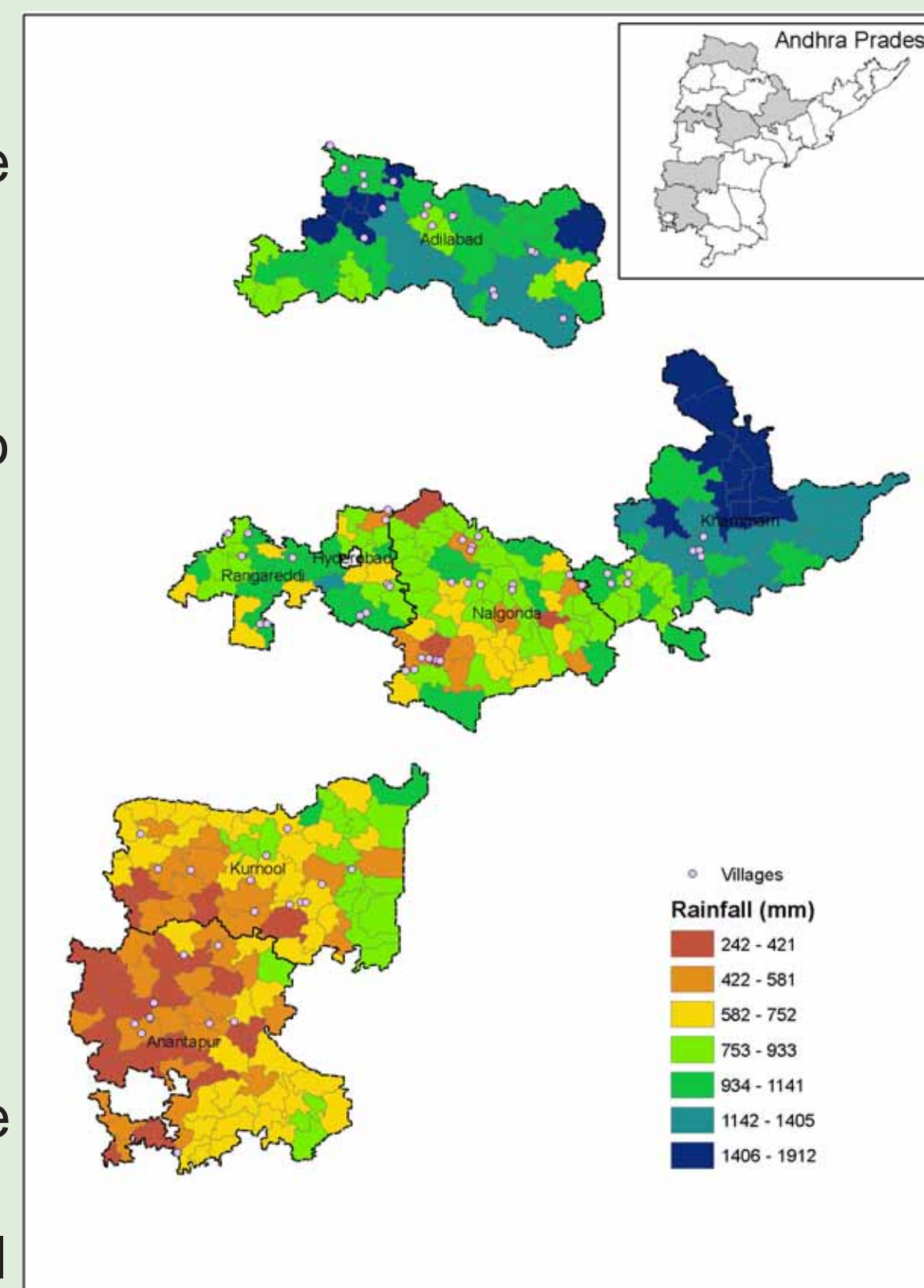
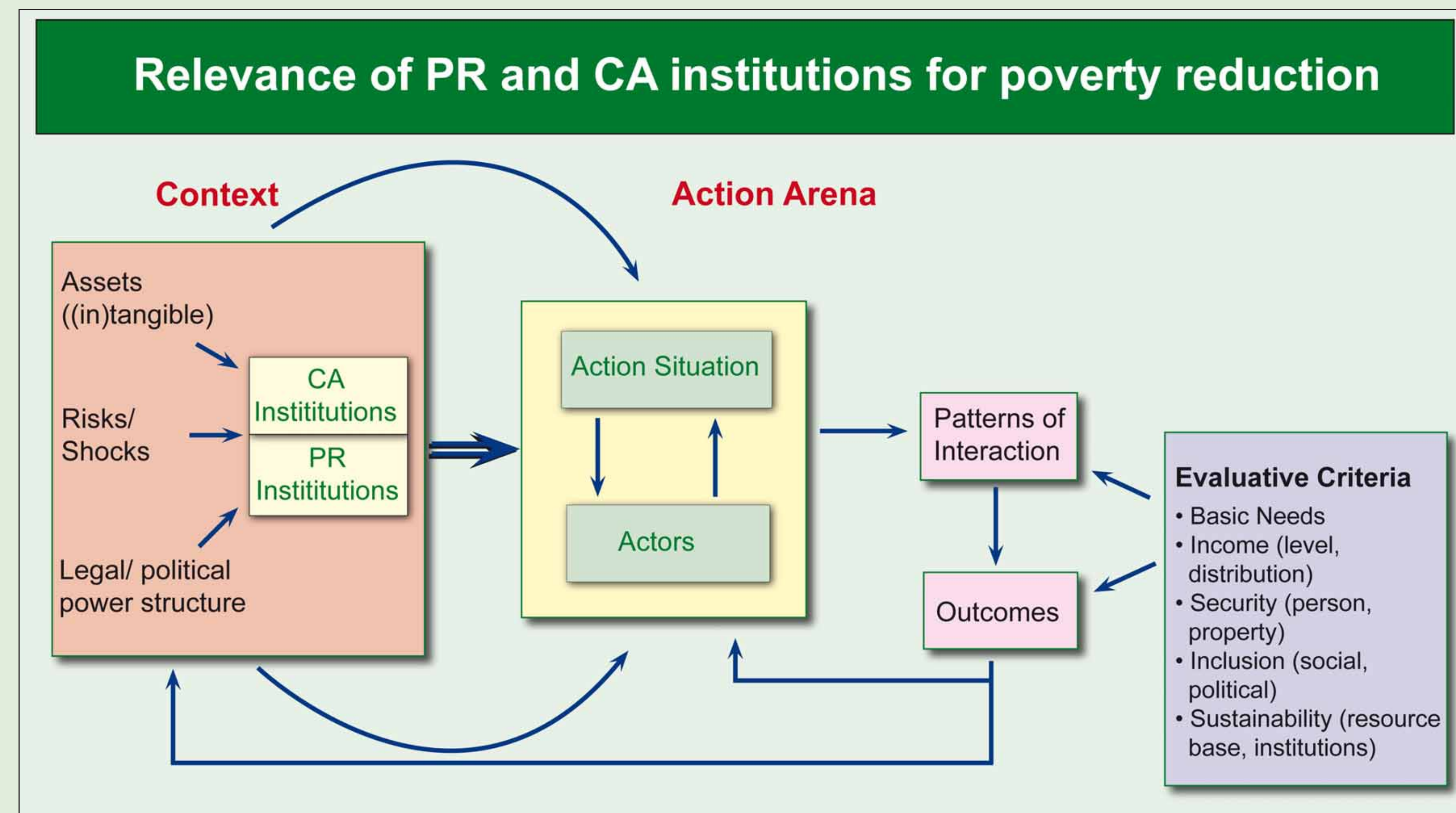


Figure 1. Study sites.

Conceptual framework on property rights, CA and poverty (Di Gregorio et al. 2004)



Collective Action (CA) in watershed management and its determinants

The main hypothesis of this paper is that, the level to which communities can act collectively varies. The primary data of the proxies was collected. Different variables representing CA were aggregated (Table 1). The scoring coefficient was obtained through the principal component factor analysis (Table 2).

Table 1. Variables representing CA and their eigenvectors.

Variables	Eigenvectors
A. Total cash contributed by the community as a percentage of total expenditure of the project	0.101
B. Labour contribution in person days per household	0.108
C. Corpus fund mobilised per household	0.083
D. Number of meetings per year in watershed association	0.161
E. Percentage of members attending the watershed committee meetings	0.266
F. Total number of rules formed	0.493
G. Average share of members respecting the rules	0.521
H. Average level of effectiveness of all rules	0.499
I. Percentage of user groups functioning properly	0.319
J. Percentage of self-help groups functioning properly	-0.098

Table 2. Summary statistics of the indicator of level of collective action (LCA).

	N	Minimum	Maximum	Mean	Std. Deviation
Level of CA	87	- 4.16	8.02	2.299E-04	1.8071

The aggregated indicator of CA was then used as a dependent variable to identify its determinants (Table 3).

Table 3. Determinants of LCA.

Factors	Relationship
Group size	+
Distance to market	+ **
Number of castes	-
Percentage of landless	-
History of participation in CA	+ *
Conflict resolution mechanisms	+ *
Leadership score	-
Transparency	-
Rainfall	+
Economic heterogeneity	+ *
Percentage of people migrating before the project	-

* at 10% significant level ** at 5% significant level

Conclusions

A huge variation of the capacities to engage in CA exists among the sample watersheds. The following are a few factors, which explain the variation:

- High levels of CA exist among the experienced groups. The finding supports the hypothesis that individuals of the group develop trust and are more forthcoming to participate in CA irrespective of the kind of goal pursued.
- Presence of conflict resolution mechanisms improves the LCA.
- Distance to input and output markets are positively and significantly associated with the LCA. Selling the produce and buying the inputs significantly minimizes the costs.

