Identification of Farmers' Problems and Appropriate Solutions: Use of PRA Techniques in Agricultural Development.

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Abstract

Participation of the beneficiaries in agricultural development, planning and implementation is well recognized in agricultural programmes. This provides an opportunity to identify farmers' needs at the beginning and further, involves the community in the entire planning cycle. Participatory Rural Appraisal (PRA) techniques can be used to bring the beneficiaries to the process of development activities, while saving time and money. This study was conducted in *Kobbakaduwa* village of *Muruthalawa Grama Niladhari* (GN) division; Kandy district. Main objective was to identify the farmers' problems and to suggest relevant solutions which could incorporate to future agricultural development programme of *Hadabima*. A group of students of the university of Ruhuna, *Hadabima* officers, grass-root level development workers and farmers participated in this event. A set of PRA tools such as resource map, venn diagram, seasonal calendar, pair-wise ranking and matrix ranking were used to obtain information. Resource map revealed the resources, community assets such as community hall, institutions such as post office, hospital, temple, school *etc.,* agro-ecological and general conditions of the village. Venn diagram discovered, death-aid society and welfare union are the most important and closest institutes. According to seasonal calendar, the highest rainfall has been observed in November and the least in February. The highest labour force was recorded at the beginning of cultivation during January to March and the least in April and December with post harvesting of their own cultivations. Farmers identified main problems of the village using pair-wise ranking and among them soil erosion seemed to be the most burning issue. Matrix ranking showed that arecanut is the most suitable crop to grow under the environmental conditions in the village. At the end of the activities, leaders were selected and they intended to participate in the planning activities of the *Hadabima* for future agricultural development process in the village.

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Introduction

In rural and agricultural development, PRA techniques are widely used in identifying community problems and finding solutions. Participatory Rural Appraisal (PRA) tools facilitate collection and analysis of information. The World Bank (1995) defines PRA as a 'family of participatory approaches and methods which emphasize local knowledge and enable local people to do their own appraisal, analysis and planning.' PRA uses group animation and exercises to facilitate information sharing, analysis and action among stakeholders' Using PRA techniques, a research team can quickly and systematically collect information for the analysis of specific topic, question or problem, needs assessment, feasibility studies, identifying and prioritizing projects and finally, the project evaluation. The PRA tools are implemented to achieve increased accuracy at low costs both, in terms of time and money (Alam and Ishan, 2012).

PRA encourages the local community to voice their opinions and ideas. It is an approach for the local people to analyze their own conditions and communicate with outsiders. PRA helps community members to assess their resources and overall situation regarding areas such as agriculture, health and education (Abdulla *et al.,* 2012).The popular and tested PRA techniques are resource map, transact walk, pair-wise ranking, venn diagram, preference ranking, matrix ranking, seasonal calendar, institutional analysis, wealth ranking and historical profile.

In Sri Lanka PRA techniques are used among different communities to identify their problems and also to obtain the most suitable solutions. The Sri Lankan experience on use of PRA tools in agricultural development programmes were recorded by De Silva and Wijeratne (2008), and Perera and Wijeratne (2015). All such studies indicated the practical validity of PRA techniques granting realistic opportunities to local knowledge networks. This paper explains a PRA conducted in *Kobbakaduwa* village of *Muruthalawa GramaNiladhari* (GN) division; Kandy district on 6th February 2016, with the collaboration of Hadabima authority and the Faculty of Agriculture of University of Ruhuna. Main objective was to identify the farmers' problems and to suggest relevant solutions which could incorporate to intend agricultural

development programme of the village in the context of Hadabima development framework.

Materials and methods

The PRA programme was conducted at *Kobbakaduwa* village of *Muruthalawa GramaNiladhari* (GN) division, Kandy district. Sixty four farmers in *the* village were participated to this programme. The students of the Faculty of Agriculture of University of Ruhuna and the officers of the Hadabima Authority were facilitated the programme. Recourse map, venn diagram, seasonal calendar, pair-wise ranking and matrix ranking were used as PRA tools to obtain information from the villagers. The Participants were divided in to five groups, and each group was given to exercise one PRA tool. Facilitators conducted the programme and villagers actively engaged in the events. The farmers drew a resource and social map of the village indicating the resources, institutions, community assets, agro ecological and general conditions of the village. Venn diagram was prepared indicating the degree of relationship between the institutions and the villagers. Villagers first, identified the individuals and the institutions in the village. After discussing the significance and degree of relationship between the institutions and the villagers, they were encouraged to depict the information comparatively. The size of the circles represents the significance of the certain institute to the villagers and the distances represent the relationship between institute and the villagers. Pairwise ranking was done in order to rank the constraints of the village by comparing two constraints. The constraints listed by the villagers were placed in a chart both vertically and horizontally. Then two constraints were compared at once and marks were given to the prioritized factor. Ranking was done according to the marks obtained by each factor. Matrix ranking was done to find out the most suitable crop species for *Kobbakaduwa* area, among already cultivated crops in the area. Villagers listed the crops grown in the village. They were advised to choose the criteria such as suitability to the area, higher income, minimum pest attack, low labour cost and low fertilizer requirement to prioritize the suitable crops. The crops and the criteria were arranged horizontally and vertically, respectively in a chart. Marks were given to each crop based on the criteria, and later, prioritized the crops according to the total marks obtained.

Changes in the climatological conditions such as rainfall, labour use pattern and cultivation patterns were depicted graphically by using the seasonal calendar.

Results and discussion

The resource map revealed following outcomes. The total land area was nearly 600 acres, and around 400 families lived in this area. Average land area per person approximates 2.5 acres. Most of the people in this village, engaged in farming activities as their major income source. The major farming activity was tea cultivation. About 72 acres had been utilized for paddy cultivation. Fruit crop (papaya and banana) and minor export crops (cloves, nutmeg, pepper and cocoa) were also identified. The home gardens arecanut plants were also found. Majority of farmers follow rain fed farming. The labour requirement for major cultivations was high. However, they do not have ability to hire paid labours. In fact labour force availability was less. As a result most of the paddy cultivations have been fallowed. Therefore, 60 percent of the farmers have left their cultivations.

According to the venn diagram, villagers have revealed that death aid society and welfare union were the most important and significant institutes. *Samurdhi Samithiya* was more significant than loan union, *Sahana samithiya*, Rural development society and Tea development union which are of similarly important. Both degree of relationship and significant level were similar for *Vedihiti Samithiya* and *kantha samithiya*. *GramaNiladhari* and School teachers were in same significant level but degree of relationship of GramaNiladhari is high. Family health officer and postman were in same significant level, but degree of relationship of post man was high. Forestry officer and social service officer were less in significance and degree of relationship.

The pair-wise ranking demonstrated that harmful effects from animals, labour scarcity, soil erosion, lack of knowledge on soil erosion, lack of inputs, low price for harvest and products, low involvement in agricultural practices by young generation were the major constraints According to the results, the most prominent constraint was the soil erosion followed by low prices for harvest and in sufficient knowledge on soil conservation. (Table 01)

Table 1: The results of pair-wise ranking

Identified Constraint	1	2	3	4	5	6	7	Marks	Rank
1	X	2	3	4	5	6	7	0	7
2		X	3	4	5	6	2	2	5
3			X	3	3	6	3	5	1
4				X	4	4	5	4	3
5					X	6	5	4	4
6						X	6	5	2

Identified constraints are indicated as numbers. 1; Harmful effects from animals, 2; unavailability of labour, 3; Soil erosion, 4; In sufficient knowledge on soil conservation, 5; Limited inputs, 6; Low price for harvest/Production, 7; Young generation leaving agriculture sector.

Results of the matrix ranking revealed that tea, nutmeg, pepper, clove, coconut and arecanut were grown in the area as major crops. Arecanut, pepper and cloves obtained 1st, 2nd and 3rd places, respectively as the most suitable crops for the area.

Seasonal calendar showed that the highest rainfall has been recorded in November. Significantly heavy showers were observed during the period of May to December. The least rainfall was obtained in month of February. The highest labour requirement was recorded at the beginning of the cultivation, during January to March. The months of May, August and October were the important months with respect to paddy cultivation.

Conclusion and Recommendation

The outcomes of the PRA exercise indicated that soil erosion is the main limitation prevailing in the area. This is a result of insufficient knowledge on soil conservation techniques. Therefore, the future planning should include provisions for implement soil conservation methods. Arecanut was the most suitable crop to grow in the area. This may be due to significant price increase observed during the recent past. Hence on a small scale this crop can be produced, especially in home gardens. However, the existing tea cultivations and minor export crops should promote as such crops are much suited the climatic condition of the region. All the PRA activities provided a valid opportunity to integrate local people in the context of situation analysis and further, facilitate future planning. In fact it identified real needs for location specific target in Kobbakaduwa village.

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