

**Planning of Watershed Development Projects
Using Non-project Focused Participatory Methods
Lessons from Mee Oya**

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Abstract

Participatory Rural Appraisal (PRA) is firmly established as an effective methodology for planning, monitoring and evaluating projects and has made undoubted contributions to increasing the involvement of local communities in development. However, due to project focused operational procedures, PRA may on occasion have failed to correctly identify the real development needs of some rural communities. This may have been due to the community members tending to respond positively to the objectives and priorities set by donors and project sponsors. Consequently, project focused PRA can become a tool to extract people's acceptance of pre-determined development objectives rather than a means to find the real needs.

This paper examines potential shortcomings of project focused PRA and proposes non-project based PRA for project identification when planning watershed developments. The application of the non-project focussed methodology is illustrated by a case study at two locations in the Mee-Oya basin. Even when PRA is conducted to identify the local requirements for pre-determined project components, the field work should focus on identifying the real needs of the rural communities. PRA and opinion survey techniques are proposed as a methodological improvement for design of rural development projects.

Introduction

This paper presents methodological innovations adopted in the preparation of a sub-watershed development plan for the Mee-Oya basin in Sri Lanka. The proposed innovations arose from the authors' experiences in a number of rural and irrigation development projects in Sri Lanka and elsewhere where diverse problems were encountered in obtaining user participation in implementation. Similar problems were encountered during the Shared Control of Natural Resources (SCOR) project completed in September 1998.

Available evidence suggests that if a too narrow, project focussed, approach is taken during planning interventions then participation by the local communities in project activities is lower than expected. This is thought to be due to the unintentional disregard of the real felt needs of the community and adversely affecting community participation in project activities (Jinapala and Somaratne 1996,1997).

Project Preparation Methods

Until relatively recently the approach to project preparation and the design of development programs for rural communities was dominated by top-down strategies. Interventions were conceived and developed by central agencies and then transferred to the field. Such projects were often inflexible and offered little or no choice to the community intended to benefit from the intervention. Results of such approaches were frequently disappointing due to a lack of enthusiasm for participation in project activities.

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Recognising the poor results of top-down design methods increasing '*beneficiary participation*' in project design has become popular. However, frequently such participation that does occur is limited to consultations with beneficiaries when subject matter specialists collect field level data required for project design. Analysis and design of interventions is often done in isolation from the communities expected to implement the project. Farmers and other members of the community are given limited opportunities to be actively involved in the development of the project design and even less in formulation of development policies. The rhetoric is participation, however, the reality frequently remains top-down.

Techniques to obtain full participation of communities in problem diagnosis and design of locally relevant solutions to problems are available. Participatory Rural Appraisal (PRA) is bottom-up and has been demonstrated to have specific application in preparation of rural development interventions. The growing body of literature on PRA methodologies has arrived at a general agreement on the importance of participation by project beneficiaries in preparation of projects and programs. PRA methods and tools have evolved and have been tested in a wide range of countries, including Sri Lanka. Specialists in project design have applied PRA with rural communities to collect and analyse information on ecological, socio-economic and political conditions. Information obtained by PRA has also contributed to national and provincial level planning of projects and in policy formulation.

The new participatory approaches require changes in practices, including:

- single sector project designs replaced by multi-sector and multi-disciplinary designs;
- less delivery of perceived wisdom and increased listening and learning from local communities;
- less data collection, analysis and planning in isolation by professionals and more data presentation, analysis and planning by local communities farmers with technical specialists as advisors and facilitators;
- fewer questionnaire surveys to obtain information from communities and more application of arrays of participatory methods of learning from, with and by farmers; and
- less identification of development priorities by external agents and more identification and selection of priorities local residents.

Appropriately applied, participatory methods have been demonstrated to be popular, powerful and cost-effective techniques for project design in rural communities. These techniques can lead to better identification of appropriate and sustainable development options for local implementation. However, PRA techniques can result in inappropriate intervention designs in some circumstances. The experiment in two communities in Mee-Oya basin described in this paper examines a refinement to PRA. The use of '*opinion-survey*' techniques is intended to minimise the occurrence of inaccurate problem diagnosis due to inadvertent bias in the selection of the PRA group or due to application of the techniques by inexperienced users.

A Project Focused Approach

Donor funded rural development projects are largely designed to implement sector specific activities. Although components can often be included to address immediate requirements of beneficiary communities, many rural development projects in Sri Lanka have not given local priorities sufficient attention. For example a water resource development project implemented in the dry zone to rehabilitate small tank systems paid insufficient attention to interactions of small tanks in each cascade when designing engineering interventions (Jinapala et al. 1996). When a project has a focus limited to preconceived objectives, planners tend to neglect the real needs of the community and tend to 'receive' requests for activities within the purview of the defined project. Consequently, active participation by the community is often difficult to obtain when the projects fail to address the pressing needs of the community.

Adoption of an exclusive project focus in planing rural development projects (especially water resources development) may lead to two major problems:

1. Agencies may promote activities that are not attractive to the community but which are impressive to donor agencies and therefore obtain approval for funding.
2. Communities may tend to indicate approval for some activities in anticipation of attracting other benefits resulting from implementation of any project in their locality, although the project components are inappropriate or of low priority in the local context.

Failure of planners to adequately recognise these problems is responsible for negative impacts of some water resource development projects. Firstly, active participation of the community in implementation of project activities may be difficult to obtain, even though the project may be making valuable contributions to land and water resource management. Secondly, the lack of perceived ownership of the interventions may make it necessary to provide additional incentives to community members to stimulate implementation of the project. These factors can create serious sustainability problems after the project once incentive payments cease. In this case activities that do not fit the existing socio-economic environment tend to fail.

An Alternative Approach

The proposed refinement of project design using PRA techniques involves two factors. Firstly the PRA process is predicated on the assumption that members of a community will tend to express their real and immediate development needs when consulted during planning phase provided the consultation is not artificially constrained. Secondly, opinion-poll survey techniques are a valid mechanism for confirmation of a consensus that the PRA has correctly identified the development issues.

To test the proposed methodology two locations were selected in the Mee-Oya watershed. Local administration officers identified members of the communities to participate in PRA sessions designed to identify real and immediate development needs of the communities. No attempt was made during the sessions to focus on land and water resource issues, however considerable effort was directed towards ensuring that each participant was able to express their own concerns freely. To verify whether the issues identified in these sessions were the concern of the general community a rapid survey was implemented in each community.

The relative priority of each issue was determined during the PRA sessions and also in the course of follow-up interviews. Local Administration officers working in each location were also consulted to verify the community responses.

The process followed in these locations clearly indicates that non-project focused methods do enable capture of the communities felt needs. Follow-up surveys enable disaggregation of responses to identify variations in priority issues in different segments of the community.

Application of the Alternative Approach in Mee-Oya Watershed

Trial applications of the proposed project design approach were carried out in two locations in the Mee-Oya Watershed during June 1998. The objectives of the field exercise were two-fold, firstly to evaluate the validity of the proposed techniques; and secondly to gather information to identify key issues with relevance to proposals for participatory watershed development.

Sample locations were selected to reflect two different socio-economic and environmental conditions. The first location (Palukadawela) is within the command area of a major irrigation system and therefore the community were relatively better off. The second location (Gurugoda) is outside of the command area and largely dependent of rain fed agriculture.

Fieldwork in the sample areas involved two stages:

- Village level PRA with small groups
- Questionnaire survey with large sample size

Village Level Participatory Rural Appraisal

Separate PRA consultations were organised with participants selected as representative of the general community of each location. During the preparation for the PRA sessions, including selection of participants, the objective of the project design was not revealed to the community. Rather each was requested to consider the local development issues that concerned them. During the sessions each participant was given full opportunity to express their opinion on the immediate and long-term development problems in the area.

The role of the project design team during the PRA sessions was to facilitate the discussions and to ensure each participant was able to contribute as freely as possible. By not focusing discussions on the narrower objectives of designing a watershed development project the team was able to gain considerable insight to the concerns of the community. In addition to the expected issues regarding access to land and water resources the participants also identified problems related to livelihood activities, health, education, and infrastructure.

Community members identified the problems of concern and developed a consensus on the relative importance of each issue for the general community. With the assistance of the design team the participants explored potential solutions to the key issues and discussed the resources required to implement solutions.

Separate discussion were held with officials of the local administration and line-agencies working in each area to gain their perceptions on the problems identified and the priorities assigned by the communities. The officials were also given the opportunity to identify their ranking of the problems in the areas and their proposed solutions.

Development issues identified by selected communities

During PRA sessions in the two villages (Gurugoda and Palukadawala) the participants identified a number of problems considered to be constraining development in the area.

In separate interviews the issues identified through PRA (Tables 1&2) were fully endorsed by line agency officials. In addition, officers of the Agricultural Department stressed the need to implement measures to conserve highland areas and homesteads in Gurugodalla area to address problems of moisture stress. As for marketing they suggested that farmers needed to organize themselves to bargain in the market instead of waiting for Government interventions to provide better prices.

Confirming the validity of PRA results- follow-up survey

During the PRA interviews in Mee-Oya, the project design team had the benefit of facilitators with extensive PRA experience able to help the process without obscuring the real concerns of the group. The issues identified during the sessions received broad support from the participants and line-agency staff interviewed subsequently. However, many PRAs are carried out by persons with less skill and experience and may not correctly identify the communities real concerns.

A follow-up survey is proposed as an objective method of verifying the PRA results with a wider participation. This second stage survey also overcomes, to some extent, an inherent weakness of PRA the inclusion of only a sample of community members where there is a slight danger that the selected group may put forward problems of personal concern, disregarding the common interest.

However, traditional benchmark or agro-economic surveys tend to involve detailed questions covering a wide range of topics. Such surveys take considerable time to design, administer, check, code and analyse. Many benchmark surveys do not become available until late in the project cycle and very rarely are available at project design time.

To understand the significance and magnitude of the development needs identified during PRA, a market research or opinion poll form of survey was designed and implemented.

Development issues identified by follow-up survey

The questionnaire presented the respondents with a series of issues, with opportunity to identify others. Each respondent was asked to rank the issues identified as problem areas in the PRA exercise. The sample sizes were 76 in Gurugoda and 222 in Palukadawala.

The questionnaire originally designed could be completed quickly; the intention being that a respondent would spend less than fifteen minutes with the enumerator. This enables rapid survey of the community. In practice this questionnaire was expanded such that a typical interview took about 20 minutes. Careful design of the questionnaire format and selection of key characteristics of the respondents, such as age, gender, educational status, and principal occupation allows useful disaggregation of responses. Particular care must be taken to avoid the addition of redundant questions.

Of the issues presented, only those identified as problems faced by the respondent were ranked. The rank frequencies for the two samples are given in Tables 3 and 4. In each set of data additional issues identified the respondents are classified as 'Other'. The responses identifying the main

problem areas were analyzed first so as to identify those that are popularly most critical. In doing so, socio-economic subgroups, or the stakeholder groups, were given equal weight.

The given ranks were first transformed into $1/\sqrt{rank}$. The transformed rankings were summed to give an overall ranking for each issue, for each subgroup. This meant that the larger the number of people identifying an issue, the higher the contribution to the sum. The transformation ($1/\sqrt{rank}$) means that, in this case, rank one (1) makes the highest contribution and 13 lowest, in a non-linear fashion. Within each subgroup the issues were ranked, according to the magnitude of the sum, to represent the ranks collectively given by that subgroup.

Tables 5 & 7 present the transformed ranking data for the entire sample and each subgroup at the Palukadawala and Gurugoda respectively. Tables 6 and 8 are the reduction of Tables 3 and 4 to frequencies. For example, the top left cell of table 6 shows the number of subgroups in Palukadawala that ranked irrigation water as the first priority. This frequency table was interpreted directly to determine the overall priority of issues. This form of data exploration was repeated with the mean of the transformed ranks, instead of the sum, to investigate whether the results changed when subgroups of different size are given equal weight. For both Palukadawala and Gurugoda the overall priority of issues did not change with either form of analysis.

Conclusion and recommendations

The results indicate that, in these cases, the issues identified by a small group in PRA sessions did not deviate substantially from those identified by the larger group in survey. Both groups identified diverse development needs in the areas, some of which would not be addressed by the proposed watershed development activity. Had the PRA been narrowly focussed on water resources development, or if the facilitators been less skilled, the diversity of concerns may not have been identified. The rapid survey techniques used here enabled confirmation of PRA findings in a timeframe that enabled input to the design process.

The methodology presented here indicates that the approach adopted in Mee-Oya is more appropriate for identification of felt needs in rural communities than project focused approaches. The generalised approach enables project designers and planners to identify development priorities which would otherwise have been missed as they do not fit within the proposed project. Better knowledge of the other needs of the community enables appropriate parallel actions to be implemented, either as a supporting component of the project or be mobilisation of other resources through the local or national administration.

By ensuring that the priorities are properly identified limited development funds can be better targeted towards the real needs of rural communities. Increased participation by the community can only be expected when the actual development issues of the community are addressed directly.

To adequately identify local development issues the methodology presented here is recommended. However when applying the techniques users must consider:

- Participants in PRA sessions must be selected to properly represent the range of socio-economic conditions of the area and also be drawn from locations that represent the range of physical features in the target area;

- Community members and representatives of line agencies and local administration must have a clear definition of their roles and responsibilities;
- Findings of PRA and surveys should be validated against the development priorities for the area; and
- Established methods are required to address community needs outside project focused activities following problem identification.

A significant issue that emerges is how can non-project focused needs identified by the community be addressed by specific projects. Our argument here is that co-ordinators of area development strategies must integrate the immediate needs of the community with the longer-term development objectives. If the felt needs of the community are neglected because of they outside the focus of specific projects then genuine and active commitment of the communities to implement projects will be unsuccessful.

The SCOR project proposed watersheds as the logical planning unit for rural development in Sri Lanka. The state is the main owner of land and water resources. However, the de-facto managers of many of these resources are the local communities. In the absence of appropriate strategic management of these resources, unsustainable practices are common. To improve the management of the land and water resource uses watershed management must be considered as a component of area development programs.

In the Sri Lanka context, Divisional Secretaries are the appropriate focal point for management of local development. Mobilisation of financial and other assistance to address community needs that fall out of the scope of particular development projects is dependent on the correct identification of needs. The methods proposed here appear to be appropriate methods to, firstly identify broad development concerns, and secondly enable regular updates of community concerns.

References.

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Table No.1, Development Priorities and Proposed Solutions in Gurugodalla.

Issue	Nature of Problem	Solutions proposed
Water	<ol style="list-style-type: none"> 1. Drinking water problems – Poor availability of drinking water in the settlement area. have to go to distant places to fetch water. Even the limited number of wells in the village run dry during dry periods. 2. Shortage of water for agriculture – Farmers are highland cultivators depending on rain for cultivation. They face crop failures due to shortage of rains. 	<ol style="list-style-type: none"> 1. Providing tube wells 1. Providing lift irrigation 2. Construction of agro-wells in highlands and chena lands
Health	<ol style="list-style-type: none"> 1. Long distance to hospitals and health clinics 2. Non availability of latrines 3. Service of community health workers not available to the community 4. Lack of knowledge on community health care 	<ol style="list-style-type: none"> 1. Establishment of a community health center (dispensary in the village) 2. Awareness creation in the community on community health care
Lands	<ol style="list-style-type: none"> 1. Productivity of lands is very low 2. No ownership rights to land 3. Most of the land in the area have been encroached by outsiders 	<ol style="list-style-type: none"> 1. Introducing more profitable crop varieties 2. Providing better marketing arrangement guaranteeing reasonable prices 3. Issue of permits and deeds for encroached lands 4. Putting up trees along the boundary of lands
Education	<ol style="list-style-type: none"> 1. Shortage of essential equipment, furniture and class rooms 2. Shortage of teachers 3. Lack of knowledge in the part of parents of the value of education and increase of dropouts 	<ol style="list-style-type: none"> 1. Supply of essential equipment , furniture and infra structural facilities 2. Holding classes in the village school up to Grade 10 3. Filling the vacancies of teachers in the school 4. Opening up of a primary school
Roads	<ol style="list-style-type: none"> 1. Bridge on the main road is on dilapidated condition 2. Roads are narrow. 3. Dilapidated condition of the roads leading to paddy field 	<ol style="list-style-type: none"> 1. Widening of roads 2. Installation of culverts 3. Gravelling of roads
Livestock	<ol style="list-style-type: none"> 1. Non availability of cows of improved breed 2. Marketing problems 	<ol style="list-style-type: none"> 1. Providing animals of improved breed 2. Establishment of marketing center for the farmers to sell their milk produce
Social relations	<ol style="list-style-type: none"> 1. Conflicts in the village community 	<ol style="list-style-type: none"> 1. Implementing a social mobilization program

Table No.2, Development Priorities and Proposed Solutions in Palukadawal

Issue	Nature of Problem	Solutions proposed
Irrigation water	1. Scarcity of water for cultivation	<ol style="list-style-type: none"> 1. Increasing the capacity of small tanks connected to the main irrigation canal 2. Repairs to irrigation structure 3. Stopping the use of irrigation water by encroachers 4. Construction of a new irrigation supply canal from Mahakannoruwa tank to Mahagalgamuwa and
Wild Elephants	Damages to crops and houses by wild elephants	<ol style="list-style-type: none"> 1. Action by the Dept. Of Wild Life to send the wild elephants to game centuries 2. Issue of fire arms to farmers by authorities
Electricity	<ol style="list-style-type: none"> 1. Inconvenience encountered by villagers due to non-availability of electricity for day to day needs 2. Inability to start some small scale industries due to non-availability of electricity in the village 	<ol style="list-style-type: none"> 1. Organizing community to influence authorities to provide electricity (through politicians and other means)
Homesteads	<ol style="list-style-type: none"> 1. Water scarcity for crops 2. Plants die due to water scarcity 3. Gravel in the ground below one feet 4. Plants are not provided by authorities at appropriate time 5. Damages to crop and house by wild elephants 6. Gravel on the surface of land 	<ol style="list-style-type: none"> 1. Providing lift irrigation using agro wells 2. Selection of suitable crops. Awareness to farmers on soil conservation 3. Providing plants at appropriate time 4. Awareness creation on soil and water conservation 5. Providing protection from wild elephants through Wild Life Department
Main Irrigation Canal	1. Water shortages due blocks and barriers in main canal	<ol style="list-style-type: none"> 1. Use of pipe lines in areas where blocking occurs in the canal due to garbage and waste materials from towns
Capital for investment	<ol style="list-style-type: none"> 1. Inability to start self employment without access to capital 2. Lack of knowledge on government programs to provide loans. to start small-scale industries etc. 	<ol style="list-style-type: none"> 1. Awareness on government programs providing credit facilities for self-employment, industries etc.
Marketing	<ol style="list-style-type: none"> 1. Exploitation by middlemen 2. Difficulty to get a reasonable price for crops 3. Lack of storage facilities to store crops till prices go up 	<ol style="list-style-type: none"> 1. Organizing farmers for marketing 2. Maintaining quality standard of crops to get a better price 3. Intervention by the government or other marketing institute for purchasing agricultural produce
Reservations	<ol style="list-style-type: none"> 1. Construction of houses in reservations 2. Digging of gravel pits in reservations 3. Use of reservation for crop cultivation 	<ol style="list-style-type: none"> 1. Demarcation of reservation
Health	<ol style="list-style-type: none"> 1. Illnesses due to lack of latrines (diarrhea) 2. Malnutrition 3. Addiction to alcohol 	<ol style="list-style-type: none"> 1. Program to provide latrines 2. Awareness of community health care 3. Awareness on malnutrition to parents 4. Implementing government thriposha program 5. Committees to fight against alcoholism 6. Awareness to school children on the impact of drugs and alcohol
Roads	1. Dilapidated condition of the roads in the area	<ol style="list-style-type: none"> 1. Installing culverts in places where they have been damaged 2. Raising the level of roads by earth filling 3. Graveling

Issue	Nature of Problem	Solutions proposed
Animal husbandry	<ol style="list-style-type: none"> 1. No sufficient grazing grounds 2. Water scarcity for animal husbandry 3. Lack of capital 4. Lack of veterinary services in the area 	<ol style="list-style-type: none"> 1. Demarcation of Warayaya area as a grazing ground 2. Awareness creation on animal husbandry as an alternative income generating activity 3. Providing lift irrigation facilities for animal husbandry 1. Credit arrangement for animal husbandry
Education	<ol style="list-style-type: none"> 1. Shortage of teachers 2. Lack of equipment 3. Shortage of buildings 4. Non-availability of play ground 5. Increase in dropout rates 6. Lack of care for education 7. Poverty of parents 	<ol style="list-style-type: none"> 1. Appointment of some more teachers to the school 2. Awareness to the parents on the importance of education 3. Government initiative provide equipment etc. To the school

Table 3. Palukadawala. Frequencies of ranks given.

Rank	1 Irrigation water	2 Wild Elephants	3 Electricity	4 Water for Home gardens	5 Capital	6 Marketing	7 Protected Areas	8 Border Disputes	9 Health issues	10 Roads	11 Livestock	12 Drinking Water	13 Other
1	102	42	7	11	10		1	3	1		61	2	
2	55	25	27	30	26	2	3	2	7	8	3	33	3
3	14	47	29	26	30	3	1	4	10	9	11	32	5
4	8	47	29	33	35	11	2	4	20	9	13	14	
5	3	18	34	39	23	23	9	2	23	18	10	11	8
6	5	12	18	19	30	26	12	16	37	13	19	7	3
7	1	15	16	19	16	34	10	10	30	28	23	10	3
8	5	5	10	7	20	30	16	12	27	29	33	12	1
9	1	4	12	16	11	30	17	16	17	39	20	5	4
10			11	4	9	20	31	28	25	20	11	5	2
11		2	5	4	2	8	24	41	14	11	19	7	5
12		1	15	4	2	4	46	18	1	7	12	8	1
13								1		1	1		2
Total	194	218	213	212	214	191	171	155	214	193	175	205	39

Table 4. Gurugoda. Frequencies of ranks given.

Rank	1 Drinking Water	2 Irrigation water	3 Land ownership	4 Land Productivity	5 Livestock	6 Health Facilities	7 Schools & Education	8 Roads	9 Community Organization
1	52	14	2	1		1	3	3	
2	13	37	2	3	2	11	3	4	
3	3	8	5	11	10	18	8	12	
4	2	4	13	18	7	10	11	10	1
5	2	3	6	11	12	17	15	10	1
6	3	8	17	6	14	10	7	7	3
7			18	13	11	4	14	11	4
8		1	11	13	17	3	11	16	2
9			2		2	2	2	2	43
Total	75	75	76	76	75	76	74	75	54

Table 5. Palukadawala. Ranks by subgroup.

Subgroup rank is calculated by ranking the sum of the individual transformed ranks for each issue.

	01 Irrigation Water	02 Wild Elephants	03 Electricity	04 Water for Home Garden	05 Capital	06 Marketing	07 Protected Areas	08 Border Disputes	09 Health Issues	10 Roads	11 Livestock	12 Drinking Water	13 Other
Total Sample	1	3	6	4	5	9	11	12	7	8	10	2	13
Gender													
Female	1	3	6	5	4	8	11	12	7	9	10	2	13
Male	1	2	6	4	5	10	12	11	7	8	9	3	13
Age Group													
18-35	2	3	4	6	5	10	12	11	7	9	8	1	13
36-55	1	3	6	5	4	8	11	12	7	9	10	2	13
55>	1	2	5	4	6	9	10	12	7	8	11	3	13
Source of Main Household Income													
Cultivator	1	2	6	4	5	8	11	12	7	9	10	3	13
labourer, farmer													
Household chores	1	2	5	7	4	8	11	12	6	9	10	3	13
Professional	2	4	5	3	6	9	12	11	7	8	10	1	13
Salaried Employed													
Retired	1	2	4	5	6	10	11	12	8	7	9	3	13
Residency Status													
1st Gen	1	2	5	4	6	9	10	12	7	8	11	3	13
2nd Gen	1	3	6	5	4	8	11	12	7	9	10	2	13
3rd Gen	1	4	6	5	3	12	11	9	7	10	8	2	13
Other	1	4	3	6	5	9	11	10	8	7	12	2	13
Education Status													
No education	1	2	7	4	6	9	10	11	5	8	12	3	13
Primary/secondary	1	2	6	5	4	9	11	12	7	8	10	3	13
GCE O/A	1	3	5	4	6	8	11	12	7	9	10	2	13
Undergrad													
Main Farm Type													
Farming	1	3	6	4	5	8	12	11	7	9	10	2	13
Non-farming	1	2	6	4	5	9	11	12	7	8	10	3	13
Chena	1	4	5	2	7	10	13	11	6	8	9	3	12
Water Source													
Small tank	11	2	7	1	5	10	9	12	8	4	6	3	13
Main tank	1	3	6	4	5	8	12	11	7	9	10	2	13
N/A	3	1	5	6	4	9	11	12	7	8	10	2	13

Table 6. Palukadawala. Frequencies of group ranks.

E.g. 18 groups ranked irrigation water as priority 1.

Overall Priority	1	3	6	4	5	9	11	12	7	8	10	2	13
	01 Irrigation Water	02 Wild Elephants	03 Electricity	04 Water for Home gardens	05 Capital	06 Marketing	07 Protected Areas	08 Border Disputes	09 Health	10 Roads	11 Livestock	12 Drinking Water	13 Other
Rank													
1	18	1		1								2	
2	2	10		1								9	
3	1	7	1	1	1							11	
4		4	2	9	6								
5			7	6	8				1	1			
6			10	3	6				2		1		
7			2	1	1				16	2			
8						8			3	9	2		
9						8	1	1		9	3		
10						5	3	1		1	12		
11	1						12	7			2		
12						1	5	13			2		1
13							1						21

Table 7. Gurugoda. Ranks by subgroup

Subgroup rank is calculated by ranking the sum of the individual transformed ranks for each issue.

	01 Drinking Water	02 Irrigation Water	03 Land Ownership	04 Land Productivity	05 Quality Livestock	06 Health Facilities	07 Educational Facilities	08 Proper Roads	09 Community Organisation
Total Sample	1	2	7	5	8	3	6	4	9
Gender									
Female	1	2	8	6	7	3	5	4	9
Male	1	2	5	4	8	3	7	6	9
Age Group									
18-35	1	2	7	6	8	3	4	5	9
36-55	1	2	6	5	8	3	7	4	9
55>	1	2	6	4	7	3	8	5	9
Source of Main Household Income									
Cultivator+labourer+farmer	1	2	6	4	8	3	7	5	9
Household chores	1	2	8	6	7	3	4	5	9
Professional Salaried Employed	2	1	3	4	9	7	5	8	6
Retired	1	2	7	5	8	4	6	3	9
Residency Status									
1st Gen	6	1	5	3	7	2	8	4	9
2nd Gen	1	2	8	4	6	3	7	5	9
3rd Gen	1	2	5	8	7	4	3	6	9
Other	1	2	4	5	8	3	7	6	9
Education Status									
No education	1	2	8	4	6	3	7	5	9
Primary/secondary	1	2	5	4	8	3	6	7	9
GCE O/A Undergrad	1	2	7	6	8	5	4	3	9
Main Farm Type									
Farming	1	2	7	6	8	3	4	5	9
Non-farming	1	2	7	4	6	3	8	5	9
Chena	1	2	6	7	8	3	5	4	9
Water Source									
Small tank	1	2	8	5	6	4	3	7	9
Main tank	1	2	7	4	5	3	8	6	9
N/A	2	1	6	3	7	4	8	5	9

Table 8. Gurugoda. Frequencies of group ranks.

E.g. 19 groups ranked drinking water as priority 1.

Overall Priority	1	2	7	4	8	3	6	5	9
	01 Drinking Water	02 Irrigation Water	03 Land Ownership	04 Land Productivity	05 Quality Livestock	06 Health Facilities	07 Educational Facilities	08 Proper Roads	09 community Organisation
Rank									
1	19	3							
2	2	19				1			
3			1	2		15	2	2	
4			1	9		4	4	4	
5			4	4	1	1	3	9	
6	1		5	5	4		2	4	1
7			6	1	6	1	6	2	
8			5	1	10		5	1	
9					1				21