

## Emergence of Participatory Rural Appraisal (PRA) Technique as a Strategy towards Sustainable Development: A Sri Lankan Experience

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### Abstract

In this millennium all the development activities are mostly focused on sustainable development, *i.e.* the development which fulfils the requirements of the present without disturbing the utilization of future generation. Basically, the sustainable development deals with environmental, social, and economical initiations. In relation to these three objectives, community participation plays a key role as an effective strategy for sustainable development. Among the numerous types of participation, Participatory Rural Appraisal (PRA) technique is the most relevant effective method to receive the participation. Because, it has been strengthened by bottom up approach, well defined objectives, practicable solutions, and remedies. Hence, the out come of such an event is most productive rather than a top bottom approach techniques. In fact, a PRA was practiced to develop a strategic plan for *tsunami* affected village – *Bambaranda* east, in southern province of Sri Lanka. PRA sessions were carried out during February, 2007 by the Department of Agric. Economics of *Ruhuna* University, Sri Lanka in collaboration with Japanese Green Resource Agency, Japan.

Participatory mapping, venn diagram, matrix ranking, preference ranking, and pair - wise ranking were demonstrated to gather information from the community. The *tsunami* affected area, including the paddy fields, four irrigation canals were shown by the group with the help of the participatory map. Preference ranking was resulted the reconstruction of irrigation canals as the most important rehabilitation activity to recover the livelihood of villagers. Intrusion of sea water into the paddy fields was the main limitation revealed by the pair - wise ranking. The second limitation marked as unavailability of enough fertilizer and the dilapidated irrigation canals was the third that has to be solved. Matrix ranking was employed to identify the most facilitated sectors by the government and other institutes in order to detect the areas which need to pay further attention. By that, the community realized that the rehabilitation of irrigation canal is the least benefited area where any development activity should be addressed in order to up grade their livelihood. Finally, a venn diagram was executed to identify the service providing entities in the community. It explored the Agrarian Service Center (ASC) as

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the most important service providing institute which keeps a close relationship with the community. The second and third places were acquired by *Sanasa* and *Samurdhi* office. Therefore, the most appropriate institute to launch any sort of development activity is ASC, *Sanasa*, or *Samurdhi* office.

With the light of these exercises, now the funding agency is activating in *Bambaranda* village by constructing the irrigation canals and also the estuary. Moreover, the implementation was carried out under the supervision of ASC with efficient participation of villagers. In fact, the PRA has given the correct path that would direct towards sustainable development with community participation.

**Keywords:** PRA, community participation, tsunami, Sri Lanka

## 1 Introduction

With every passing year, Sri Lanka has had major challenges set on it. Being a developing country, the foremost element is to reach the development level that should strive on to achieve in all aspects that concerns. People are more conscious on short term benefits in order to meet their day to-day needs as a society. But in an era of number of natural hazards, climatic changes, and technological changes, it is important to drive towards a long term goal setting. These would not be achieved over night, a year or ten years may be taken, but will result an ever lasting development process, which can be referred as sustainable development.

Sri Lanka is mainly based on Agriculture as the contribution to the GDP accounts for 17 percent (CENTRAL BANK OF SRI LANKA, 2005). A considerable portion (32.2 %) of the population also depends on agriculture to meet their basic needs of food, water, fuel, housing materials. . . etc. In addition, the environment and the natural resources are being exploited for commercial purposes as well. For an example; coral mining, timber harvesting, sand mining, honey collection, farming, aquaculture can be highlighted. Being a country, having a prolonged civil disturbances, suffered by a destructive natural hazard like *tsunami* (on 26<sup>th</sup> of December, 2004), and poverty (more than 45 percent of population are under the poverty line), are detrimental to our environment and may lead to exploit the nature at a higher rate. These reflect the need of a well planned strategic approach to a developing country like Sri Lanka.

The strategies should include the economic growth that would favour the poor (who earns less than US \$2 per day is 41.6%) and poverty alleviation schemes should be promoted. The fiscal policies which may negatively affect the poor (due to heavy taxes levied on goods, eg; Value Added Tax) and other policies those promote environmental degradation (sand mining, coral mining, timber harvesting) will need to be reformed. The stock of human capital, social capital and total investments should increase, since those are the reflectors of economic growth and would enhance innovations which are paramount in sustainable development. Disparity of income between rich and poor (measured by Gini Coefficient, 0.46 in Sri Lanka) must be controlled. One important dimension under sustainable development is political stability, peace and security, which is seriously damaged in Sri Lanka, because of the civil war between terrorists and the

public. Hence, the political instability, violent conflicts, and the civil war hinder the socio – economic progress of the country at a threatful rate. In fact, leading to sustainable development is required a very strategic approach to develop a country like Sri Lanka, because we have a number of constraints and difficulties to enter in to the path. Some of the difficulties are; Capital deficiency, lack of new technology, lack of awareness, improper planning, implementation, and monitoring. Therefore, the strategic process of a developing country is basically : under the external impetus (IUCN, World Bank, UNDP, ADB), donor – funded, bureaucratic projects aimed to increase the production, consumption, rural development or an environmental issue, created by a NGO. Those strategies must need certain criteria to furnish the task in a sustainable manner as shown in the fig. 1.

**Figure 1:** Important components in sustainable development

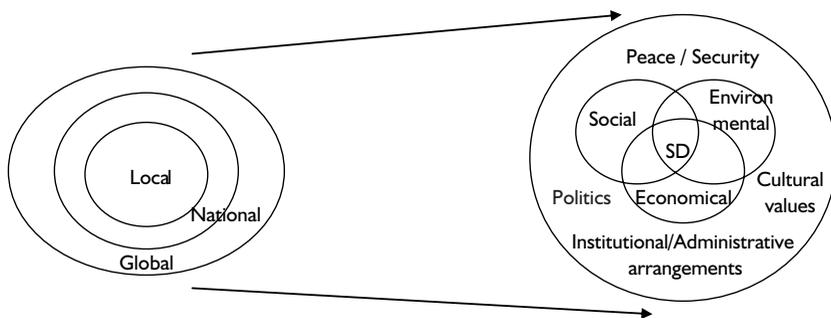


## 2 Sustainable Development

The definition on sustainable development is given by the Earth Summit, 1992 as ; “Nation are able to achieve positive economic and social development, without excess environmental degradation in a way that both protect the rights and opportunities of coming generations and contributes to compatible approaches else where” (EARTH COUNCIL, 2000). The same has defined by the Brundtland commission (1987) in a simply manner as the development that meets the needs of the present without compromising the ability of future generation to meet their needs (UNEP, 1999). Hence, sustainable development means more than environmentally sound, but unites environmental, social and

economical concerns and initiations. According to this, the three pillars which uphold the sustainable development is; social objectives, economic objectives and environmental objectives. Further, the concept of sustainable development can be illustrated as a holistic development approach over six dimensions: economic, social, environmental, politics, technology and knowledge, and natural and spiritual balance (fig. 2). Thus,

**Figure 2:** The main elements of sustainable development Source: DALAL-CLAYTON *et al.* (2000), Modified by BARBIER (1987)



sustainable development is not a single parameter of environmental issue, but a complex concept. Achieving Sustainable development will require deep structural changes and new ways of working in all areas of economic, social, and political life.

### 3 Community Participation as a Key Strategy for Sustainable Development

Community participation is one of the major conceptual strategies in sustainable development, because it creates several paradoxes as; to justify the extent of control of the government, to build local capacity and self reliance, to justify external decisions, to devolution of power and decision making away from external agencies, for data acquisition by experts, and for interactive analysis. Hence, the term *participation* has been defined as; “a process through which stakeholders influence and share control over the development initiatives, and the decision and resources which affect them”. Thus, everyone agrees that participation is both a right and a practical necessity where the Agenda 21 called for the “maximum possible participation for sustainable development” (WORLD BANK, 1992).

There are many types of participation in local level development *viz*, manipulation participation, passive participation, participation by consultation, participation for material incentives, functional participation, interactive participation, and self mobilization (OECD, 2002). Among those types of participation the interactive participation seems to be best because there the local community participates for joint analysis, decision making, action planning, and implementation. Here, the formation or strengthening of local groups or communities are done by external party. The learning methods are used to seek multiple viewpoints. Study on effective participation should have some basic

requirements to fulfil in order to achieve the goals or the objectives of the event as follows:

- The group or the community should have clear well-defined objectives to be participated and a *proper understanding* on what is happening and *what are they going to do*.
- *Catalyst* is very much important for an active participation with motivation and commitments. Mostly this catalyst part will be done by an extension institution, Non Government Organization (NGO), or local authority.
- The group or the community must have *specific activities and events* round which to focus.
- There should be a *modest starting point*. The gathering should start modestly, build honestly, and deepen towards the objectives; means there must be a phased approach towards the goal.
- The group can use many *tools* for appraising needs, opportunities and possibilities, ranking solutions, resolving conflicts, for reaching solutions which they face in day to day activities.
- These types of participation techniques may need *resources, materials, skills and time and a good learning environment* without any forces or threats.
- Finally the outcome should be *demonstratable*, could be explained and beneficial for the community which needed to be convenience that their investment of time and other resources will have a positive input.

#### **4 Participatory Rural Appraisal (PRA)**

Effective participation needs number of requirements and results powerful information, and strategic plans for the development process. PRA is a crucial method of an effective participating which fulfils all the requirements discussed above. It is a technique applied with community participation with the collaboration of the resource agency and the institutes. The fig. 3 shows the contribution of each sector for an efficient PRA exercise. Figure 3 illustrates that the PRA is an interaction of facilitating institutes, resource / research institutes, and the community. The resource / research institute should have skilled staff to conduct the PRA programme in an efficient manner, and the institute could be able to mobilize resource personnel according to the requirement. On the other hand, the facilitating institute could be able to render the financial facilities, managerial and technical facilities, equipment and also should be able to contact relevant bodies to arrange this type of event. The participants or the community must be well nourished with skills, experience and on going know how on the field they are involving. When all these requirements are presence, an efficient, effective and a fruitful PRA exercise can be demonstrated.

Hence, PRA is an invaluable strategy to enhance the participation component under sustainable development. Therefore, this was practiced to develop a strategic development plan for *tsunami* affected village – *Bambaranda* east - in Southern province of Sri Lanka. The resource institute was Department of Agric. Economics, Faculty of Agri-

**Figure 3:** The key components and their strengths in PRA



culture, University of *Ruhuna*, Sri Lanka and the facilitating agency was the Japanese Green Resource Agency, Japan. PRA sessions were carried out during February, 2007 to gather information in many aspects related to *tsunami* rehabilitation activities.

## 5 Application of PRA for the Sustainable Development in a Tsunami Affected Area: A Case Study in Bambaranda East – Matara District, Sri Lanka

*Tsunami*, the giant harbor waves hit on the Sri Lankan coast on 26<sup>th</sup> of December, 2004, and the entire coastal region affected badly. As a result, the breath of thousands of people mixed to the brine and thousands of people lost their livelihood activities, houses in both fisheries and agricultural sectors. Hence, a rapid, but effective development process was required to rehabilitate the area and to bring up the *tsunami* victims to the normal. But, Sri Lanka is a developing country with huge capital deficiency (more than 20 percent of GDP spend on the civil disturbances). Therefore, to fulfill all the necessities as requested by the refugees were a huge problem that had to be addressed. *Ipsa facto*, the identification of most essentials, limitations, and the institutions to be involved in the process were paramount. In fact, PRA techniques were applied to sense the so called important facts of the community. The following paragraphs demonstrate the case study conducted in the village Bambaranda-East in Southern province of Sri Lanka.

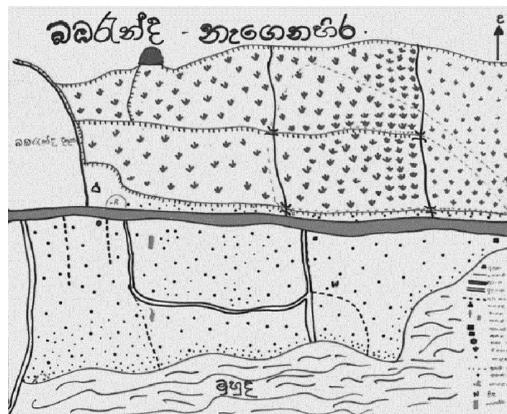
This village is based on agriculture with 44.13 ha (109 acres) of paddy fields. Villagers had lost their houses, farming equipment and also lost the fertility of their farming

lands which were covered with sand and debris. Participatory mapping, venn diagram, matrix ranking, pair - wise ranking and preference ranking were used as PRA tools. The participants were grouped in order to practice each tool by assigning 10 – 15 people into each group.

## 6 Participatory Mapping

A map of the village – *Bambaranda* –East was drawn with the participation of all the group members. The village has 46.56 ha (115 acres) of up lands, 44.13 ha of paddy fields. There are 261 families, of that 114 are mainly depending on paddy cultivation. Apart from that, coconut and banana also cultivate as other field crops. The village is being irrigated by four irrigation canals. There are five government institutes as the school, Agrarian Service Center, *samurdhi* office, post office and the co-operative. The garment factory, timber mill, and coir industry are the other employment generating sources of the area. Due to *tsunami*, all the irrigation canals and more than 24 ha (60 acres) of paddy fields were damaged and became unproductive due to the high salinity. The participatory map is shown in fig. 4.

Figure 4: Participatory map of *Bambaranda East*



## 7 Preference Ranking

This technique was applied to get the individual's preference over certain criteria. The criteria also put forwarded by the group. Then those were ranked according to their preference, and finally all the ranks were totaled and got the average. The averages were ranked according to the ascending order. In this respect, the group tried to select the most important activity that has to be implemented to recover their livelihoods. In connection, reconstruction of irrigation canals, rehabilitate the paddy fields, develop coir industry, home gardening, and cultivate abandoned paddy fields were the criteria (table 1). Of that, the highest preference went for the reconstruction of irrigation canals. Paddy field rehabilitation, and cultivate abandoned paddy field were ranked as the sec-

ond and third important activities. But least priority was given for the home gardening and coir industry.

**Table 1:** Major requirements of the Bambaranda East community – after tsunami

<i>Member</i>	<i>Irrigation</i>	<i>Coir Industry</i>	<i>Rehabilitate paddy fields</i>	<i>Home gardening</i>	<i>Paddy cultivation</i>
1	4	5	2	3	1
2	1	2	5	3	4
3	1	4	3	2	5
4	2	5	1	3	4
5	1	5	4	3	2
6	1	2	5	3	4
7	1	5	2	4	3
8	1	2	3	5	4
9	3	5	2	4	1
10	1	5	4	3	2
Total	16	40	31	33	30
Average	1.6	4	3.1	3.3	3
Rank	1	5	3	4	2

## 8 Pair - wise Ranking

This tool is important to find out the most limiting factors in the community. A number of limitations were listed down under a pre determined topic and arranged in a matrix as horizontally and vertically. Then each limitation was compared one against another and marked the number of most severe problem. Finally, count the times that each problem appeared and ranked according to the descending order. The farmers in *Bambaranda*, listed out their limitations encountered in paddy cultivation as; intrusion of sea water to the *Pallewelayaya* (name of the paddy field), dilapidated irrigation canals, difficulties to obtain seed paddy, lack of machineries and equipment, lack of high yielding varieties, unavailability of fertilizer at the correct time, poor extension services, and low price for the harvest (table 2). The final out come reveals the intrusion of brine water into the paddy field as the main limitation of the area where it appeared eight times. The second limitation was the unavailability of fertilizer and the dilapidated irrigation canal was the third. But the price of paddy and poor extension service were not serious problems. Therefore, the development process should try to solve the major limitation of sea water intrusion prior to any other activity.

**Table 2:** Limitations encountered in paddy cultivation

<i>Problem</i>	1	2	3	4	5	6	7	8	9	Marks	Rank
1. Intrusion of sea water to the <i>pallewelyaya</i>	X	1	1	1	1	1	1	1	1	8	1
2. Dilapidated irrigation canal		X	2	2	2	2	7	2	2	6	3
3. Unavailability of water for the cultivation			X	3	5	3	7	3	3	4	5
4. Difficulties to obtain seed paddy				X	5	4	7	4	4	3	6
5. Lack of machineries and equipments					X	5	7	5	5	5	4
6. Lack of high yielding varieties						X	7	6	6	2	7
7. Unavailability of fertilizer at the correct time							X	7	7	7	2
8. Poor extension services								X	8	1	8
9. Low price for the harvest									X	10	9

## 9 Matrix Ranking

Matrix ranking is vital to select the best alternative over certain criteria among number of solutions. First, the community proposed an objective where they want to evaluate the possible alternatives as solutions. Here, the farmers decided to evaluate the sectors that have been facilitated by external parties in the area. The alternatives were distribution of agricultural inputs, rehabilitation of irrigation canals, availability of agricultural equipment and machineries, extension service, and seed paddy distribution. Then those were evaluated using the criteria of, money allocation, labour, time, institutions involvement and government support. A predetermined 25 marks were allocated to each criterion and distributed among the alternatives after arranging as a matrix (table 3).

**Table 3:** The least facilitated sections in paddy cultivation – after *tsunami*

Alternatives \ Criteria	Money allocation	Labour	Time	Institution involvement	Government support	Total	Rank
Distribution of agricultural input	3	6	10	10	8	37	1
Rehabilitation of irrigation canal	1	1	1	1	1	5	5
Availability of agricultural equipment	4	2	8	3	9	26	3
Extension service	13	8	3	9	3	36	2
Seed paddy distribution	4	8	3	3	4	26	4
Total	25	25	25	25	25		

Finally, the total was ranked in descending order in order to find the mostly facilitated development activity. As the end result, the distribution of agricultural inputs, extension service and availability of agricultural equipment and machineries were ranked as first, second, and third. Therefore, those are the most facilitated activities progressing in the

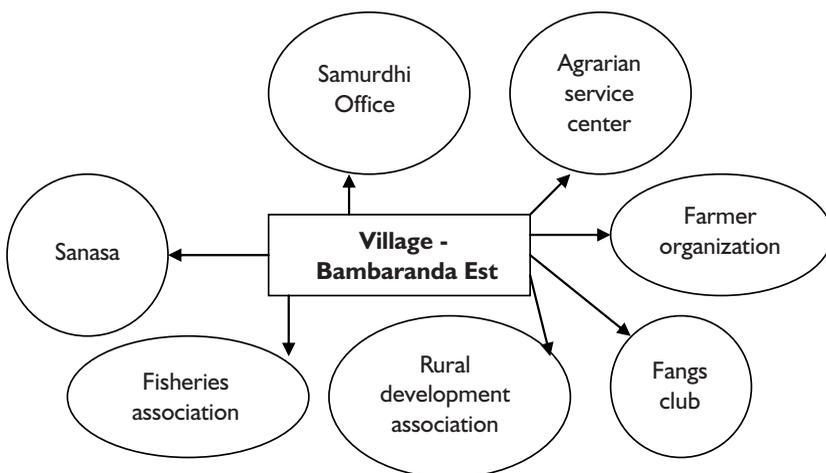
area. Rehabilitation of irrigation canals is the least benefited activity that has to be addressed in order to accelerate the development process where it obtained only five marks. Therefore, any development activity should focus on this rather than facilitate any other activities.

## 10 Venn Diagram

In a village, there are many service providing institutes, organizations, and individuals. Venn diagram is a tool to reveal the relationship between those service providing entities and their significance. First of all, the community must understand the service providing institutes, organizations, and individuals in the area. Then the venn diagram prepares based on two rules as the relationship is inversely related to the distance and the significance is proportionally related to the size of the denoted circle. Accordingly, the circle (which represents the service providing entities) arranged as a venn diagram (fig. 5).

Agrarian service center, farmer organization, *samurdhi* office, *Sanasa*, Rural development association, fisheries association, and fangs club are the service providing entities in *Bambaranda* village. Of those, the ASC provides a vital service to the farming community, but the relationship is somewhat low. On the other hand, *sanasa* has a very close relationship with villages as well as provides a significant service. The *samurdhi* office also keeps a close relationship while rendering a remarkable service. But the fisheries association and the rural development association contribute its service at a lower level where the relationship also very weak. Hence, this exercise elicits that the most suitable organizations to carry out any development activity are *Sanasa*, *samurdhi* office, and the ASC.

**Figure 5:** Venn diagram for *Bambaranda east*



## 11 Forward Activity Based on PRA Experience

After conducting the PRA exercise, the responsible institute – Japanese Green Resource Agency launched its rehabilitation activities in *Dickwella* Divisional Secretariat in *Matara*, Southern province of Sri Lanka. As the first step, it started to reconstruct the dilapidated irrigational canals in the area. The development process is implemented under the supervision of ASC which was the most significance and closely interactive service providing institute in the area. The activities are progressing with the participation of villagers, Agricultural Research Production Assistants (ARPAs), and the J – Green Agency. The entire process seems to be successful where all the three parties have one goal and blessed with the community consent. This is the essence towards sustainable development for an enlightened future.

## 12 Conclusion

According to the executed PRA session for the *Bambaranda* east farmers, could obtain many important information. The participatory map indicated that the villagers main livelihood is paddy cultivation and that was damaged and becoming unproductive due to the tsunami devastation. The preference ranking was done to select the most important activity to recover the livelihoods of villagers. Highest preference went for reconstruction of irrigation canals. Paddy field rehabilitation and cultivation of abandoned fields were second and third preferred activities by the community. Pair - wise ranking was demonstrated to identify the most limiting factors or pressing problems in the community. The results annotated that the intrusion of brine water into the paddy field as the main limitation. Unavailability of fertilizer and dilapidated irrigation canals were the second and third respectively. In fact, any development process should find out solutions to these burning issues prior to launch any other activity. Farmers tried to identify the least attention paid sectors using matrix ranking. They came up with; the distribution of agricultural inputs, extension services, and availability of agricultural equipment and machineries as mostly funded and facilitated sections by the institutions. But, the rehabilitation of irrigation canal has been abandoned. Therefore, the community needs more attention towards it which is combined with their livelihood, paddy cultivation. An evaluation was carried out on service providing entities in the area using a PRA tool called venn diagram. It depicts that the most significant and interactive institute for the area is ASC. *Sanasa* and *Samurधि* office were positioned as the second and third places. As such, the PRA exercise gave a good starting point for the development activities. Therefore, PRA is an essential component to lay work plan with effective community participation. It deals with all the three parameters of sustainability: social, economical, and environmental issues very critically.

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