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The Paradigm Shift of Agricultural Extension from Technology Transfer Towards Participatory Approaches

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ABSTRACT

Purpose: *Different technology transfer mechanisms are used to disseminate innovative agricultural technologies. The extension approaches based on the top-down transfer of technology were dominated in the past. That paradigm could not achieve reasonable benefits to many users but the resource-rich clientele reaped the benefits. Therefore, new concepts and approaches were warranted. The paper describes the outcomes of the paradigm shift of agricultural extension from technology transfer to participatory technologies..*

Research Method: *The paper contains the information collected from published literature on technology transfer efforts, global experience in Participatory Rural Appraisal applications, and the research findings from participatory rural appraisal sessions conducted in Sri Lanka.*

Findings: *The critical issue of technology transfer models was insufficient attention granted to incorporate the participation of grassroots-level clientele. Hence, real community needs were omitted. The concept of Participatory Rural Appraisal evolved as an alternative scenario and was implemented with promising results. The Participatory Rural Appraisal is a bottom-up approach, that incorporates local knowledge and community participation, uses simple technology, requires low cost, and could be applied in rural areas without complex apparatus. Participants have a great opportunity to express their actual needs. Hence, a valid plan can be designed and the community will participate in the following stages of the planning cycle. This study reviews the Participatory Rural Appraisal experience worldwide and the paradigm shift taken place in technology transfer from a top-down approach to participatory methods.*

Keywords: *Community, Extension, Paradigm shift, Participation, PRA, Technology transfer*

INTRODUCTION

The advancement of science and technology made a tremendous impact on the productivity of the inputs available for industries, agriculture, fisheries, services, etc. since the latter part of the 20th century. The research sectors in all fields engage in generating knowledge and technology for the benefit of the communities. The world population was recorded as 7.7 billion in 2020 and will increase to 8.5 billion in 2030. Hence, world food production has to be increased. Agricultural research plays a vital role in finding appropriate production technologies to achieve this task. The developed innovations have to be translated and transferred to the end-users, the farmers. To fulfill this task, different technology transfer (TT) mechanisms were developed and executed. This paper reviews the various extension approaches and describes the strengths and advantages of the participatory approach providing evidence in the global context.

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The Transfer of Technology Paradigm in Agricultural Extension

The transfer of technology (TT) function is regarded as the responsibility of the agricultural extension or advisory service of the various organizations. Up to the recent past, the TT function was dominated by the extension approaches developed on the top-down, transfer of technology (ToT) paradigm. This approach was initially popularized by the Land Grant Universities in the USA and at present, the University of Illinois is much more prominent in the application of this concept (Babadoost, 2018). There are several examples such as the Training and Visit system (T&V), Farming Systems Research (FSR), and Farmer Field Schools (FFS).

Training and Visit System:

Benor and Harison (1977) developed the Training and Visit (T and V) System of Agricultural Extension and introduced it to approximately 40 developing countries in the late eighties with donor assistance. It tried to establish a single line of command, and facilitate two-way communication from the national level to the grassroots level and finally to the ultimate end-users. Unfortunately, it failed to reach the majority of the farmers in the community but confined the extension input to a small number of resource-rich, imitable contact farmers (Wijeratne, 1988). Hence, the extension coverage was limited. In contrast, the overall agricultural production increased mainly due to the application of high external inputs by large-scale progressive farmers.

Farming Systems Research approach:

The Farming Systems Research (FSR) approach made an effort to include the research agenda to offer technical solutions to farmers' problems. The FSR consists of four stages: diagnostic, design, testing, and extension, and farmer participation is expected at all the stages. The FSR targets '*recommendation domains'* as its clients who are homogeneous in the context of agronomic, physical, economic, and social factors. The agroecosystem analysis is used as a strategic technique to analyze the above facts. However, small farmers are diverse in such factors, and the majority of the small farmers are confronted with resource limitations. Often farmer participation is obtained at the diagnostic stage, and the extension component was not granted much attention (Pemberton, 1987; Wijeratne, 1998). However, realizing this drawback the FSR included the extension component and was later named FSR/E (Watts and Claar, 1983). Wijeratne and Chandrasiri (1993) have demonstrated that rice varietal diffusion has been confined to homogeneous targets with the application of FSR/E. Therefore, extension agencies should find such recommendation domains. Next, the clients are not much involved in the stage of dissemination of innovations. In all, as the FSR/E paid much attention to technology development at the research centers rather than technology dissemination with clients' participation, it has marginally penetrated into the entire agricultural system as a dynamic extension approach.

Farmer Field School approach:

The Farmer Field School (FFS) approach was introduced during the 1995-2000 period, especially, to promote Integrated Pest Management (IPM) technologies in the rice culture. The approach made an effort to use group dynamics, decision-making, agro-eco-system analysis, *etc.* in a participatory manner. In practice, one FFS was confined to a 20-25 farmer cluster but it was expected that the knowledge/technology would be disseminated from FFS farmers to others. It was revealed that the diffusion effect from farmer to farmer was marginal, and further, the FFSs have not proved the cost-effectiveness of the service rendered (Tripp *et al.,* 2005). The cost-effectiveness is a critical issue in the large-scale adoption of FFSs. Quizon *et al*. (2001) demonstrated that financial unsustainability has become a limitation as the cost per trained farmer seems considerably high. As recorded in the Philippines and Indonesia, it was USD 47 and USD 62, respectively. Further,

a Sri Lankan study reported that this cost claims to be USD 47 (Senarath, 2000). Although the cost is significantly high, it is worthwhile if non-participants in the community receive the benefits through the lateral spread farmer-to-farmer extension too. Then the cost per farmer can be reduced. To justify wider extension coverage, FFSs emphasized the spread of know-how from the participants to the neighbors. The evidence from the research study reported that such diffusion effects are significantly limited (Tripp *et al*., 2005). It is also recorded that concerning the equity issue, the FFSs failed to reach the majority of the clientele but were limited to serving the educated elites (Phillips *et al.,* 2015). Next, the knowledge diffusion from FFS graduates to neighboring farmers has not taken place effectively and small-scale FFS interventions are not financially viable (Weddington and White, 2014). Hence, the sustainability of FFSs as an extension approach is questionable, and the challenge for its expansion is to find a viable strategy to execute it in the context of limited diffusion effects.

The same concept has been used with the approach named Climate Field School (CFS) to disseminate climate change information, forecasting, resilience, and mitigation technology (Wanigasundara and Feranando, 2010). The same study reported that farmers are not well acquainted with climate change information. In all, the FFS/CFS approach has several shortcomings. First, only a group of clientele in a community benefits from the approach limiting the extended extension coverage. Second, the cost of a client seems very high, and developing countries are unable to bear it. Finally, the information was disseminated top-down, and the clients' needs were not well embedded in the extension input.

Fraser *et al.* (2006) recorded that development experts and environmental managers often select the indicators that they regard as the most relevant and environmental projects were driven by top-down approaches. Further, the development projects are inclined to comply with the requirements of donor agencies. This top-down process will eliminate the community members, and further, reluctant to consider significant factors embedded in the local knowledge system. It was also demonstrated that a shift towards integrating bottom-up approaches with conventional top-down systems failed to establish sustainable projects.

Many extension experts criticized the top-down ToT paradigm as it did not bring reasonable outcomes to the investments made (Alimirzaei *et.al.,* 2019). Further, the benefits were reaped only by the resource-rich clientele in the communities. Therefore, alternative concepts and approaches were warranted. At this juncture, many scholars pointed out that the bottom-up approach is a valid concept to compensate for the already existing top-down approach, and participatory methodologies could be used to incorporate the clientele into the development process. This paper explains the paradigm shift taking place in the technology transfer function and the practical use of participatory technologies in the current context.

Changing paradigms in Agricultural Extension:

The breakthrough in TT function came into operation with the introduction of the green revolution scenario during the 1960s. The international research institutes generated high-yielding varieties, chemical fertilizers, pests and disease control measures, advanced irrigation technologies, mechanization, *etc.* However, at this juncture, the scientists encountered a problem in transferring the know-how to the utilizers, and significant efforts were made to find a viable mechanism for TT. The transfer of technology (ToT) model has emerged as a solution to this situation. The ToT model was established on the diffusion theory explained by Rogers in the early Sixties (Rogers,1995). McDermott (1987) illustrated the processes embedded in the continuum of research-extension-utilizer subsystems. The agricultural extension was highlighted as one of the major elements necessary for agricultural development (Mosher, 1978). In the early stages, the agricultural extension was confined only to technology transfer, but later incorporated other disciplines such as human resource management, entrepreneurship, marketing, etc. (Roling, 1988).

Even though the top-down approach has resulted in many shortcomings, scientists, academics, and extension experts involved in rural development are unwilling to accept alternate concepts due to several reasons. First, they have a mindset toward the approach that is familiar with and very much conservative. Chambers (1994a) referred to this as normal professionalism which is bound to thinking, values, methods, and behavior embedded in a certain profession or discipline. The agencies too, favor establishing an organizational framework towards this concept and insist on executing research, extension, and training programs accordingly as they receive donor support. Second, the top-down approach gives authority, power, respect, and command over the officials in the vertical linkage of the line departments, and also over the clientele at the grass-root level. Finally, urban-based professionals are often not interested in involving and sharing knowledge with other categories of members. This has made a significant limitation in introducing and executing the participatory methodologies. It was stated that often scientists and development workers are reluctant to appreciate the richness and validity of the indigenous knowledge (IK) prevailing in the rural communities. At this juncture, it is worthwhile to state that agricultural research and extension have to recognize the capabilities of the rural people (Chambers, 1994a).

Hence, it is vividly important to seek approaches that incorporate rural peoples' participation, sharing of knowledge and experience, and providing pride, authority, and ownership to the rural development programs. The approaches that evolved on the concept of participation are considered a viable intervention, and the Participatory Rural Appraisal (PRA) gained rapid popularity and is at present implemented in Asian, African, and Latin American countries.

The Planning Cycle and Participatory Rural Appraisal:

Generally, planning is done through the data gathered by the questionnaire surveys. The collection of data for future planning is an integral part of the development process. The principle of the planning cycle provides a valid explanation for the important phases of the development process. Data generation at the local level fulfills the first stage of the planning cycle, the situation analysis

or diagnostic stage. In the traditional context, large-scale questionnaire surveys are executed to gather information. In many instances, questionnaires are designed by professionals who lack current knowledge of the rural peoples' aspirations and needs. They confine to experience based on top-down prescriptions (Chambers, 1994a). Further, questionnaire surveys take a long time spell and require significant financial commitments. The scientists, academics, and other rural development workers are very much inclined to generate data, especially for social science research studies through questionnaire surveys using large-scale samples. Such professionals are very much confined to applying a top-down single method of data collection.

As the information generated at the situation analysis stage does not explain the real situation of the communities, the plans formulated on such data do not address the pressing needs of the clientele. Next, from the inception (situation analysis) stage, the grassroots level people are not motivated and also not involved; they are not ready to participate in the next stages of the planning cycle especially, in the implementation stage. Besides, they are not ready to accept the outcomes. Hence, many development projects failed (Sirisena, 2003). De Silva and Wijeratne (2021) demonstrate the spectrum of agricultural approaches applied in the past and their outcomes.

Toward Participatory Techniques

In contrast to the top-down approach, the PRA starts from the situation analysis with the active participation of the grassroots-level clientele and moves to other stages of the planning cycle accordingly. Hence, the process is regarded as a bottom-up phenomenon. In a nutshell, PRA can be defined as an approach that includes a range of methods, enhances local people to share,

understand, and analyze their living conditions on local knowledge, and then, plans and implements the program to fulfill the needs (World Bank, 1995).

The PRA gained rapid popularity in the late 1980s and several definitions were formulated to explain the concept, and further, to clarify the quality and extent of participation. The PRA has been defined 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* (World Bank, 1995). The term participation reflects a way of participation; to which extent, depth of participation, involve stakeholders, etc. However, the quality of participation varies to a great degree and it is tied to the PRA approach. The entire PRA is seen by different people differently. The PRA is anything that will encourage more people to get involved and allow more people to give their ideas; it has put local people into new roles when their knowledge is valued, and share knowledge with facilitators and experts. PRA is associated with visualization methods such as maps, and matrixes for analysis by and with participants; PRA is often used to produce information to inform decisions taken elsewhere by professionals and policymakers, very much tied to community-led action and as a tool for mobilization and community involvement in decision making; and it is the way of life are some of the views expressed by development workers (IDS, 2001).

To obtain the active participation of the people, the PRA uses a number of techniques that can be practiced by literate as well as illiterate members. The techniques are embedded with diagrams, charts, matrixes, cards, etc. They are low-cost materials and do not require high-tech instruments such as multi-media, computers, video cameras, and so on. Therefore, the methods can be put into practice even in remote, rural areas, and with a little briefing, people could be acquainted with such simple techniques. In the PRA programs, social and resource maps, Venn diagrams, pair-wise and matrix rankings, transect walk, wealth ranking, preference scoring and ranking, seasonal calendars, routine and flow charts, etc. are being used. Depending on the objectives of the program, the facilitators are free to select the most appropriate implementation methods that generate appropriate data. It was recorded that the PRA methods are capable of obtaining all the data equal to baseline surveys and the resource maps are useful in extracting demographic data (Chambers, 1994b). A Sri Lankan study conducted by Wijeratne and De Silva (2005) demonstrates that participatory mapping revealed the spatial distribution of the crops grown, resources, water distribution system, road network, abandoned land, and location of institutes, etc. Further, participatory mapping is not laborious and does not claim for a long time spell. Further, Wijeratne and Piyadasa (2004) explained the application of *the* Venn diagram to identify the extent of service and the social relationship that prevails between existing institutes and the community. Such information could be used to introduce interventions, in fact, through prominent institutes.

People are reluctant to provide actual income or wealth data to outsiders. But for the programmes that deal with low-income categories essentially have to identify the appropriate targets. The well-being or wealth ranking is a valid method to identify different wealth categories in a community (Chambers, 1994b). In Sri Lanka, low-income groups receive income support from the government. Hence, they do not expose their income to external members as they assume that such might lead to affect the income support (*Samurdhi* program) (Personal Experience). Hence, for questionnaire surveys, often respondents provide false answers. However, in wealth ranking, a group of participants decides on wealth categories based on the criteria developed themselves. Interestingly, the local criteria for wealth expose 'unseen' factors that the community considers to segment the members into categories.

Application of Participatory Rural Appraisal Activities

During the past 30 years, the PRA approach gained significant popularity among developing countries in the context of rural development. Participatory methods, attitudes of the external persons, and sharing are regarded as major components responsible for the spread of this intervention (Chambers, 1994 b). Next, several methods influenced the spread of PRA techniques. First, the learning experience at the grassroots level and lateral spread among the community members. The farmer trainers could be used as the facilitators and further, the farmer-to-farmer extension can be promoted. This reduces cost. Second, limited briefings and short workshops for the facilitators and beneficiaries provide an understanding of the concepts and methods. Finally, several organizations made an effort to popularize the approach via reference materials such as handbooks, manuals, dissemination of outcomes through PRA notes, Agricultural Research and Extension Network (AgREN), etc. Further, many researchers reported the application of PRA in development programs and obtained valid outcomes. The following paragraphs demonstrate such worldwide outcomes granting special reference to the Sri Lankan condition.

A baseline study conducted in Indonesia applied PRA techniques to collect data for the intended food security program. The information revealed the factors responsible for the declining trend of rice production as stagnation of the introduction of high-yielding rice verities, non-expansion of irrigation systems, imbalanced fertilizer usage, low farm gate prices, etc. Based on the above information, the food security program formulated the objectives and activities to address the above constraints (FAO, 2002).

A participatory diagnosis using a *Radar* map in the context of small-scale fisheries identified the main domains as a natural system, people and livelihoods, institutions and governance, and external facts and further, demarcated respective indicators (Eriksson *et al*., 2016). Participatory qualitative diagrams were used to describe the problems and potentials in the context of coastal fishery management. The study demonstrated that low fishery production, low prices, low agricultural production, and poor health conditions are the prevailing constraints. The intended program has to make an action plan focusing on mitigating measures for the identified problems (Pido, 1995). Loader and Amartya (1999) reported the outcomes of a PRA study using conjoint analysis to assess the farmer requirements for priority setting in rice varieties. The outcomes revealed that grain yield (52%), straw length (15%), maturity time (14%), taste (13%), and threshing (6%) are the factors that govern farmers' choice of priority.

A PRA exercise executed in Colombia by Ricaurte *et al*., (2014) on ecosystem management recorded that more than 75% of the livelihoods directly depend on the ecosystem services delivered by the surrounding wetlands, and fishing and hunting are the main income-generating activities. It further demonstrated that the wetland ecosystem has been subjected to deterioration due to cattle ranching, invasive grazing, deforestation, drainage, and burning resulting in 41% of the ecosystem area being vulnerable.

Three case studies were conducted in British Colombia, Botswana, and the Island of Guernsey on the development of sustainable environmental indicators (Fraser *et al.,* 2006). The outcomes of the entire investigation revealed that: the integration of local people to identify the sustainable indicators assures a reliable database for a promising decision-making process while providing an opportunity to enhance community empowerment; a high degree of community participation could result in observable changes in the policy as both policymakers and locals were embedded in the same process; and as planning is mostly demarcated on political boundaries, it is necessary to bring ecological boundaries such as environmental pathways.

A five-year plan for community-based tourism was developed using PRA methodologies. The outcomes reported that the sustainable eco-trekking industry in the Kokoda Track, Papua New Guinea identified eight key factors for its development as guest houses, community meeting places, safe drinking water, power supply, wildlife conservation, health care, new

food preparation techniques, and security for trekkers (Reggers *et al.*, 2016).

An investigation executed in Zimbabwe by Hagmann *et al*., (1999) demonstrated the requirements needed to shift from technology-driven extension to a participatory mode of extension. The lessons learned imply that social mobilization including local organizational development planning and experimental learning are the cornerstones of this approach. Further, innovative interventions could be penetrated into the social system through the communities granting opportunities to evaluate the outcomes of the actions of the same people. A community-led climate change program that used PRA techniques in Malawi reported that the collection of information on best practices and implementation by experienced community experts have resulted in the adaptation of best practices to adverse effects of change (Ehrich and Hinzke, 2020).

A PRA study was conducted in the tsunami-affected areas in Southern Sri Lanka. This sudden disaster destroyed the assets and day-to-day livelihood activities of the people. The state intervened and provided several essential services as an emergency measure. Despite such efforts, it was evident that the real needs of the affected people were not well identified. The investigation revealed that the lowland rice production system was the most valuable. Therefore, immediate attention has to be given to restoring such areas. Reconstruction of irrigation systems, soil reclamation, the establishment of wind belts, provision of microfinance, strengthening farmer organizations, and improving marketing networks are regarded as the most pressing needs. Further, it was strongly recommended that the services should be projected to pre-identified target groups or clientele because in some instances the benefits were reaped by unaffected people (Wijeratne and De Silva, 2005).

Next, the *tsunami* destroyed the water gate and farmers experienced seawater intrusion along the irrigation canal. As a result, a large area of rice land was abandoned. The Japan Green Resource Agency incorporated a farmer organization to rebuild the water gate. However, it was found that members were not motivated toward this exercise and finally, the rehabilitation was discontinued. PRA methods were applied with the members of the farmer organization to correct the situation. It was found that leadership has become a critical issue, and remedial measures were established. Finally, the members agreed to rehabilitate the water gate and it was done with community participation. As a result, farmers re-stated rice cultivation (Wijeratne and Koralagama, 2007).

A baseline study was carried out to obtain qualitative and quantitative information to implement the special program for food security (SPFS) of the FAO-UN intervention. A series of PRA techniques were applied in the rural villages in the Southern Province of Sri Lanka. The PRA focused on existing constraints, opportunities for agriculture, livestock, aquaculture, marketing, resource availability, farmer needs, and possible solutions. Outcomes reveal that water shortage and siltation of irrigation channels were recorded as the main constraints for crops and livestock production. Hence, the introduction of intensive water management systems, and crops with low water requirements were identified as viable interventions. The application of matrix ranking demonstrated that among the alternative crops, beans recorded the highest score on the local criteria developed by the communities. Even though aquaculture has great potential, village tanks are debilitated to a large extent and therefore, rehabilitation work should be undertaken. The villages are remote and therefore, access to existing marketing channels seems difficult. Therefore, it is important to introduce a promising marketing network for rice and other field crops to receive a favorable price. Many organizations are serving the community but do not function well. The Venn diagram implied the Agricultural Service Centre (ASC) provided significant service and also established a strong relationship with the community members. The wealth ranking exercise identified four wealth categories as rich (11%), medium (15%), poor (39%), and very poor (35%). This categorization provides a valid estimation to target the clientele for the SPFS program (Wijeratne, 2003).

A PRA exercise carried out in *Pothtila* village practiced a series of participatory tools such as

a transect walk, resource map, Venn diagram, matrix and pair-wise ranking, and gathered information to design an agricultural development plan. The pair-wise ranking resulted in soil erosion, water shortage, and animal attacks as major constraints. The soil fertility degradation is due to the absence of viable soil conservation practices. Further, certain forest patches were cleared, and as a result, frequent animal attacks were reported. Matrix ranking demonstrated that pepper, coconut, and coffee have great potential based on the local criteria developed such as high demand, low pest attacks, low cost of production and long life span. The *Venn* diagram implies that the service rendered and relations established by different institutions with the community are not satisfactory even though such are warranted significantly. Based on the identified constraints and potentials through the PRA, the state organization formulated the agricultural development plan to address the real needs of the community (Hasini *et al*, 2019).

A recent PRA application in *Doluwa* village in the Central Province in Sri Lanka identified important findings at the situation analysis stage (Personal Experience). The transect walk revealed that arable lands are subjected to soil erosion, and as a result, land productivity decreased to a significant extent. Therefore, farmers suggested soil conservation techniques especially, Sloping Agricultural Land Technology (SALT) based on their local knowledge. Next, the matrix ranking demonstrated that pepper, cloves, and nutmeg are the most suitable alternatives for the location and implied that some crops recommended by the state agencies are unsuited.

The PRA tool pair-wise ranking was applied to understand the constraints prevailing in *Tammanawa,* a village in Southern Sri Lanka for crops and livestock production. The outcomes revealed that shortage of water, lack of capital to build cattle sheds, limited grasslands, illegal traps for animals, lack of veterinary facilities, animals stolen by thieves, lack of improved breeds of cattle and goats, and low price of milk are the most pressing problems in the village (Wijeratne and Piyadasa, 2004).

At present, climate-smart agriculture has gained attention as environmental problems have made significant limitations in the production systems. Therefore, resilience has become a must. Wanigasundara (2014) reported that the value of participatory and community-based approaches in extension which collaborates researchers, media professionals, and stakeholders in agriculture toward climate-smart agriculture. Moreover, he suggests necessary changes required in the roles of agricultural extension.

Even though the PRA concept has been practiced in many development programs, certain criticisms are leveled against its applications. Brown *et al* (2002) have recorded cases for and against PRA and summarized utilitarian considerations, community mobilization, motivational benefits, and empowering the poor. Next, it was argued that PRA only benefits the outsiders without building the capacity of the rural people to manage their own situation; set development priorities; carry out research, and extend the outcomes to the entire society. Next, the PRA especially at the situation analysis stage raises the expectations of the community members by identifying problems and the potential to resolve them. Unfortunately, the core constraints demonstrated by the community cannot be addressed by the PRA team (Percy, 1999). This is especially observed in the farmers' request for large-scale infrastructural work which needs heavy investment. Hence PRA helps the activities that are achievable locally without much external assistance. It was also stated that participation is still in development, from the conceptual as well as technical points (Luyet *et al*, 2012).

It was also experienced that the extension organizations confined to the top-down culture of management resist the application of PRA. The extension framework built on the hierarchical line of command is often reluctant to accept the bottom-up approaches. Hence it is necessary to make institutional reforms to integrate PRA (Hagmann, 1999).

CONCLUSION

The function of technology transfer was well recognized as a component of agricultural development after the era of the green revolution. First, the extension approaches based on the transfer of technology model (ToT) came into operation, and the approach was considered top-down. However, it is well recognized that this approach failed to bring reasonable outcomes to the investments, especially by limiting extension coverage. The alternative concepts such as T&V, FSR/E, FFS, *etc.* made efforts to reorient dissemination systems but were not well penetrated into the production system. The main critical issue was the inability to obtain the participation of the grassroots people mainly the beneficiaries. The top-down process is used to collect information via questionnaire surveys and the policymakers formulate plans based on such data. Often such plans do not address the real needs of the communities, especially because rural people were not involved in the situation analysis stage. The PRA concept aims to incorporate local knowledge and share it among the stakeholders through participation. This is regarded as a bottom-up phenomenon. The world-wild application of PRA has proven successful outcomes but to a varying degree. A significant amount of literature recorded the use of PRA in environmental management and community development programs. It uses a range of tools or techniques to obtain information through group dynamics and participation. Hence, the data are reliable and have a great potential to use in the planning process. However, it was observed that most programs used PRA for data collection at the situation analysis stage but not at the other phases of the planning cycle. The Sri Lankan studies provide evidence for this. It was also evident that the identified problems and needs cannot be addressed by the PRA team as they fall beyond the framework of the agency.

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