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ENHANCING SUSTAINABILITY OF UNIVERSITY-BASED OUTREACH ACTIVITIES THROUGH PARTICIPATORY ACTION RESEARCH: THE CASE OF SOKOINE UNIVERSITY OF AGRICULTURE

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ABSTRACT

Universities worldwide are mandated for training, research, consultancy and outreach. To ensure that they are responsive to community's needs, as part of corporate social responsibility, Universities carry out outreach activities and engage with rural communities. However, many universities' outreach activities in rural communities face the challenge of sustainability. In addressing sustainability, Participatory Action Research (PAR) has proved to foster collaboration and meaningful engagements for community transformation. This is because using PAR to seek solutions to problems facing society and, simultaneously, meeting outreach goals fosters sustainability. In this paper, we use the Sokoine University of Agriculture (SUA) as a case to report findings on achievements, challenges and critical lessons learned from selected outreach projects that used PAR interventional strategy. We collected primary data from community members based on our involvement in selected projects. We employed focus group discussions (FGDs) to collect primary data. These data were compiled and shared during feedback meetings and dialogue conferences. In addition, secondary data collected include information obtained from literature review, project reports and researchers' field notes. Data were analyzed by thematic analysis procedure. Our experiences and results indicate that PAR interventional strategy sustained the University's outreach activities, enhanced the University-community linkage and transformed rural communities in different ways, ranging from individual, economic and organisational empowerment. In addition, PAR fostered researcher-farmer interactions and collaboration among partners and actors. Critical lessons learned include long-term commitment to work with rural communities is necessary to build mutual trust and strong partnerships; communities perceive researchers as "outsiders" who have abilities and resources for addressing their felt needs and problems and PAR is limited by institutional set-up. However, frequent interactions and close involvement of stakeholders in project implementation guaranteed success.

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INTRODUCTION

Universities worldwide are mandated for training, research, consultancy and outreach. For universities to

remain relevant, they should engage with communities through outreach activities (Lasalle and Mattee, 1995; Mattee et al., 2003; Zakri, 2006; Fields, 2014). Outreach

activities are defined as free-designed activities in the forms of education and socio-economic development to assist vulnerable and marginalized societies in addressing their challenges (Roper, 2005; Hulme, 2010). Therefore, outreach programmes should produce real practical interventional solutions that benefit people, groups and society.

This is because, given the complex nature of growing modern societies, traditions, local and global agendas and politics, the universities are required to be more proactive in socio-economic transformation (Mwaseba et al., 2008; Kurwijila et al., 2009, SUA, 2010; Fields, 2014). As societies strive to flourish, they need relevant, practical and context-specific knowledge that fits the socioeconomic dynamics and challenges of the majority (Nyerere, 1968; Lasalle and Mattee, 1995; Chija et al., 2016; Msuya et al., 2016). Hence, there is a need for the universities to contextualize outreach activities to communities with a majority of deprived and vulnerable people. In this context, rural communities, especially in developing countries, should be looked at more closely in outreach interventional strategies. This is because the majority of people live in rural areas. However, many universities implement outreach projects in rural areas, yet these interventions face the challenge of sustainability (McIntyre, 2008; Field, 2014). To guarantee sustainability, Universities should adopt bottom-up strategies as the best way to serve their clients. Sokoine University of Agriculture (SUA) adopted a bottom-up strategy to carry out several outreach programmes and activities. The University adopted multi-disciplinary and participatory strategies as research methodology and a way to transform rural communities.

The University adopted the Participatory Action Research (PAR) interventional strategy in implementing outreach projects. According to Reason (2004), Participatory Action Research (PAR) involves a series of plan, action, observation and reflection circles. This strategy fostered collaboration and meaningful people's engagements and ensured community transformation. According to Chija et al. (2016); Nyamba et al. (2020) and Mattee et al (2020), through PAR, the Sokoine University of Agriculture carried out the following activities as part of an outreach in tandem with PAR: At the planning stage, identified target audience, understood their felt needs and interests, inventoried the resources requirements and designed action plan for

implementation. In addition, at the action stage, implemented project activities to operationalize the plan. Finally, at the reflection stage, the project interventions through dialogue conferences.

Yet, PAR has been criticized for being -time-consuming and lacking reliable tools for measuring PAR outcomes. Concrete examples of how PAR might be realized in real-life examples, especially in Africa and other developing countries, are also missing gaps in the literature. However, the PAR was chosen as a useful interventional strategy for sustaining university outreach project activities and transforming community inequalities. In addition, as observed by Cornish *et al.* (2023), the PAR initiatives lead to collaborative relationships beyond the project implementation to catalyze a desired social change. Hence, to make PAR worthwhile for this study, a time-sensitive and friendly democratic atmosphere was built to enable smooth discussions and building collaborative relationships. Furthermore, participatory tools such as feedback meetings, dialogue conferences and evaluations were employed to collect evidence in the form of cases for measuring PAR outcomes.

This paper highlights and shares the lessons of experiences of selected University's implemented Participatory Action Research (PAR) projects in terms of achievements, challenges and critical lessons. It draws on our experiences as participants in implementing the University's outreach projects and other sources such as literature on the subject, reports and field notes.

Conceptual and theoretical framework

Our study was anchored on the pragmatic epistemology of John Dewey and Freire's theory of conscientization and feminist theory (Reason, 2004). According to these theorists and as elaborated by McIntyre (2008), Participatory Action Research refers to an interventional strategy for transforming injustice and oppressive structures that lead minority and vulnerable individuals into deprived positions in the community. Participatory interventional strategies are a means to achieve meaningful developmental integration and community participation in activities that are implemented for sustainable development. According to Ki-Zerbo (1992) cited by Mattee et al. (2020), participatory interventional strategies emerge out of the "endogenous" process of development as development starts from recognizing the experiences and potentialities of local people. Therefore, peoples'

participation in their development should be analyzed from various angles in supporting the development process, much like the various spokes of a bicycle hub, which can help it. This is to say, participatory interventional strategies involve various activities that have to be carried out in concert to support and complement each other. In this respect, using Participatory Action Research (PAR) as an interventional strategy to foster collaboration and meaningful engagements for community transformation is inevitable.

Naturally, Participatory Action Research (PAR) is cyclic as it involves a series of circles of plan-act-observe-reflect. Researchers and other stakeholders start with developing some plans, they then implement some activities as per plans and reflect to construct some meaning and theories out of that action. These theories guide plans in consecutive stages till participants have established the best possible ways to handle their situation and concretized their theories (Chija *et al.*, 2020). This feature of PAR sets it apart from other research approaches which involve a linear approach to develop a hypothesis, collect data by refuting or accepting the hypotheses and recommending actions for 'other' people to take action ((Kolb (1984) cited by Leeuwis (2004); Reason (2004). Therefore, participatory action research is active in that researchers, co-researchers and other stakeholders do something to handle the conditions before suggesting the same to other people. Therefore, Participatory Action Research (PAR) is context-specific, practical, and empowering. When participatory action research is involved, the assumption is that participants will come up with their experiences, and knowledge and use their minds and available materials to transform their material conditions in life. In that view, Nyerere (1968) emphasized the need for educated people to work with communities to solve practical problems.

In support of Nyerere's point of view, researchers should begin with some concrete life problems which are normally felt and considered important by community members, then participants collect evidence to create an understanding of their problems. According to Msuya *et al.* (2016), researchers should facilitate the participants in planning to solve the problems and implement the plans. The participants should then reflect on the outcomes of the implemented plans to find out to what extent they could or could not address the problems at

hand. If not, they should re-plan and the circles go on like that until they can solve the problem. This process is important in empowering participants because they develop knowledge by working on the material conditions of their daily lives but also, they create knowledge that they can use later in their life and share with other people from outside their communities. Through PAR, actions, feelings and thinking are connected and developed. According to Field (2014), Participatory Action Research (PAR), makes use of comprehensive data collection such as Focus Group Discussions (FGD), dialogue, conferences, group interviews, key informant interviews, observation, field notes and reflective reports. In addition, the use of voice recording and transcription are common ways PAR is practised (Msuya *et al.*, 2016).

The research question guided this paper how can we use Participatory Action Research (PAR) as an interventional strategy to inspire local communities to seek solutions to local agricultural problems and at the same time meet outreach activities sustainability?

In this paper, Sokoine University of Agriculture (SUA) used PAR to carry out outreach activities. The use of PAR is meant to achieve change, fostering collaboration and meaningful beneficiaries' engagements in improving their socioeconomic life conditions (Mwaseba *et al.*, 2008; Kurwijila *et al.*, 2009, Mattee *et al.*, 2020). Through PAR, reflections, and the feedback process, the results or learning could be presented to beneficiaries, and feedback could be collected from them. The University carried out the following activities as part of an outreach in tandem with PAR: Planning stage: SUA involved beneficiaries in the identification of needs and interests, required resources and in designing an action plan for implementation through FGDs, group interviews, key informant interviews and observation. At the action stage: the action plan was operationalized and lastly, in the reflection stage, Dialogue Conferences (DC) in evaluating project interventions. Throughout DC, information was collected through FGDs and captured using audio and field notes.

The paper later describes the methodology and results and discussions under these sub-headings: co-development of the plan by researchers and other stakeholders, implementation of outreach activities as per agreed plans, observation and reflection on lessons learned regarding achievements, challenges and key lessons out of action. Lastly, the paper draws

conclusions and recommendations on reducing the PAR's institutional limitation and community members' reliance on outsiders' abilities and resources in addressing felt needs and problems.

METHODOLOGY

The study was carried out in Morogoro, Dodoma, and Iringa, Tanzania. These regions were selected because they are areas where the Sokoine University of Agriculture (SUA) implemented outreach activities using Participatory Action Research (PAR). The University implemented the "Uluguru Mountains Agricultural Development Programme (UMADEP)" in Eastern Central Tanzania (Morogoro region) from 1993 to 2020 and the "Innovative Communication Pathways in Dissemination of Agricultural Technologies and Improving Market Information in Tomato Value Chain" project through the Programme for Enhancing Pro-poor Innovations in Natural Resources and Agricultural Value Chain (EPINAV),

from 2011 to 2014 in Dodoma and Morogoro regions. Primary and secondary data were collected based on the experiences of researchers' involvement in the described outreach projects at Sokoine University of Agriculture (SUA).

These projects used PAR's interventional strategy in seeking solutions to problems facing communities. Researchers collected primary data from community members through focus group discussions (FGDs). In addition, secondary data included a review of literature project reports and researchers' field notes. We accessed various reports such as reports on baseline surveys, reports on feedback meetings, end-of-project evaluations and annual reports. The data analysis and review considered the PAR cycles (Figure 1). That is activities at the planning stage: how beneficiaries are involved in identifying needs and interests, required resources and designing an action plan for implementation.

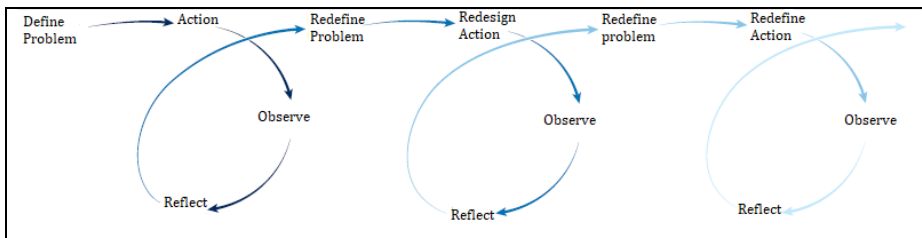


Figure 1. Participatory action research cycles (Adapted from Cornish et al. (2023),

At the action stage, how was the action plan operationalized lastly, at the observation and reflection stage: how data were compiled and shared during Dialogue Conferences (DC) for evaluating project interventions? Finally, the lessons learned in terms of achievements, challenges, and critical lessons were identified.

In the present study, at the reflection stage, that is, evaluation of the implemented action-oriented outreach projects, the qualitative information was collected through Dialogue Conference (DC). According to scholars like Gustavsen (2001); Bhana (2002); Reason (2004) and Field (2014), dialogue conference provides a means for empowering participants as they are involved in a critical reflection on intriguing issues, democratic discussion and development of solutions and insights worth sharing. During the dialogue conferences, the facilitators explained the objectives and topics for discussion, ground rules were set and participants were divided into smaller focus group discussions (FGDs) to

discuss the various problems about achievements, challenges and key lessons from the implemented action-oriented outreach projects.

Focus Group Discussions (FGDs) were organized in addition to analysis of reports and literature. A total number of eight (8) focus group discussions involving community members were conducted at the project sites. These FGDs were held in Kiswahili language at the project sites. Kiswahili is a national language; hence participants had an equal chance in ideas contributions and decision-making. They were able to engage in critical and deeper discussions on lessons learned. The FGDs comprised both men and women with a range of 8 to 15 participants.

Experienced project researchers and external evaluators facilitated the discussions. Depending on the climate and distance from the homestead of participants, the FGDs lasted between one to three hours. In all projects, there were three main categories of questions in the FGDs: questions that engaged participants (understanding of

project interventions), questions that explored their testimonies about lessons learned (achievements, challenges and key lessons) and exist-type questions, especially on the way forward. The data collected from Focus Group Discussions, the reports, and field notes based on our experiences as participants in the projects, were analyzed following the content analysis procedure as presented by Braun and Clarke (2006). Through this content analysis procedure, recorded responses from group discussions were transcribed into texts, field note texts and secondary data were analyzed resulting in labels of sentences and paragraphs. Later on, the labels

were categorized into similar themes and sub-themes for discussion of results.

RESULTS AND DISCUSSION

Results indicate that a total of three themes and 14 sub-themes were identified in the four FGDs, project reports and field notes from two outreach projects. That is, Uluguru Mountains Agricultural Development Programme (UMADEP) project and Innovative Communication Pathways in Dissemination of Agricultural Technologies and Improving Market Information in Tomato Value Chain project (Table 1)..

Table 1. Results on identified themes and sub-themes associated with Participatory Action Research (PAR) cycles.

Participatory action research cycle	Major theme	Sub-themes: Project one	Sub-themes: Project two
1.1 Planning	1.1.1 Co-development of plan by researchers and other stakeholders	1.1.1.1 Use of Participatory Rural Appraisal (PRA) in community engagement and partnership building. 1.1.1.2 Use of demonstrations plots to identify suitable innovations/crops for particular field locations.	1.1.1.1 Use of situation analysis and feedback meetings in community engagement. 1.1.1.2 Inter-stakeholders' collaboration to solve practical problems.
1.2 Action	1.2.1 Implementation of outreach activities as per agreed action plans	1.2.1.1 Use of farmers' groups in dissemination of agricultural practices/technologies. 1.2.1.2 Use of farmers' groups local networks in facilitating dialogue.	1.2.1.1 Involvement of different actors in project implementation. 1.2.1.2 Managing power relations and communication challenges.
1.3 Observation and Reflection	1.3.1 Observation and reflection on achievements, challenges and critical lessons out of the action	1.3.1.1 Evidence on increased production. 1.3.1.2 Observed marketing challenges. 1.3.1.3 Means used to address marketing challenges. 1.3.1.4 Performance of different categories of farmers groups. 1.3.1.5 Critical lessons learned.	1.3.1.1 Evidence on how PAR becomes a tool for university-community linkage 1.3.1.2 Critical lessons learned

Co-development of the plan by researchers and other stakeholders,

**Project one: Uluguru Mountains Agricultural Development Programme (UMADEP)
Use of Participatory Rural Appraisal (PRA) and demonstrations as a base for developing a plan of action**

The project employed the Participatory Rural Appraisal (PRA) to involve farmers in assessing existing problems

and opportunities in the target communities and to co-develop action plans between researchers and the communities.

As revealed by Lasalle and Mattee (1995), PRA empowered the communities with the ability to identify and prioritize problems and to identify and mobilize opportunities for solving the issues. Recommendations from PRAs formed the basis for training through seminars, workshops, short courses, exchange visits and tours. According to UMADEP (2001), the PRA process

proved to help build partnerships between researchers and farmers as co-researchers.

Later on, the project involved community members especially farmers in all stages of innovation demonstrations as co-researchers to project staff. For example, according to UMADEP (2001), farmers participated in potato production trials on demonstration plots and others in their fields in Mgeta Division (Morogoro region) in the 1995 to 1997 seasons. The trials aimed to identify suitable ridge sizes, suitable types and rates of fertilizers and manure, and suitable variety. Farmers' traditional practices were compared to new practices during the trials. Farmers participated in all stages from land preparation, sowing, weeding, fertilizer and manure application, pesticide application and harvesting. During the harvesting stage, project staff and farmers compared the performance of the farmers' traditional practices to new practices and discussed the best practices to adopt. Then researchers and farmers agreed on a plan of action for farmers to replicate all practices as applied on the demonstration plot in their fields and scheduled plans for regular visits to fellow farmers' fields.

Project two: Innovative Communication Pathways in Dissemination of Agricultural Technologies and Improving Market Information in Tomato Value Chain Use of situation analysis and feedback meetings as a base for developing a plan of action

According to Chija et al. (2016), project members developed a plan and conducted a situational analysis to contextualize the plan. Project team members remained open to possibilities of what works best to improve access to market information. Tomato markets at Ilula in Iringa and Majengo in Dodoma municipality were visited to learn how the marketing was conducted and business people and other stakeholders were interviewed. Packaging and various practices and relations among actors were observed. Farmers, transporters, other stakeholders, and the community members were interviewed. The major objective was to identify the dynamics of tomato marketing.

Before planning the intervention, project members conducted feedback meetings. One of the meetings was organized at the university by researchers and the other at project sites in which various actors such as suppliers, farmers, brokers, traders, transporters, box makers, extension staff, local government authority

representatives and development partners attended. Researchers used these meetings to present findings of the situation analysis to steer up discussion as space for all participants to understand the marketing situation. After that groups based on the node (involving females, males and youth) in the tomato value chain discussed and came up with what could be changed and how. They incorporated views into the project proposals and co-developed a common action plan. Content analysis indicated that various actors felt empowered as they developed knowledge by working on the material conditions of their daily lives to solve their practical problems. This result supports Nyerere's point of view that researchers should begin with some concrete life experiences of community members to solve practical problems (Nyerere, 1968).

Implementation of outreach activities as per agreed action plans

Project one: Uluguru Mountains Agricultural Development Programme (UMADEP)

Use of farmers' groups and local networks in the dissemination of farmers' activities and facilitating dialogue

The project used farmers' groups and networks in project implementation which proved useful in disseminating technologies. Results from content analysis revealed that they played great roles in the dissemination of technologies. For instance, through the use of farmers' groups and networks, the introduction of Norwegian dairy goats in the Mgeta Highlands spread to the majority of poor households who cannot afford to keep dairy cattle. The result is supported by Kurwijila, et al. (2009); Mattee and Lassalle (1996) that groups and networks provide opportunities for disseminating project interventions, getting feedback from farmers and evaluating the activities carried out by the programme in the project's intervention area. According to Kurwijila, et al. (2009), a total of 382 farm families kept 1,538 Norwegian dairy goats in three wards in Mgeta division in the Morogoro region.

Through the use of groups and farmer group networks, some project activities such as seminars, exchange visits and innovations were initiated. The local networks also gave room for negotiations between smallholder farmers and external institutions. The networks through Tanzania Network of Farmers' Groups (MVIWATA) also

provided an avenue for multi-stakeholders' negotiations and policy formulations.

In the project sites, as per UMADEP (2001), the project facilitated the formation and used the groups in implementing outreach activities in these categories:

- (i) *First group category*: Group members performed all activities collectively. They contributed cash and/or labor capital and shared the benefits at predetermined ratios depending on members' contributions to capital;
- (ii) *Second group categories*: Members of the group in this category met to share experiences and exchange knowledge about common activities but each member performed the activities on his/her own. Members pay regular field visits among each other and normally invite UMADEP staff to accompany members during such visits. During the visits, fellow members visited two or three members every month.
- (iii) *Third group categories*: Combined features of the first and second categories. In the first stages of production activities group members in this category operated exactly as those in the first category. In the later stages of production depending on the nature of production each member took his/her portion of work and completed the remaining production process by him/herself and operated as those in the second category.
- (iv) *Fourth group category*: Members performed voluntary activity to create opportunities for which all members have an interest. For example, volunteering in road maintenance where members in the group are goods truck loaders. The motive to engage in this activity was to enable goods trucks to get into the ward so that they could get the opportunity for truck loading. The group allocated a specific day of each week for road maintenance. In case of emergency, they organized themselves and could work any day to rescue the situation. Penalties were imposed on members not attending for work without justification.

Project two: Innovative Communication Pathways in Dissemination of Agricultural Technologies and Improving Market Information in Tomato Value Chain Involvement of different actors in project implementation

Before starting the project, the project team shared project objectives with municipal councils in the Kilolo District (Iringa region) and Dodoma District (Dodoma region). That was important to get the necessary support for future sustainability. According to Chija et al. (2016), understanding the participants' social economic situation and farmers' spread nature made researchers provide transport costs and lunch to help the participants stay with them when they had some activities to do together. Actors that the project team thought could help in improving the marketing situation were engaged during feedback meetings. Apart from researchers, market monitors and IT experts were engaged during the late stage of project development. Later on, project progress was shared with local government officials who could not participate in the project's day-to-day activities.

It is worth noting that participants during focus group discussions (FGDs) in the project sites agreed that managing relationships during project implementation was very challenging due to power dynamics. The finding, which collaborates with Field (2014), is that in action-oriented research, few individuals became submissive while others imposed their values on others. Thus, true participation is affected. Throughout the project, a democratic atmosphere was built to enable smooth discussion. Every participant was treated equally with respect.

Lastly, in the course of project implementation, communication challenges were raised. The project devised mechanisms for managing communication challenges. Chija et al. (2016) and Nyamba et al. (2020), described the following five main stages in addressing challenges related to communication; first, a participatory identification of means of communication used by the majority of stakeholders in the tomato value chain was carried out. Second, the project team in collaboration with other stakeholders progressed into selecting the most preferred means of communication. Third, an Information technology (IT) expert was engaged and took part in several sessions to learn the needs of the participants and how these needs could be captured into a communicative method suitable for them. Fourth, the IT personnel developed the system. Fifth, the system was then piloted in the nearby local using project participants working in respective markets.

Observation and Reflection on Lessons Learned: Achievements, challenges and critical lessons out of the action.

Increased production versus addressing marketing challenges: Evidence from the field

Farmers in the project sites, especially in Morogoro region, adopted the improved disseminated technologies and increased their production. They later faced challenges in marketing their produce. Therefore, UMADEP came up with an intervention to promote rural socially and environmentally responsive businesses through market search and business appraisal (Intermon Oxfam, 2010). The project facilitated the formation of Small-Scale Producers Groups (SSPGs) comprising youths, men and women along sub-sectors to ensure a reliable supply of quality and bulky products to potential markets and increase their bargaining power. The SSPGs are a kind of farmers' organization that is essential for the empowerment, poverty alleviation, and advancement of farmers and the rural poor (FAO, 2002; SARD, 2002). This strategy ensured market linkages, marketing and women empowerment as indicated in cases one and two. In addition, as indicated in case three, PAR initiatives including improving access to marketing fostered linkage between the University and the community.

Case 1: Kinole Pineapple and Banana production and marketing

The end of the project evaluation by Intermon Oxfam (2010) indicated that the pineapple growers had accessed the following buyers: Ivory Company and Iringa (Tanzania). In addition, Boma la Ng'ombe (another potential buyer) needed small quantities of pineapple (e.g. 10,000 pieces per week) compared to the amount that the farmers are producing. Dabaga Iringa: This was a very potential buyer, but this door has not been exploited because Kinole farmers grow organic pineapples, and they need a certificate from Tanzania Organic Certification Agency (TANCERT). This certification was quoted to cost TShs 31,000,000 which neither the project nor the farmers' network could afford. Personal communication with the Agricultural extension officer in Kinole ward indicates that before the Rural Business Development (RBD) programme, the acreage for pineapple was 1, 690 acres with a harvest of 51,500 – 110,000 tons per year while after RBD in 2009,

the area was 2013 acres with a harvest of 61,500 – 125,000 tons per year. The household survey indicated an average increment of 1.8 acres of cultivated area for pineapple and an average increase of 3900 pineapples per farmer. Unfortunately, there was no reliable buyer in that season and this led to the loss of lots of pineapples with the few middlemen who purchased offering very low prices. Despite all these, some individual farmers who received training from the project dared to go searching for the market in Dar es Salaam and were successful in marketing their pineapples.

Case 2: Women empowerment through rural socially and environmentally responsive business through market search and business appraisal

End-of-project evaluation by Intermon Oxfam (2010) showed that the income for women increased with the project, whereby the lower income figures were reduced and higher figures were increased as shown in Figure 2. It was also noted that tradition and religious norms had been broken by the education from projects where men and women could sit together to discuss market development issues.

“Kabla ya elimu hii, mimi kwa umri wangu nisingeweza kukaa na nyinyi kujadiliana. Ilikuwa mwiko kimila na ata katika mafundisho ya dini”.

[I could not have sat with you (meaning women) here at my age to discuss anything. It was a taboo and even religion taught the same].

The women earning over Tshs 500 000 by the beginning of the project were 1.2%; by the end of the project, they were 7.8%, equivalent to 39% of the target population.

Case 3: Participatory Action Research as a tool in establishing the University-community linkage

Results from focus group discussions (FGDs) in the project sites indicate that PAR as an outreach interventional strategy proved to be a powerful tool in connecting Sokoine University of Agriculture (SUA) with other community institutions. In addition, PAR built networks of actors with different interests to discuss issues in tomato marketing beyond project interventions. Participants in the FGDs revealed that the University researchers-built ties with the telecentre, farmer organization and local authorities and established relationships beyond the project period as some actors established contacts with project researchers. This was made possible by close ties

established by the researchers in the course of project implementation. According to Chija *et al.* (2016), frequent interactions were created for long long-lasting interest of participants throughout the project period, hence, there we relatively low attrition indicating that there was a high interest of community members in the interventional strategy used. However, our experience

showed that very few individuals requested participation fees instead of using projects as a means of problem-sharing and solving. Few cases were noted especially in the baseline survey where they asked for a participation fee during interview sessions. Hence, this requires a mindset change for a few community members.

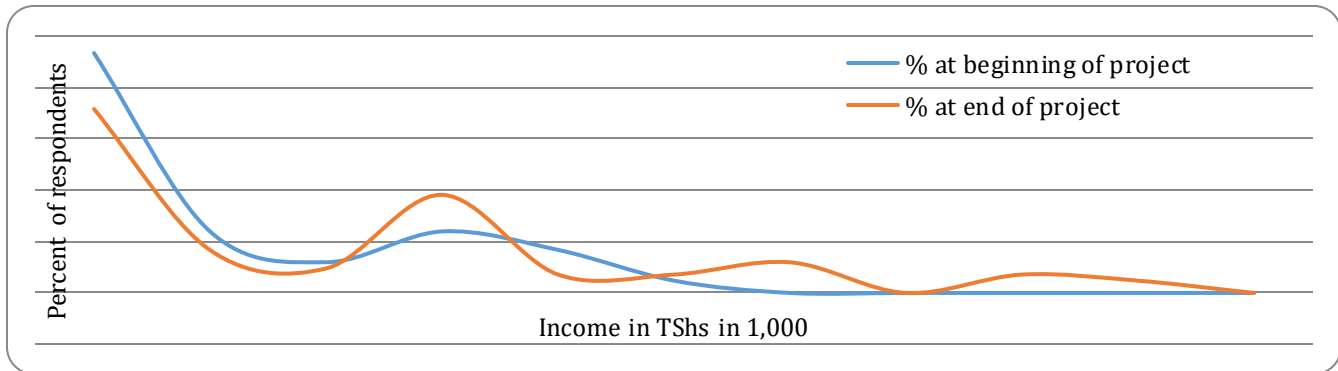


Figure 2. The change in women's income at the start and end of the project.

Analysis of the performance of farmers' groups between categories

Analysis of the performance of farmers' groups between categories specified under sub-section 3.2.1 showed a significant difference. According to UMADEP (2001), the performance of groups between categories can be compared from Figure 3. Only 40% of groups in category one was doing well while the majority (over 65%) of groups were doing well in other categories. Also, the percentage of groups with poor performance in category one was higher (40%) than in other categories (less than 16%). The three most important reasons for the relatively poor performance of groups in category one was identified to be: Weak management of resources especially finance; donor dependence that led to a lack of sense of ownership of group properties and lack of members' awareness of their power to control group management.

The nature of cooperation for groups in category one entailed establishing applicable regulations that could be understood and enforced by all members every time it became necessary. Although almost all groups in category one established regulations to govern their activities there was evidence that the regulations stipulated in their constitutions were at best known by leaders only. For example, more than 60% of members in bank groups who responded during the evaluation did not understand their constitutions. Almost all groups

had one copy of the constitution with the group leader. This situation promoted poor performance of groups in this category.

Lack of knowledge of the group constitution seriously threatened groups that were still performing well (bank groups by majority) in category one. More than 80 % of ordinary members (those who were not leaders) of bank groups indicated ignorance of their constitutions. Furthermore, it was encouraging that the performance of groups in the other three categories in the project area was relatively good. However, there was a tendency for many groups, especially in categories three and four to change their cooperation towards that of category one.

Reflection on critical lessons learned

(i) The Participatory Action Research interventional strategy sustained the University outreach activities. In addition, it strengthened the capacity of the University scientists to transfer technologies to target communities through continuous learning and interaction. This valuable experience can be used to scale up technologies and experiences more widely. However, the PAR took considerable time to realize the outputs especially because you need to involve stakeholders in every project implementation stage and reach consensus on various issues. Hence, given the project timeframe, it created some tensions as most people had varied

interests that hampered their participation in the projects.

(ii) Long-term commitment to work with rural communities is necessary to build mutual trust and strong partnerships among all stakeholders, particularly between the University staff and rural communities. This is also in recognition that change requires time, particularly in building strong local institutions that will sustain the positive changes that are initiated. Therefore, stakeholders such as Local Government Officials and existing farmers' groups network should be closely involved to foster ownership of the project interventions.

(iii) We learned that communities perceive researchers as "outsiders" who have the abilities and resources to address their felt needs and problems. Experience indicates that they reported such problems as water shortage for irrigation, subsidies, counterfeit inputs, and poor transport infrastructures. Under limited financial resources, these needs of actors could not be properly addressed. Therefore, as researchers and rural development practitioners, we should understand the context under which we are operating. Hence, focusing on a particular aspect may be intriguing, especially when working with actors and stakeholders who may have different life challenges.

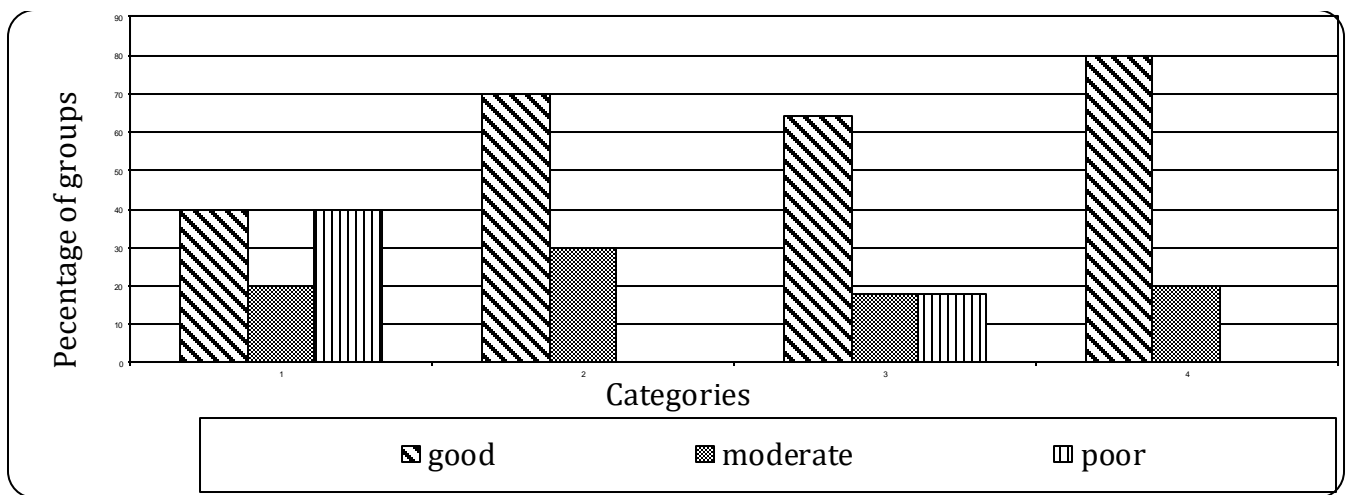


Figure 3. Comparison of group category performance

CONCLUSION AND RECOMMENDATIONS

Generally, lessons indicate that the university outreach project's implementation strategy was relevant to communities. This is because, community members within the project areas were able to transform in different ways, ranging from individual and organisational empowerment, copying of the interventions and opening businesses related to the interventions for increased income and improved livelihood.

Specifically, Participatory Action Research (PAR) has demonstrated that is a useful interventional strategy in sustaining the University's outreach activities and transforming community inequalities. In addition, sustainable linkage between university and rural communities' engagement in technology generation and dissemination has proved successful due to the long-term commitment of both parties to work together.

However, the PAR interventional strategy requires sensitivity to the community's social material context. Committing enough resources and time is necessary to achieve desired outcomes and impacts. Otherwise, the good work started by the University in community engagement may prove to be of no value. This is because outreach activities in most universities have yet to be given due priority in resource allocation.

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CONFLICT OF INTEREST

The authors declare that there are no competing interests in this publication.

REFERENCES

- Bhana, A. 2002. Participatory action research: A practical guide for realistic radicals. In: M Terre B. and K Durrheim (Eds.). *Research in practice: Applied methods for the social sciences*. Cape Town, University of Cape Town Press. pp 221-238.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2):77-101
- Chija, B.B., Nyamba, S.Y., Mvena, Z.S.K., Martin, R., Busindeli, I.M., Kilima, F.T.M., Msuya-Bengesi, C.P., Mlozi, M.R.S., Kalungwizi, V.J., Gjotterud, S.M., Kiranga, E. 2016. Participatory Action Research an Outreach Strategy for Universities: Lessons from Tomato Value Chain Project at Sokoine University of Agriculture –Tanzania. *International Journal of Science and Technology*, (6):9
- Cornish, F., Breton, N., Moreno-Tabarez, U., Delgado, J., Rua, M., de-Graft Aikins, A. and Hodgetts, D. 2023. Participatory Action Research. *Nature Reviews Methods Primers*, 3:34
- Fields, J. 2014. Collaboration in Action: A Book Review of Alice McIntyre's Participatory Action Research. *The Qualitative Report*, 19(4): 1-4. [Accessed October 31, 2023].
- Food and Agriculture Organization of the United Nations. 2002. *The Role of Intermediate Organizations: Agricultural Professional Organizations and Farmers' Associations*.
- Gustavsen, B. 2001. Theory and Practice; The mediating discourse. In P. Reason and H. Bradbury (Eds.). *Handbook of Action Research*. Sage, London
- Henley, D. 2010. Three Principles of Successful Development Strategy: Outreach; Urgency; Expediency. <http://www.developmentsategy>
- Intermon Oxfam. 2010. *Improving Livelihood Security through Rural Business Development for Small Scale Producers in 7 Wards of Morogoro and Dodoma Regions in Tanzania – No. 5479*. End of Project Evaluation Report, pp. 6-21.
- Kurwijila, L.R.; Mwaseba, D.L; Batamuzi, E.K; Gimbi, D.M; Maliondo, S and Johnsen, F.H. (eds.). 2009. *Improving Rural Livelihoods: Impacts of Agricultural and Natural Resources Research with Farmers and Prospects for Scaling up*. Programme for Agricultural and Natural Resources Transformation for Improved Livelihoods (PANTIL), pp.11-120.
- Lasalle, T. and Mattee, A.Z. 1995. Towards Sustainable Rural Development Using the Participatory Approach: The Case of Mgeta Farmers, Morogoro Rural District. In: Forster, P.G. and Maghimbi, S. (editors). *The Tanzanian Peasantry: Further Studies*. Ashgate Publishing Limited, London, pp.170-194.
- Leeuwis, C. 2004. *Communication for Rural Innovation: Rethinking Agricultural Extension*, 3rd edition., Blackwell Science, London, pp 74-140.
- Mattee, A.Z. and Lassalle, T. 1996. Diverse and Linked: The Role of Farmers' Organisations in Sustainable Rural Development. In: Budelman, A. (editor) *Agricultural R&D at the Crossroads: Merging Systems Research and Social Actor Approaches*, The KIT Press, Amsterdam, pp. 203-212.
- Mattee, A., Lassalle, T., and Noy, F. 2003. *Rural Tanzania: Struggling Between Tradition and Modernity*. Sokoine University of Agriculture, Morogoro, Tanzania, pp.5-79
- Mattee, A.Z; Busindeli, I.M. and Malisa, E.T.N. 2020. Promoting Sustainable Agriculture and Natural Resource Management through the Process Approach: Experience from UMADEP Project of Sokoine University of Agriculture, Tanzania. *Tanzania Journal of Agricultural Sciences*, 19(1): 44-52.
- McIntyre, A. 2008. *Participatory Action Research*. Thousand Oaks, CA: SAGE, pp. 5-68.
- Msuya, C.P; Ahmad, A.K.; Busindeli, I.M., Kalungwizi, V.J., Machida, F.; Krogh, E. and Gjotterud, S.M. 2016. Participatory Action Research for Engaging Schools and Communities to Enhance Relevant Education: The Use of Farm as a Pedagogical Resource in Nyandira Primary School in Tanzania. A paper presented at the EPINAV third Annual Scientific Conference: Experience of innovation system approach to Research and Development in Tanzania held at ICE, SUA Morogoro, Tanzania from 16-18th March, 2016.
- Mwaseba, D. L., Mattee, A. Z., Mvena, Z. S. K., Lazaro, E. A., Wambura, R. M. Kiranga, E. D. and Kaarhus, R. 2008. Perceptions and Practices of Farmer Empowerment in Tanzania. Programme for

- Agricultural and Natural Resources Transformation for Improved Livelihoods (PANTIL), Sokoine University of Agriculture Morogoro, Tanzania, pp 3-18.
- Nyamba, S.Y., Busindeli, I.M., Kalungwizi, V.J., Mlozi, M.R.S. Kilima, F.T.M., Msuya-Bengesii, C.P., Chija, B.B., Mvena, Z.S.K., Martin, R., Gjotterud, S.M. and Kiranga, E. 2020. Tomato Value Chain Information System in Tanzania: Lessons from Kilolo District and Dodoma Municipality, Tanzania. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems*, 10 (1): 9-15
- Nyerere, J.K. 1968. Education for Self-Reliance. In: *Nyerere Freedom and Socialism, Uhuru na Ujamaa*, Oxford University Press, London, pp. 477-578
- Reason, P. 2004. Action research and the single case: A response to Bjørn Gustavsen. *Concepts and Transformations*, 8(3):281-294.
- Roper, C.D. 2005. Extension, Outreach, Knowledge Transfer, Technology Transfer: What is it that we do officially? Association of Learning Education. 2005 Annual Conference, July 11-14, 2005. Willington, NC.
- SARD. 2002. Sustainable Agriculture and Rural Development (SARD) Policy Brief 12.
- SUA. 2010. Enhancing Pro-poor Innovations in Natural Resources and Agricultural Value-chains (EPINAV). Programme Document, pp 1-5.
- UMADEP.2001. Project Evaluation Report since 1993-2000. The Department of Agricultural Education and Extension, Sokoine University of Agriculture, Morogoro, Tanzania, pp.30-65.
- Zakri, A.H. 2006. Research Universities in the 21st Century: Global Challenges and Local Implications. Global Keynote Scenario at the UNESCO Forum on Higher Education, Research and Knowledge, Paris. November, 2006.

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