

Combating Marginalization and Exclusion through Agricultural Extension

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Submitted: 2023, May 10; **Accepted:** 2023, May 29; **Published:** 2023, Jun 05

Citation: Sennuga, S. O., Ujoyi, S. A., Bankole, O. L., Iheonu, M. E., Alabuja, F. O., et al. (2023). Combating Marginalization and Exclusion through Agricultural Extension. *J Applied Surf Sci*, 1(1), 51-59.

Abstract

Rural areas in the majority of developing nations are characterized by poverty, geographic isolation, and inadequate access to agricultural workers, education, health, transportation, communication, and other amenities. The livelihood activities of rural people depend on agricultural productivity and the related agricultural extension services. Therefore, rural communities and marginalized groups need access to information on the availability of productive services, cutting-edge technologies, early warning systems for drought (as well as pests and diseases), credit, and market prices. However, this paper examines a few ways to agricultural extension and advisory services and focuses in particular on the efficacy of participatory action research in extension delivery procedures for reaching rural women, men, and isolated people equally. It was noted that, among other methods, participatory action research is one that can be used to combat marginalization and exclusion. However, very little has been accomplished in terms of consistently taking a gender viewpoint into account while offering agricultural advising services. In order to avoid exclusion, significant work still needs to be done to include everyone in extension delivery services. This article makes the recommendation that, in order to close the gender and marginalization disparities in access to agricultural advisory services, new strategies based on a gender equitable approach to rural service delivery be put into effect at the farmer, provider, and policy levels.

Keywords: Agriculture, Research, Extension, Marginalisation, Combat, Utilizes, Exclusion Processes

1. Introduction

When it comes to the contribution of each country's economy to the global Gross Domestic Product (GDP), agriculture is the most significant sector. For instance, according to in addition to the significant contribution it makes to the GDP of the countries, it also generates foreign exchange earnings, employs more than half of the population of the countries, supplies raw materials to industries, and serves as a source of food and fiber for the teeming population [1]. Given the aforementioned, it is impossible to overstate the value of agriculture to the Nigerian economy. The main forces behind agricultural development in every nation are agricultural extension services [2]. This suggests that agricultural extension must be mentioned while discussing the advancements made in the agriculture industry. This demonstrates where agricultural extension stands and what part it plays in the growth of agriculture. Agricultural extension services are offered to everyone without distinction based on factors like age, sex, socioeconomic class, size of operation, political leaning, or

ideology, among others. The extension process focuses on social, economic, and educational progress. Agricultural extension agents are to give equal opportunity services to all groups and classes of farmers. This suggests that all classes or groups of farmers must be completely included in chances for agricultural extension services [2, 3].

People have moved into places that are unsuitable for a sustainable agricultural production as a result of population growth, climatic change, and strain on the available land. By altering economic trends, marginalized groups are becoming more diverse, and variations in land tenure are growing. Donor organizations are the main source of attention for underprivileged populations. By setting restrictions on the loans and human resources that they give to governments and research institutes, donor organizations are reinforcing this focus. The "green revolution" was attempted to be replicated in South America and Africa. This strategy for boosting food production was less effective in these regions of the world than it was in Asia [4]. The small-hold-

er agriculture was quite diverse in Africa and South America, and the climatic, ecological, social, and economic factors vary from region to region. The different soil types, crops, and rainfall patterns are very diverse. Recommendations needed to be more closely tailored to local circumstances because general advice did not work. With more focus on marginalized people, extension and research had to cover broader areas and a wider range of situations. Include farmers in the research process as a means to expand coverage [5].

According to effective development initiatives are transformative by nature, whether through generating opportunities, brand-new goods, and services, or by altering how people behave, perceive, and respond to change [6]. The shift from male-dominated to gender equal agricultural research, development, and extension systems could be said to be a question of political correctness or ideology. The inclusion of gender issues more broadly and systematically in agricultural research, development, and extension systems will significantly help meet the food needs of the future population or ensure that productivity results in improved welfare for the poor, according to our argument that paying attention to gender is not a matter of ideology but rather of development effectiveness.

Many agricultural research, development, and extension programs aim to reach out to and aid marginalized groups. Integrated Agricultural Research for Development (IAR4D) and research in development (RinD) are two examples of the new generation of agricultural research methodologies that aim to reach the marginalized in order to accomplish development outcomes. They all share the practice of involving farmers and decision-makers directly in agricultural research through the use of participatory techniques, building on the work of which sparked the development of numerous strategies and regulations placing farmers first [7]. Despite their best efforts, it is still difficult to contact marginalized populations. Accordingly, participation is not a panacea and, if employed without enough consideration for power dynamics, it can develop into a new kind of “tyranny” that strengthens already-existing power relations that exclude and marginalize some individuals. This was reported by [7]. Understanding the underlying power dynamics and related social norms that influence participation is necessary to move away from power-blind usage of participatory instruments. We observe a rising understanding of the need to interact with power, particularly via a gender perspective, within the agricultural research and extension sector. So in his studies, we explore this proposition by sharing our learning about how researchers, practitioners, and extension officers can identify, engage with, and challenge processes that limit opportunities for people to participate in and benefit from development [7]. The studies aim to provide answers to these questions and to identify the various ways in which agricultural research and extension can be used to combat marginalization and exclusion processes in the agricultural sector [5].

Theoretical Background On Agricultural Extension Approaches

Four paradigms—Transfer of Technology, problem-solving, education, and human development—have been used to categorize

the methodologies utilized in agricultural extension service delivery.

Transfer of Technology

The TOT has been defined as proactively modifying behavior by the supply of information, opportunity, and persuasion, such as through the adoption of new technology that has been developed externally, is already available, and has been tested, or managerial practice. The user serves as the passive receiver in this one-way approach from science to practice. Knowledge is therefore seen as a good that travels from science to the consumer. The TOT approach has drawn criticism because technology has not been tailored to or made suited for the unique circumstances that each farmer faces. It advantages producers who are better off than others in terms of material, intellectual, and social resources, as was already said. This has the tendency to entrench social inequalities. Finally, it disregards the expertise, abilities, and adaptability of farmers. TOT is still a widely utilized extension paradigm despite all of these issues [8].

Problem-Solving Approach

An key aspect of extension work is problem-solving. One of the roles of extended advice or consultant is to help people find answers to management or technology difficulties. Using their experience, which is provided to farmers by either a single adviser or a group of advisers, farmers commonly employ problem-solving as a platform for the transfer of knowledge. In this situation, the two groups have different responsibilities to play. While the consultants have specialized knowledge, the farmers must be capable of choosing the level of expertise they need to support the consultant’s recommendations [3].

Learning and Adult Education Approach

Study groups are a sort of proactive informal education that aims to aid people in understanding their circumstances better. Adult learning theories may be useful in helping to understand the actual learning process. As a result, the study group learning process has been described using learning cycles and styles. The concept of learning cycles and styles has, however, only really been applied as a conceptual framework in adult learning, not in agriculture. The stages of learning involve direct experience, observation and reflection, the development of abstract concepts and generations, and the formulation of hypotheses for future testing, which results in fresh experiences and completes the cycle. It has been noted that the learning process is an ongoing cycle that is influenced by an individual’s needs and objectives. The strategy illustrates how every person has their own unique learning cycles. According to, four learning styles—divergent learning, assimilation, convergent, and accommodating learning—have been recognized as being related to the various phases of the learning cycle [8].

Human development approach

In the context of human development, extension is, according to a strategy for encouraging people or groups to take the initiative in issue characterization and the search for solutions to personal and social challenges, including opportunities [9]. The participatory methodologies that make up this extension paradigm are founded on adult, action learning, and participation concepts.

The participatory approach is used because local learning communities are required, recommendations are ambiguous, and agricultural and environmental problems are becoming more complex. These strategies have advantages, such as ensuring the recognition of local ways of knowing, drawing on accumulated knowledge and experience from the farm, supporting local innovation and adaptation, involving stakeholders in research that has an economic and/or social impact on the farming community, acknowledging the value of information and idea sharing among farmers, encouraging producer ownership of both problems and solutions, and utilizing group processes for learning. These strategies, however, have come under fire because farmers might not recognize issues because they may be unfamiliar to them (for instance, environmental issues), in which case non-participatory strategies may be added; there may be a predominance of situations that may lead to a potential rejection of ideas; furthermore, the dissemination of knowledge developed in groups may be restricted to the group itself [10].

Different Extension Approach to Agricultural Information Dissemination

Participatory Action Research in Extension: Together, the researchers can tackle the identified community issue thanks to this kind of research. It is qualitative in character and seeks a thorough investigation of the data and facts needed to support sustainable development. To achieve process certainty and accurate method evaluation, this type of research repeats the procedures in a methodical manner. To ensure that the sequence is followed without interruption or distortion, the primary researcher offers strong expertise and direction. Additionally, in this type of research, the chain of continuity is influenced greatly by earlier work [11]. The core of any action study, according to offers easier ways to comprehend how a community member can contribute to sustainable community development and facilitate the job of extension workers and their managers [12]. Furthermore, participatory action research was specifically designed to make sure that beneficial changes were made in all aspects of the community and the human race. It enables full participation from all community members in the modification of some theoretical and practical elements to fit the recurring changes that occur year after year. Additionally, it makes space for the community to encourage rational thinkers, which in the long run empowers community members to overcome injustices and fosters cooperation with the extension workers. The extension educators in the community build groups that are heterogeneous, and this trait is shared among the members both consciously and unconsciously, which fosters social and psychological empowerment among the participants. Additionally, it enables the constructive incorporation of individual value analyses of the identified community issue, which may be connected to issues with agriculture, health, or other socioeconomic needs. The degree to which community people participate in any action research increases their opportunities to learn from one another and empowers them to solve their own problems, sometimes with the help of the extension worker. Participatory action research has a number of drawbacks, including the fact that it takes a lot of time, dedication, and knowledge [13].

Community-Based Research

The World Bank recently gave extension educators the option to actively involve the community in all parts of community life with the launch of Community Driven Development (CDD). This strategy was shown to be very successful in solving issues facing the community quickly, as well as in fostering equality between community members, organizations, and researchers in all facets of the research process. This procedure broadens the scope of impartially beneficial community-wide programs. In informal organizations like mosques, churches, and other self-help groups, community-based research is conducted with their input. Additionally, this type of research makes use of all available community resources to comprehend local issues and offer potential solutions. In order to improve the socioeconomic position of the community and to coordinate the relationships between all the stakeholders in order to ensure sustainable development, extension educators who use this type of study work with all the community groups and other elements. In this type of research, educators strike a balance between community demand and supply, needs and aspirations, individual and group understanding of the research process, benefits of the research by the community members, and more straightforward methods of obtaining qualitative and trustworthy research results [14].

Community-based research enables individuals to participate in volunteer projects assessment in groups. This process of involvement raises the caliber of the groups and provides them with numerous opportunities to enhance the quality of the community. The group members are highly conscious of their role for ensuring that the knowledge, abilities, and attitudes of the research are applied to group efforts, which over time mold the community as a whole. Research Priorities in Extension Education The global perspective of extension education research is centered on five trends and paradigms, including: the adoption and transfer of technology, the linkage of research to globalization, the reduction of rural-urban migration that hinders high socioeconomic development, the proper application of democratic principles and their spread, and the trend of information and communication technology [15]. These tendencies indicate that extension workers' involvement will result in high output. Additionally, he serves as a mediator who ensures proper and holistic community growth by taking into account the culture, norms, values, needs, and aspirations of the community. In the long run, this specifically increases individual capacity through increased purchasing power, women's home management skills, high cohesion among the community groups, and the promotion of unity as a result of community involvement. However, with special reference to Nigeria, which experiences long-term neglect in extension work as a result of political instability, infrastructural decay, poor orientation, and a total concentration on oil revenue, the contextual trends and priority fields in extension education research are discussed below.

Technology Transfer and Adoption

The original goal of traditional extension work was to boost farm productivity and decrease labor-intensive tasks. This has contributed to the expansion of opportunities and the provision of numerous infrastructures, like roads, power, and others, that assist the transmission of technology to the most remote commu-

nities, where the majority of farmers are located. Additionally, this component serves as the foundation for all other expansion areas, which is why numerous researchers have recommended that it be strengthened. This feature also highlights the necessity to understand what the community needs in order to readily accept changes. Additionally, research demonstrates that rural residents place a greater emphasis on their farms and animals, thus any advances that are counter to the development of these two are seen with skepticism when it comes to adoption and utilization [16].

Mixed Methods in Extension Research

As the name suggests, mixed methods refers to combining the two methodologies to solve a shared issue in a single study. In one study, it was discovered that combining qualitative and quantitative methods increased the effectiveness of each strategy [17]. For instance, when developing a model, data could be quantitatively collected during the initial stages. However, once the model has been evaluated to determine its efficacy and to answer the question “why,” qualitative methods must be used. In addition, extension work that is holistic in nature, that is, dealing with all resources (both human and material), employs all research methodologies to address persistent problems as they arise, depending on the situation. The importance of holistic growth in extension makes it essential to have interdisciplinary collaboration among the various disciplines that makes use of numerous methods and approaches to arrive at a conclusion regarding a certain phenomenon [18].

How Does the Process of Social Exclusion Play out in Agricultural Research and Extension Activities?

The need to eliminate gender biases in extension has received a lot of attention over the past 20 years, yet criticizing extension may only be “shooting the messenger” if these biases are rooted in the larger policy environment and rural development norms. Instead of focusing only on complaints that extension agents do not speak to women, overcoming gender bias involves consideration of what prevents the fair provision of services. Gender relations at the household level, land and property rights, access to agricultural inputs, extension services, credit and financial services, business development services, and agro-processing, to name a few of the most significant areas, are just a few of the areas where gender inequality persists in the agricultural sector. The goal of developing agriculture for cash crops, whether for export or to attain national grain self-sufficiency, falls under the purview of extension in many nations. Because they won’t have any incentive to adopt or cultivate cash crops because they won’t be in charge of the income generated by this output, these goals can conflict with efforts to reach out to female farmers. Since these are revenue sources they can more easily manage, they frequently choose to focus on subsistence farming, minor trading, or casual labor. Because of the unequal policy environment, including the priority for research, funding, etc.,

Extension may consequently be unable to achieve gender equity. Gender roles in households, society, agriculture, and rural development in general must be taken into consideration for gender equity in access to extension services. In actual decisions about extension targets, the underlying aim conflicts in rural develop-

ment, economic growth, household and national food security, and poverty alleviation come to the fore. Instead of ‘shooting the messenger,’ it is important to examine more deeply how approaches to agricultural knowledge and information systems and overall policies fail to fairly handle gender. Context is essential, but this does not imply that extension is helpless against bias. Extension actors have the option to take the initiative and combat major barriers to gender equity, for example by including legal advice in their services or directly challenging gender relations at household levels through facilitating discussions in farmer organizations or cooperatives.

It is crucial to comprehend the social context of communities while carrying out development work. Despite the relevance of gender in comprehending the setting in which development is being carried out, gender is frequently not sufficiently incorporated. An Agricultural Innovation System (AIS) is a theoretical idea that aims to combine agricultural growth with the political, social, and economic environments in which these agricultural innovations take place [12].

However, contend that despite the fact that the majority of the literature on AIS has not been sensitive to gender, AIS can open up fresh avenues for integrating gender issues into agricultural innovation and extension, particularly because the framing of debates around gender and development does not take into account how complex and particular gender and gender roles are in any given context [19]. According to concerns of innovation and development should be treated as “gender learning” rather than through gender analysis [19]. Additionally, this moves the emphasis from empowering individual women to strengthening the AIS’s ability to change gender relations by developing more practical innovations. Scholars who advocate alternative approaches to analyzing development contend that these processes must be sensitive to cultural and geographic specificity if they are to be effective [20]. This is true even though there is a clear emphasis on measurability and standardization of processes when evaluating and designing development projects. However, the more complicated a proposed measure or assessment tool is, the more difficult it is to put into practice. Additionally, there is a level of standardization rigidity that can make some techniques of evaluation far less suited to particular settings. The Middle East and North Africa (MENA) region’s subtle exclusion of women from extension services emphasizes the significance of a gender-sensitive strategy. Women in the MENA region frequently work on farms owned or run by their male kin, in contrast to the majority of Sub-Saharan African literature, which demonstrates that both genders have their own plots [20]. Due to the male emigration from the area and the low financial returns from farming, more women are farming, but they have less influence over and visibility in extension and development initiatives [6]. As a result, they are more likely than farmers in their own right to be excluded from extension programs [21, 6].

Women generally see less value in extension service activities, and they typically have less access to them than men do. argue that there has to be a deeper knowledge of how guidance for women can be applied to their lives and conveyed more successfully [22]. This is because one of the most significant constraints

on agricultural growth has been women's long-standing inability to access "extension advice, land, resources, agricultural inputs, and professional opportunities" [23]. Because they can reduce the labor and time input required for agriculture, agricultural innovations, including extension services, can be extremely helpful for underprivileged farmers and may be especially helpful to women [22]. Despite the adoption of technologies, there is still gender inequality in agriculture, manifested in the control and profit over resources, access to services, and lack of opportunity. This is in part due to the fact that historically, extension services have catered to and targeted men. Other kinds of gender-based inequality, such as restricted educational opportunities and land tenure structures that do not acknowledge or permit female land-ownership, exacerbate the issue [22]. Therefore, agricultural technologies must take gender equality into account. In this regard, some writers support gender transformational approaches to development, which aim to question and alter current social structures in order to produce more equitable development outcomes [23].

Using Farmer Groups to Deliver Extension and Advisory Services (EAS)

EAS programs must choose their methods of service delivery carefully due to their limited resources. Extension agents won't always be able to assist all farmers. As a way to expand the reach of extension services, services are increasingly being delivered through group or community meetings and community-based organizations (CBOs). For women, this technique comes with a number of difficulties. When services are provided through group or community meetings organized by extension agents, women perform poorly: In Ghana, 0 to 6 percent of households headed by women and 5 to 9 percent of households headed by women spouses participate in meetings, compared to 11 to 24 percent of households headed by men, and in Ethiopia, 11 percent versus 28 percent of women and men, respectively according to World Bank record as of 2010. Additionally, membership-based organizations like producer associations or dairy cooperatives may exclude women. In Ethiopia, 13% of men and 2% of women were members of agricultural cooperatives, while 24% of men and 4% of women belonged to other cooperatives. In Ghana, there are also gender differences: only 3 to 7 percent of homes with a female head of household belonged to a CBO, compared to 2 to 5 percent of female spouses [22]. Biases concerning women's abilities prevent them from advancing to top positions in these organizations. In India, only 10% of dairy cooperatives have female chairpersons, while men are five times more likely than women to hold leadership positions inside cooperatives in Ethiopia. Defining the membership requirements for admittance to these organizations is one of the difficulties in distributing EAS programs through producer associations or CBOs. Women and other household members might not be eligible for entry to these organizations if membership standards rely on a strict definition of who is a farmer, reserving access to land owners or heads of families. Other factors like age, education, or civil status may also prevent women and other resource-poor farmers from joining these groups and taking part in their operations. For instance, joint forest management groups (JFMs) permitted only one member per household to join in a number of Indian states,

essentially favoring the head of home and barring others [24].

Does PAR Help Researchers Understand and Challenge Processes of Social Exclusion, and If So Then How?

A Brief Description of PAR: According to research, Kurt Lewin was the first to refer to planning, acting, and evaluating the effects of actions as bridging theory and practice in 1948. Action research and participatory research are the two research methodologies from which PAR is derived. According to, PAR is more of an approach to study than a method [25]. As a result, the definition of PAR is "social investigation, educational work, and action." According to another PAR is the combined generation, transformation, and control of information, which results in a spiral process of planning, acting, attaining goals, and re-planning [25]. Because of this, PAR should be considered a strategy rather than merely a means for mitigating vulnerability. The PAR also acknowledges the variety of knowledge-acquisition methods and the importance of community members' lived experiences. As a result, while using the PAR technique, both qualitative and quantitative research methodologies can be used. In order to empower the community to effect change, the authors of define PAR as "remov[ing] the] distance between the objective observer and subjective subject and including the community being studied as an active participant in the research [25]."

Practical Principles and Benefits Derived from PAR

There are several advantages to applying PAR in a community setting in an effort to address social vulnerability. Only after adhering to the PAR's guiding principles may these advantages be realized. The principles of community-based and participatory research literature are listed as a procedure to follow for implementation by [22]. These ideas will be briefly mentioned below along with how they relate to the particular case study.

Par Recognises the Community as A Unit or Entity: Geographically speaking, communities are described as groups of people who share a common identity and a common purpose. This can be the case, for instance, when work possibilities drew a community together. Because they are compelled to dwell in a specific location, the community members may not have any interests other than the need to make ends meet. For the sake of the study, the women who live on the same farm where the income-generating activity started can therefore be referred to as a community. They operate and reside in a bigger geographic region. This geographic region can also include a few other farming settlements. As a result, some interested women from one of the rural settlements banded together to improve their social standing in the community and expand their possibilities for employment.

The Strengths and Resources of The Community Are Built Upon:

This is carried out to sustain and strengthen the community's traditional knowledge, skills, and social structures. Sustainable development is ensured by utilizing local expertise, customs, beliefs, and practices. These institutions support the neighborhood's daily activities and promote cooperation. As a result, cultural and social coherence is achieved, and the community is able to deal with its problems collectively. Numerous

resources were available in the real world that could be applied to the income-generating endeavor. The women had access to a building, there were group members who had prior needlework experience, and sewing machines were available to them. Since the majority of the women lived close to the project's physical infrastructure, additional transportation wasn't required. Due to the informal nature of their business, women may also bring their children to work. The ability of these working women's children to commute with them to work was recognized as a project resource and they noted that access to adequate, inexpensive childcare appeared to be an urgent issue.

Facilitate Partnerships with The Community During All Phases of Research: The phases of legitimate and ongoing research engagement are described by Mavelela et al.'s 2019 study as problem identification, data gathering, result interpretation, and community application. As many pertinent role-players as feasible were encouraged to commit to the initiative from the beginning. Due to the numerous difficulties these rural communities face, networking is essential. To avoid this being a future obstacle to collecting raw materials and fulfilling orders, the women set up private transportation options from the very beginning. The associated academic institution offered instruction, financial planning or resources, support for securing orders, and general marketing. Additionally, other schools were contacted for free business training assistance. As partners in the purchase and sale of the needlecraft goods, potential customers were also included.

Par Generally Originates as Something Small, Bringing About "Minor Changes": The facilitator is frequently helped by PAR to gain a deeper comprehension of the community and its complex connection with resources. As a result, it begins with short cycles of planning, doing, watching, reflecting, and re-planning. Smaller groups from the greater community are also involved. These modest adjustments are also what have a huge long-term developmental impact on a community. The income-producing enterprise did in fact begin with modest goals and objectives, namely the transfer of skills with a view to earning cash. Long-term, by making small, everyday "changes" to a PAR plan, much more might be accomplished as networks grew and partnerships formed.

Par as A Systematic Process Which Promotes Co-Learning and Empowers Communities, Measures and Addresses Social Vulnerability. An organized learning process gives information for action, usually geared at enhancing one's financial and work situation and making the most use of available resources. The project adhered to the PAR cycles of planning, action, and implementation, as well as observation, reflection, and re-planning. This was done to provide the research a framework and a plan. The flexibility of the PAR strategy, which made it feasible to go back to a prior cycle in the strategy if necessary, became clear as the research went on. One instance of this appears to be the women's expected competence level. Based on their prior needlecraft classes and expertise, the women claimed to have significantly greater skill levels than the facilitator. A practical skills test validated the facilitator's original judgment. In order to accommodate more training time, the group had to go back to the planning stage.

A PAR strategy process cycles

Every cycle in the continual process of PAR reflects the aforementioned ideas. The many procedures in the PAR cycles don't have to be inflexible; they can instead go forward and backward within the cycle with the goal of learning more from the community. Each of these steps—planning, performing, observing, reflecting, and re-planning—will be briefly covered. For each of these processes, a literary comparison, a real-world illustration, and a connection to indicators of social vulnerability in the community will be made. The community indicators include social involvement, cooperation, community support, network size, emotional support, integration into the community, common action, bonding, bridging, linking or isolation, and reciprocity. In an attempt to address social vulnerability in a rural agricultural community, the analogy from the practical setting.

Planning

According to planning decreases uncertainty, improves project effectiveness, clearly specifies objectives, and creates chances for monitoring and evaluation [26]. According to planning comprises crucial steps such as a SWOT analysis (strengths, weaknesses, opportunities, and threats), task breakdown structure, setting the work schedule, and financial planning [27]. Planning must be adaptable to take into account new experiences and challenges. Rural communities' lack of resources and skill level are just two of these challenges. As a result, planning entails jointly establishing deadlines for specific activities or projects [26]. As a result, community members are involved in the planning process through consultation and ongoing facilitation. Planning that considers community indicators of social vulnerability allows for social involvement, where numerous stakeholders and role-players are considered. Therefore, community cooperation is yet another sign of the social fragility present throughout PAR planning. Planning allows for emotional and social support for all participants, with coordinated action serving as goal.

Acting and implementation

Implementing a project entails putting the strategy into practice as well as managing and overseeing these efforts. When available resources are analyzed at this point, duplicate resource transfers are avoided, and resources are allocated where they are most needed this helps to determine the needs for plan implementation [27]. One of these is the creation of specific actions that must be executed in accordance with the original plan. These acts need to be coordinated and goal-directed. The grass-roots level is always where participation, action, and execution must take place. Action plans must occasionally be modified to account for evolving conditions, new challenges, and potentially shifting resource requirements.

Observing Regular monitoring and assessment are part of the observation phase of the PAR process from the beginning to the completion of the project [27]. point out that self-assessment, worker observations, and reports are often utilized techniques for evaluating members through observation. Self-assessment is the process by which people analyze their own behavior by simply remembering, going through, and reflecting on their own deeds with the assistance of other group members or individuals. Self-monitoring could be used as a triangulation technique

because self-observation heavily relies on memory. Data gathering by the individual at regular intervals and in particular circumstances is used for self-monitoring [27]. Reports from other people may come from those who are familiar with the actions and behaviors of particular people. Typically, these are women who are employed by the same group that generates income. Data gathered in this way ought to be valid and trustworthy, not dependent on conjecture or rumors [28].

Reflecting

Reflection, which focuses on how learning experiences are implemented in daily life, is a crucial component of the adult learning process. When reflecting, people look for connections between events, behaviors, and feelings in an effort to make meaning of their experiences. The process of learning includes observation, reflection, and concrete comprehension, which helps to shape abstract ideas and test them in novel contexts. Continuous learning requires reflection. It is important to recognize the relationship between levels of contemplation and levels of commitment and interest. In order to give participants time and opportunity to evaluate and reflect, reflection should also entail communicating outcomes to them [29]. The next step should involve participants debating problem solutions and exchanging knowledge. A process of investigation, measurement, and weighing the worth of anything is program evaluation. Needs analyses, program monitoring, impact studies, cost-effectiveness studies, and utilisation analyses are all parts of program evaluation. Goal and objective attainment, skill level improvement, and degree of empowerment are all assessed during the evaluation cycle [29]. Along with the findings and information acquired from observations, this is done.

Re-planning

The requirements and structures of rural communities vary over time, and this directly affects social vulnerability. As a result, re-planning presents an opportunity for advancement [29]. Opportunities for future improvement are discovered and highlighted during the implementation, observation, and reflection stages. As a result, these opportunities are incorporated during the re-planning step. Re-planning enables the support of broader social goals and objectives such as resolving gender issues, empowering women in politics, and creating social structures. In order to plan for a new intervention, such as the launch of new items, recommendations and outcomes were taken into account during the replanning phase. The necessity for startup funding, business training, and market exploration of both already-existing markets as well as the discovery of new markets were all recommended.

How to Combat Marginalisation and Exclusion through Agricultural Extension Service

Increase the proportion of women extension officers. In this analysis, a number of tactics for hiring female extension officers were noted. They included the application of quotas, gender-specific incentives, altered hiring standards, and leadership development. A variety of strategies may be required to draw and keep women in the field, starting at the university education level, as no single technique is likely to yield the necessary results. The introduction of ICT-enabled extension services may be opening

up new options for agricultural extension officers in addition to enhancing the working conditions of traditional extension jobs. These opportunities could be as call center operators, as M-Kilimo (Box 5), or as information brokers at the local level. According to the Community Knowledge Worker initiative in Uganda employs and teaches men and women to offer agricultural information through mobile applications [30].

Equip all extension officers with the knowledge and skills to address men and women farmers equitably. While increasing the number of female extension agents is a worthwhile objective in and of itself, it is not the only way to reach more female producers and business owners. Male technical agents should have equal responsibility for and ability to communicate with women, and vice versa (while being mindful of regional cultural norms that, in some regions, only permit communications between people of the same sex). Two things are needed for this. First, it has to establish an environment where extension officers, whether they are men or women, are dedicated to supporting inclusive values. Second, it calls for giving extension officers—both male and female—the participatory tools and abilities to handle various cultural settings, power dynamics, and discriminatory behaviors.

Adapt gender-responsive techniques and methods to local context. The best ways to equally reach men and women farmers will vary between and within countries. Providers of advising and extension services should be ready to base their decision-making on gender and societal norms that affect women's time management and educational opportunities.

Deliver cross-sectoral programming. Designing responsive services requires taking gender disparities into account, but supporting collaborative family tactics between men and women is just as crucial. A better awareness of how to produce a surplus for the market and the nutritional value of foods that may be cultivated at home, for instance, is necessary to increase household food security. In order to target malnourished and vulnerable households, the USAID-funded Gender Informed Nutrition and Agriculture initiative (GINA) brought together agriculture extensionists and nutritionists. This resulted in an increase in both the proportion of males engaging in nutrition education and outreach in Mozambique and the proportion of women engaging in agricultural production groups [30]. The Global Livestock Collaborative Support Program in Ghana started similar initiatives that combined microcredit and nutrition education, which were then effectively transferred to regional NGOs and rural banks and further extended. In Egypt, family health issues are seen as the responsibility of the women, despite the fact that males are the ones who make crucial choices that affect family health. In order to improve men's understanding of reproductive health concepts, the TAHSEEN project brought together the Ministries of Health and Population, Agriculture, and Water Resources and Irrigation. The curriculum used farming analogies, such as comparing the significance of optimal birth spacing to crop spacing. The training post-test found that participants' understanding of the ideal birth spacing increased from 27% to 96% (USAID, n.d.).

Collect sex-disaggregated data. The inability to evaluate the efficacy of EAS initiatives is significantly hampered by the paucity of sex-disaggregated data gathered by national statistics organizations, ministries, and donor-funded projects. The absence of sex-disaggregated data that would have given a more complete picture of women's and men's participation in the agriculture sector as farmers, laborers, and extension officers is one of the problems in developing this best fit evaluation. The reports included here are some of the few that have attempted to measure and comprehend the contributions of women.

Evaluate the impact of extension services on reducing gender disparities in agricultural productivity. To improve service delivery, top-down, technology-driven approaches are being replaced with bottom-up, demand- and market-driven ones. This should enable female farmers to influence service provision to suit their requirements. A few research have looked into whether improved outcomes result from extending attention to women's needs. For instance, extension workers in Oyo State, Nigeria, were said to have a better grasp of women's needs and preferences, which led to women adopting maize varieties at higher rates than males did [31]. According to the Ghana Grains Development Project's findings, women (39 percent versus 59 percent) accepted new maize and cowpea varieties and management techniques at a lower rate than males. According to the report, these lower rates are the result of unequal access to resources and services, particularly biased extension services [32]. Increased funding is required to systematically assess these effects and determine the approaches that have had the most impact on men's and women's practices.

Discussion and Conclusion

Agricultural extension workers before now are known to focused their activities on men farmers and exclude the women and the marginalised ones which may have an adverse effect on their productivity and livelihoods. Some researchers gave their reason that men have the capacity to adapt and make use of information easily than women when communicated to them. This study which aims at finding the best possible way through which agricultural research can be used to combat marginalization and exclusion through extension practice, was able to identify various Extensions research approaches, and realises that the different extension approaches were not properly utilized as its focuses solely on one gender, thereby leaving others out. Hence, the study identified the Participatory Action Research as one of the means through which exclusion and marginalization can be combated if extension workers can make use of the suggested means provided in the body of the article.

The study has been able to identified some factors that influenced marginalization and exclusion in agricultural research, and however, provided possible means through which it can be combated.

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