

Capacity Needs Assessment and Gap Analysis of Public Service Extension Personnel in the Desira-Integrated Rice-Fish Farming System Project Counties in Liberia

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Abstract: The Africa Rice Center implements the EU-funded DeSIRA-Integrated Rice Fish Farming System (IRFFS) project in five counties as a research-extension based initiative to improve food security and nutrition in Liberia. A study was conducted across the 5 Counties of the project intervention – *Gbarpolu, Grand Gedeh, Margibi, Maryland* and *River Gee* to assess the needs of extension staff and existing gaps in the extension system and thereby design training packages and develop their capacities for effective and efficient service delivery. Primary data was collected from April to May 2022 using structured questionnaire and collected data analyzed using simple statistics on SPSS with results display in tables and figures. Results show that 50% of the respondents benefited from in-service training within and outside Liberia on rice production, processing, and marketing, 30% on fish production, while 35% were trained on climate smart agriculture. A larger proportion (40%) of extension staff rarely have contact with farmers due to lack of mobility; while 35% were able to make contact once in a month. Ninety percent (90%) of respondents affirm the inadequate number of female extension staff and 65% opined that there are no cultural barriers in relating with women farmers by male extension staff. Only 15% of the respondents have knowledge on agricultural innovation system and all (100%) desired to be trained on innovation platform establishment and operations. Capacity building needs include climate smart agricultural practices (100%), modern extension methodologies, rice and cassava production, processing, and marketing (90%). Majority of the respondents (75%) are familiar with the extension approach of training of trainers; and farm advisory services (70%). Recommendations proffered for the overall improvement of extension services in the project counties include proper funding of extension service activities, enhanced pay and provision of adequate mobility of extension staff. Conclusively, the study revealed the state of agricultural extension and advisory services in the IRFFS project counties in Liberia, which reflects the national situation. The institutional capacity is weak and staff morale is very low. Developing partners like Africa Rice and non-governmental organizations (NGOs) involved in extension services in projects implementation have more success stories than the public sector because of better funding and project staff motivation. The challenges, gaps and needs of the extension staff and the situation in the project counties have far reaching implications on food and nutrition security. The situation demands urgent actions to ensure an effective extension service that will boost the morale of service providers and promote donor projects' sustainability for the overall benefits of stakeholders.

Key words: Needs Assessment • Gaps Analysis • Extension Personnel • Rice-Fish Farming

INTRODUCTION

Liberia is a coastal state in West Africa, bordered to the east by Côte d'Ivoire and the west by Sierra Leone and despite significant improvements since the end of its civil war in 2003, Liberia remains a fragile state with weak institutions, policies, and governance. This situation reflects on the agriculture sector of the country [1].

Agricultural extension and advisory service plays a

crucial role in boosting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth. Over the years various extension approaches practiced in Liberia include notably the World Bank promoted training and visit (T&V) and farmers' field school (FFS). The T&V in the 1970s had services skewed to commercial plantations and not to smallholder farmers' needs [2].

The Liberian civil war in the 1990s caused a large-scale disruption of the country's economy including the agricultural sector. Post-war, governments at various times have been making efforts to revamp the agricultural sector. The research and extension components that are very important to agricultural development have been hardest hit with reduced personnel and infrastructural deficit that hinder the expected services to value chain actors and other stakeholders in the sector. The post-conflict era witnessed difficulties in reforming farmers' groups, mass rural-urban migration of workforce, mass damages of government offices including the Central Agricultural Research Institute (CARI), and destruction of farm infrastructures and equipment in most parts of the country.

Various authors [1-8] have documented the challenges of agricultural extension service in Liberia to include lack of national agricultural extension policy to give direction to stakeholders, lack of coordination and monitoring of key players in the pluralistic extension to enable regulated services along the best practices, poor funding of the agricultural sector with an average annual budgetary allocation of 3%, poor coverage by extension providers and dearth of public service extension personnel leading to high Extension Agent (EA) : Farmers' Ratio (1:35,000), and an extension service approach that was more of technology transfer instead of being participatory, demand and market-driven; and weak capacity of local institutions for effective and sustained agricultural development.

The post-war era witnessed massive inflow of donor agencies with provision of extension assistance mostly through the non-governmental organizations (NGOs) and United Nations Agencies. The era kicked off the rebuilding of extension services with the assistance of the Food and Agriculture Organization of the United Nations (FAO) and other donor agencies supporting the efforts of the Liberian government. Within the current structure of the Ministry of Agriculture (MOA), the Department of Regional Development, Research and Extension (DRDRE) houses public sector agricultural extension. A County Agricultural Coordinator (CAC) is appointed for each of the 15 Counties; District Agricultural Officers (DAO) oversee agriculture in each agricultural district and are expected to relate closely to agricultural value chain actors on good agricultural practices (GAPs) and improved technologies' adoption. Regional Subject Matter Specialists serve multiple Counties. The MOA key extension policy is pluralistic, participatory with value chain and demand driven approach. Emphasis is on

livelihood development and farmer empowerment strategies [2].

In a study on the status of agricultural research and extension in Liberia, it was documented that the MOA, international organizations, NGOs, civil society organizations (CSOs), some private sector actors especially input dealers provide extension services to stakeholders along the agricultural value chain [1]. Although the activities of these service providers are however not co-ordinated, monitored or evaluated. The public sector extension service is also plagued with high extension staff to farmers' ratio estimated at 1:35,000 as against the World Bank recommendation of 1:600 for effective coverage and service delivery. Lack of adequate research infrastructure weak linkage and coordination among research, extension, and farmers as well as other actors, results in poor participation of stakeholders in the agricultural innovation system for demand driven technologies. There is also notable gender gap with women constituting only 11.3% of extension personnel [9].

Development of Smart Innovation through Research in Agriculture (DeSIRA), an initiative of the European Union funds the Africa Rice and the World Fish as implementing institutions for the IRFFS project in collaboration with the MOA, CARI and National Fisheries and Aquaculture Authority (NaFAA). The DeSIRA-IRFFS project's goal is *to improve food and nutrition security by transforming low-yielding, climate-risky traditional rice-fish production systems into more climate-resilient, high-yielding, resource-use-efficient systems in Liberia through targeted research and extension approaches.*

The IRFFS technology is a research-extension initiative targeted at 365 households (mainly smallholder farmers) to boost their productivity, income and improved food security and nutrition in project Counties.

MATERIALS AND METHODS

The Study Area: The survey covered the 5 Counties of the project intervention – *Gbarpolu, Grand Gedeh, Margibi, Maryland and River Gee*. The 5 Counties are indicated within the map of Liberia in Figure 1.

Data Collection: Primary and secondary data were collected for the study. Primary data was obtained public sector extension officers and Africa Rice focal persons (FPs) in the project Counties using questionnaire. Direct contact and phone calls were used for the interviews.



Fig. 1: Map of Liberia showing the locations of the five Counties for the integrated rice-Fish farming system project

Sample Size and Research Design: From available information [1, 10] the total number of County Agric. Coordinators (CAC) in the project counties was 5 i.e., 1 per county; District Agric. Officers (DAOs), 13 and Africa Rice Extension Technicians, 5 i.e., 1 per project counties. The questionnaire was therefore administered to all of them purposively. The DAOs by the schedules of their duties are extension staff, while the CAC as supervisors of the DAOs are also involved in extension services.

Data Analysis: Data collected from the survey was analysed using simple statistics on Statistical Packages for the Social Sciences (SPSS) with results display in tables and figures.

RESULTS AND DISCUSSION

Profiling of Extension Officers:

Extension Officers Distribution in Counties: From the total sample size of 23 extension staff, 20 responded to the interview (Table 1). The extension staffs consist of the CACs, the DAOs and the Fps.

Table 1: Sample Size of Respondents

S/No.	Rank	Total Population	Respondents
1.	County Agric. Coordinators	5	4
2.	District Agric. Officers	13	11
3.	Africa Rice Focal Persons	5	5
Total		23	20

The CACs are direct representatives of MOA in the counties and have the responsibility of ensuring that all agricultural activities in the counties are executed in an effective and efficient manner. They serve as point of contact with the farmers and work as a facilitator within the participatory extension approach and in addition supervise all the DAOs within each county.

The DAOs under the supervision of the CACs serve as liaison between the MOA and all key stakeholders of agriculture at the district level. Primarily they assist farmers in on-farm technologies and best farming practices including capacity building, use of quality agro-inputs, agronomic practices, post-harvest handling and market facilitation. The FPs serve as liaison between the Africa Rice and all key stakeholders related to the implementation of the IRFFS project at the county level

Table 2: IRRFS Project Counties and Respondents

S/No.	County	Extension Staff			Sub-total	(%)
		CAC	DAO	FP		
1	Gbarpolu	1	2	1	4	20
2	Grand Gedeh	1	1	1	3	15
3	Margibi	-	3	1	5	25
4	Maryland	1	2	1	3	15
5	River Gee	1	3	1	5	25
Total		4	11	5	20	100

Table 3: Distribution of Respondents by Highest Educational Qualification

Highest Qualification	MOA			Africa Rice	Total	%
	CAC	DAO	FP			
Bsc	4	8	4	16	80	
Diploma/Associate	-	3	-	3	15	
WAEC	-	-	1	1	5	
Total	4	11	5	20	100	

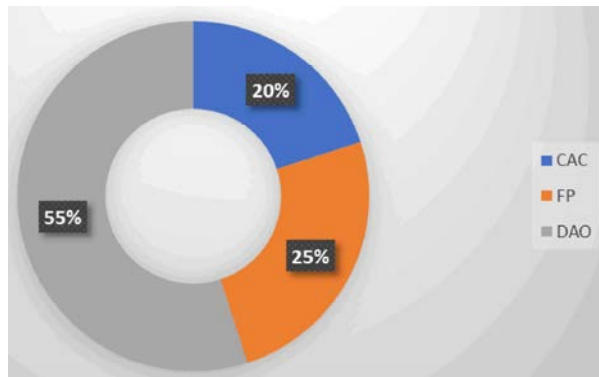


Fig. 2: Distribution of Respondents by Ranks

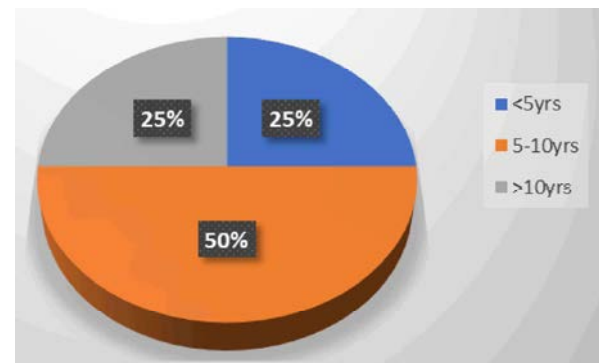


Fig. 3: of Service of the Extension Officers

and assist project farmers with skills of good agricultural practices. They also collect information/data related to the IRRFS farming technologies and motivate farmers to change their mind set on traditional practices to more promising integrated rice-fish farming practices for enhanced food security and better nutrition. Table 2 indicates that 25% of respondents are from each of

Margibi and River Gee; 20% from Gbarpolu and 15% from each of Grand Gedeh and Maryland.

Distribution of Extension Staff by Ranks, Highest Qualification and Service Experience: Result of analysis in Figure 2 shows that 55% of the respondents are the DAOs, 25% CACs and 20% are FPs. There is a marked disproportion of the DAOs to CACs and FPs. Ideally each district is expected to have a DAO for proper oversight of the district. It is therefore clear that there are shortages of DAOs in the project counties. Generally, most of the respondents (80%) are graduates of various disciplines of agriculture with Bachelor of Science (BSc) as highest qualification, while 15% have diploma certificates from agricultural colleges (Table 3).

Majority of the respondents (50%) have 5 to 10 years professional career experience with 25% of them with more than 10 years career experience in services and 25% with less than 5 years in service (obviously these are Africa Rice FPs for each of the project counties that were employed in 2020) (Fig. 3).

Table 4 indicates the distribution of respondents by field of study, highest qualifications, and ranks. From the table, 80% of the extension officers have their highest qualification as BSc and/or Diploma in general agriculture, agronomy, and irrigation. This indicate a pool of well qualified staff that can perform their job function properly if the enabling work environment is created in terms of motivation and provision of mobility for work. There is however poor coverage capacity for this staff when their numbers are compared to expected area of individual jurisdiction.

Status of Extension Services in the Project Counties: Skills Acquisition and Dissemination of Knowledge on Rice-Fish Value Chain and Climate Smart Agriculture (CSA): Table 5 shows that 50% of the respondents have benefited from in-service training within and outside the country on rice production, processing, and marketing. Only 30% had their capacities built on fish production, while 35% were trained by Africa Rice on climate smart agriculture. Among the respondents that received training only 25% (rice value chain), 10% (fish value chain) and 15% (CSA) were able to disseminate knowledge gain to farmers (Fig. 4). Others that received trainings were not able to due to lack of opportunities to disseminate and mobility hinderances in efforts to contact farmers.

Frequency of Extension Contact with Farmers: One of the key strengths of effective extension service is routine

Table 4: Distribution of Respondents by Field of Study, Highest Qualification and Ranks

Field of Study	Highest Qualification			Total	Rank			Total
	BSc	Diploma	SSCE		CAC	DAO	FP	
Agric. Extension	1	-	-	1	-	-	1	1
Agroforestry	1	-	-	1	-	-	1	1
Agronomy and Irrigation	5	3	-	8(40)	1	7	1	9 (45)
Aquaculture	-	-	1	1	-	-	1	1
General Agriculture	8	-	-	8(40)	3	4	-	7(35)
Natural Resources Management	1	-	-	1	-	-	1	1
Total	16	3	1	20	4	11	5	20

Note - Figures in parenthesis are percentages

Table 5: In-Service Training of Respondents on Rice and Fish Value Chain and CSA*

S/No.	Value Chain/CSA	Number Trained	Number Not Trained	Institution/Location and Year
1	Rice production, processing, and marketing	10 (50%)	10 (50%)	<ul style="list-style-type: none"> • Africa Rice, Benin Republic 2011 • Africa Rice, Liberia - 2014, 2018, 2019, 2020 • Egyptian Agric. Research Institute, Cairo- 2013 • CARI, Liberia - 2013, 2016, 2017, 2019, 2021
2	Fish production, processing, and marketing	6 (30%)	14 (70%)	<ul style="list-style-type: none"> • Bomi, Liberia -2010 • Bong, Liberia - 2016, 2017 • Africa Rice, Liberia - 2020, 2021
3	Climate Smart Agriculture	7 (35%)	13 (65%)	<ul style="list-style-type: none"> • Africa Rice - 2021

* Multiple Responses

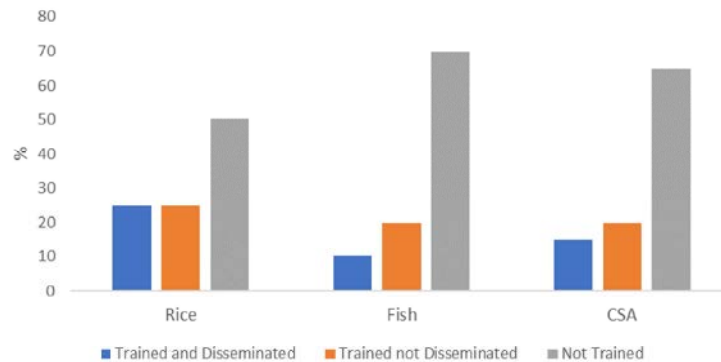


Fig. 4: Dissemination of Knowledge gained on Rice, Fish and CSA to Farmers by Respondents

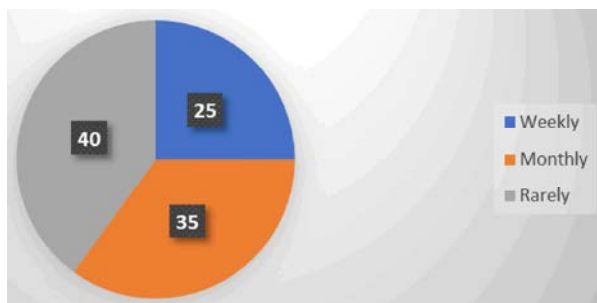


Fig. 5: Frequency of Contacts with Farmers by Extension Staff

and regular contact with agricultural value chain actors either physically or virtually. Such contacts enable the extension staff to be available for technical backstopping

on technologies or innovations disseminated at early, progressing and finally stages of the process of those technologies. Adequate mobility and knowledge capacity of extension staff on farm practices are needful for productive contacts.

Figure 5 reflects the field situation on frequency of extension contacts with farmers. The contact method in Liberia is by physical interaction or phone calls. A larger proportion (40%) of extension staff rarely have contact with farmers due to lack of mobility for such contacts; while 35% are able to make contact once in a month. These two categories are the public service extension staff consisting of the CACs and the DAOs. Most of the contact with individual farmers are however informal, either by phone calls or visits to their offices by the farmers. The 25% that make weekly contact with farmers

Table 6: Familiarity of Extension Staff with Extension Approaches*

S/No.	Extension Methodology	Frequency	Percentage
1	Training of Trainers	15	75
2	Farm Visits and Advisory Services	14	70
3	Farmers' Field (Agribusiness) School	10	50
4	Participatory Approach	9	45

Note - Multiple Responses

Table 7: Frequency of Extension Meetings in the Project Counties*

S/No.	Activity	Once Yearly	Twice Yearly	Rarely	Never	Total
1.	Technology Review Meetings	8 (40)	-	7 (35)	5 (25)	20
2	Planning and Review Meeting	10 (50)	-	5 (25)	5 (25)	20
3	Quarterly Review Meetings	5 (25)	5 (25)	8 (40)	2 (10)	20
4	Steering Committee Meeting	12 (60)	2 (10)	3 (15)	3 (15)	20
5	Training Sessions	12 (60)	-	5 (25)	3 (15)	20
6	Monitoring and Supervisory Visit	9 (45)	5 (25)	6 (30)	-	20

Note - Figures in parenthesis are percentages *Multiple Responses

are the AfricaRice FPs each of which are motivated with bike for regular contact with IRFFS project beneficiaries.

Existing Extension Approaches and Frequency of Extension Meetings: Extension approaches are the stepwise methods used in building the capacities of extension staff for effective service delivery to producers and other value chain actors. An approach that is effective must be easy to understand and operate at both ends of extension and clientele. In a pluralistic extension system, different methods are often used depending on suitability for a commodity, although the outcomes must meet the overall goal of extension and advisory service.

Making the transition to demand-driven and participatory models, based on farmer-led priority setting, hands-on and demonstration- based teaching and peer-to-peer learning, has proven difficult for the Liberian MOA [2, 11]. Efforts to modernize extension in post-conflict Liberia also include broadening the focus on production to include a full value chain approach [12,13]. Market-driven extension was included as a priority of the MOA's 2018 Policy [9].

Majority of the respondents are familiar with the training of trainers (75%) and farm visits and advisory services (70%). Farmers' field (agribusiness) school and participatory approach are also in practice in Liberia (Table 6).

In extension system, regular/schedule meeting are expected to take place to assess and review progress of activities to re-strategize on tackling challenges. Table 7 shows the frequency of extension meetings in the project counties as indicated by respondents. Most of the meetings rarely hold or are held once in a year.

NGOs and Private Organizations in Agricultural Extension in Project Counties: NGOs operate in Liberia

mainly to support the Government effort in providing extension and advisory services to the largest possible number of farmers in the country. In 2009, it was estimated that about 60 local and international NGOs assisted farmers through funded projects in different counties and districts. By 2013, it was estimated that there were more than 1,000 NGOs in the country, making it roughly one NGO per 4,000 Liberian citizens. However, out of this huge number, only about 200 were in operation promoting the development of agricultural commodities in different counties [6].

Cultural Barriers and Attitudinal Disposition to Women in Extension Service: Women play key roles in Liberian agriculture sector as producers, processors, and marketers. It is therefore necessary to fully support the inclusion of gender issues in all aspects of extension service, taking into consideration the unique needs of women farmers. Extension services are still largely male dominated, both in terms of recipients and providers. It is necessary to ensure that women farmers receive information relevant to their agricultural work, particularly with reference to crops, livestock, fisheries, and post-harvest technologies. Developing the capacities of women in decision-making in the context of farm and home management and family health as well as on agricultural marketing, particularly with respect to post-harvest processing, on farm value addition, and market requirements/demand is expected since they dominate the agricultural value chain in Liberia [14].

The study probe into the attitudinal disposition on extension service to women farmers in the project counties (Table 8). Ninety percent (90%) of respondents affirm the inadequate number of female extension staff. Majority of the respondents (65%) opined that there are no cultural barriers in relating with women by male

Table 8: Perception on obstacles in Extension Service to Women Farmers

S/No.	Factor	Yes	No	Total
1	Inadequate number of female extension staff	18 (90)	2 (10)	20
2	Cultural barriers in relating with women by male extension staff	7 (35)	13 (65)	20
3	Wrong attitude towards women value chain actors by male extension staff	6 (30)	14 (70)	20

Note - Values in parentheses are percentages

Table 9: Challenges to Effective Extension Service Delivery in the Project Counties*

S/No.	Challenges	Frequency	Percentages
1	No adequate exposure to agriculture innovation system	20	100
2	Inadequate extension staff	18	90
3	Lack of regular agric. extension meetings	18	90
4	Transportation problem/bad road condition	17	85
5	Lack of job motivation for extension activities	17	85
6	Inadequate salary	17	85
7	Inability to facilitate market for producers	16	80
8	High cost of gasoline and fuel for regular visitation	16	80
9	Lack of mobility/poor logistics	15	75
10	Unwillingness of farmers to work in groups (FBOs)	15	75
11	No regular in-service training for staff	15	75
12	Poor communication network	13	65
13	In adequate training materials	13	65
14	Unwillingness of farmers to adopt new technologies	10	50

*Multiple responses

Table 10: Knowledge of the Concept of Agricultural Innovation System by Extension staff

S/No.	Factor	Response	
		Yes	No
1	Have knowledge of the concept of agricultural innovation system	3 (15)	17 (85)
2	Desired to be trained on agricultural innovation system	20 (100)	0

Note - Values in parentheses are percentages

extension staff and 70% were also of the opinion that there is no wrong attitude towards women value chain actors by male extension staff.

Operational Challenges and Training Needs of Extension Staff:

Challenges in Extension Service Delivery: A liturgy of operational challenges is associated with extension and advisory services in the project counties which reflect the national operational challenges in the extension system in Liberia. Challenges afford opportunities in all sectors of an economy, when properly handled. All the itemized challenges are critical and should as much as possible be prioritized for solution (Table 9).

Knowledge of Extension Officers on Concept of Agricultural Innovation System: Farmers, agri-business, and service providers must innovate continuously to adapt to an ever-changing environment (including markets, climate, and resources). Innovation is about putting ideas that are new to a certain location into practice, and in this way changing the situation of those living in this area for the better. These “ideas” can be a

new way of good agricultural practices (i.e., a technology), a new way of organizing women farmers to bulk their produce (i.e., an organizational innovation), or a new policy that supports smallholders in getting bank loans (i.e., an institutional innovation). In agriculture, innovation often involves a combination of these different types of changes.

Although the concept of agricultural innovation system is a recent development globally, it simply expanded the focus on value chain actors to an all-inclusive stakeholder in a commodity cycle or agricultural sector. Such stakeholders like input dealers, producers, processors, marketers, transporters, consumers, community leaders, the press, CSOs, NGOs, research, extension, policy makers, financial institutions, quality control agencies, export regulatory agencies, security agencies etc.; are brought into a platform for decisions on a commodity’s development for mutual benefits of stakeholders.

Only 15% of the respondents have knowledge on agricultural innovation system and all (100%) desired to be trained on innovation platform establishment and operations (Table 10). Since extension service providers work closely with most stakeholders in agriculture sector,

Table 11: Training Needs of Extension Staff*

S/No.	Subject	Frequency	Percentage
1	Climate Smart Agriculture Practices	20	100
2	Modern Extension Methodologies	18	90
3	Rice Production, Processing and Marketing	18	90
4	Cassava Production, Processing and Marketing	16	80
5	Extension Service Delivery	15	75
6	Vegetable Production and Management	15	75
7	Livestock Production, Processing and Marketing	12	60
8	Agribusiness and Record Keeping	12	60
9	Soil Testing and Analysis	12	60
10	Fish Production, Processing and Marketing	10	50
11	Market Research and Facilitation	10	50
12	Fish Feed Formulation, Production and Management	8	40
13	Livestock Health Management	8	40

* Multiple Responses

Table 12: Recommendations for Effective Extension Service Delivery

S/No.	Recommendation	Frequency	Percentage
1	More budgetary allocation to fund extension service	20	100
2	Good pay and enhanced morale of staff	20	100
3	Adequate mobility to facilitate contacts with farmers	20	100
4	Need for employment of more specialist manpower	19	95
5	Regular trainings to update knowledge	19	95
6	More conducive office environment	18	90

they are often trained as facilitators of such platform whether physical, virtual or hybrid.

Training Needs: The global new extensionist learning kit produced by the Global Forum for Rural Advisory Services (GFRAS), provide for consistency of formal and informal training for AEAS service provider in other to meet up with the speed of knowledge discoveries with advances in technology [15]. It is therefore important for extension officers to have broader knowledge on agriculture and cross-cutting issues. This will improve their competencies, skills, and job performances with remarkable outcomes for the clientele and stakeholders in general. The training needs of the respondents are shown in Table 11. Capacity building on climate smart agricultural practices is highly prioritized by all (100%) the participants. Other important training needs as indicated by 90% of respondents are modern extension methodologies, rice production, processing and marketing, and cassava production, processing, and marketing.

RECOMMENDATIONS AND CONCLUSION

Recommendations proffered by respondents for the overall improvement of extension service in the project counties are spelt out in Table 12. The issues of proper

funding, enhanced pay and provision of adequate mobility were very paramount to the respondents among others that are also critical needs.

CONCLUSION

The study has shown the state of agricultural extension and advisory services in the IRFFS project counties in Liberia, which reflects the national situation. The institutional capacity is weak and staff morale, is very low. Public sector service providers under the MOA have many challenges that are crippling the capacity of extension staff to deliver ranging from dearth of specialist staff, high farmers to extension staff ratio, poor motivation, ill-equipped offices, and lack of mobility to cover assigned districts. Developing partners like Africa Rice and NGOs involved in extension services in projects being implemented have more success stories than the public sector staff because of better funding and better motivation for such staff.

The gaps identified and the training needs of the extension staff as documented in this study call for continuous capacity building of their knowledge and skills because the onus of responsibility is mainly upon the public sector extension staff to provide services after a donor project ceases operation. Strengthening the capacity of local institutions for extension services will

therefore allow more effective and sustained agricultural development in Liberia.

Policy Implications: Identified policy implications from findings of the study are the following:

- i. Dearth of specialist staff are noticeable generally in agricultural extension service in the project counties but more especially in animal production, animal health, fisheries, and aquaculture. Attention must therefore be paid to recruiting more qualified staff in livestock and fisheries production.
- ii. Capacities of the extension officers need enhancement for effective service delivery for IRFFS beneficiaries on rice and fish value chains and climate smart agriculture so that the target outcomes of the project can be achieved with possibility of scaling up nationally in future to other counties that are not directly benefiting.
- iii. Poor extension contact implies the need for employment of more staff to cover each district in the counties, and regular training of extension staff with good motivation for work. This also calls for employment of more female extension staff to attend to peculiar needs of female farmers.
- iv. There is need to train extension staff on establishment and operation of multi-stakeholders' innovation platform. Within the IRFFS project content, the training has been developed and both the MOA extension staff and the Africa Rice Focal Persons in the project counties were trained on management of the platform at community, county, and national levels.
- v. Operational challenges are many and varied. Without concrete attempt in handling most of these challenges, agricultural extension and advisory service in Liberia will continue crawling without meeting the needs of the stakeholders for which it is meant to serve. Fortunately, the draft agricultural extension and advisory services (AEAS) Policy Document for Liberia reviewed and updated by a group of experts in an FAO brainstorming workshop in 2022 prioritized most of these challenges for action. It is hoped that the draft policy will be validated and operationalized with adequate legal backing without delay.
- vi. There is need for continuous training of extension staff through designed packages to enable effective discharge of their services to the value chain actors to enable the up scaling of the integrated rice-fish farming system in Liberia.

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