

Concepts, operationalization and impacts of the agricultural technology and information response initiative in Coastal Kenya: Lessons based on realities, possibilities and potentials

M. K. Danda and K. K. Lewa

Kenya Agricultural Research Institute – Mtwapa, P. O. Box 16 - 80109
Mtwapa, Kenya

Abstract

Agricultural technology and information initiative is a national undertaking formed and implemented by the Kenya Agricultural Research Institute (KARI) to catalyze the process of technology awareness, demand, diffusion and client responses. Key issues addressed are food security, poverty reduction and sustainable use of natural resources. The programme was managed by steering committees at national and regional levels and targeted farmer empowerment on a learning and information sharing principle through group approaches thereby maximizing on the multiplier effect of groups. Stakeholder awareness on the application for facilitation/funds procedures was the initial step towards the establishment of partnerships. In coastal Kenya the programme attracted over 119 applications in four years requesting for exposure to various agricultural technologies. Due to resource limitations particularly funds and low staff strength of the biophysical backstopping research scientists among others, only 24 applications/groups were funded against 29 technologies they requested for. The initiative enhanced direct contact to 627 farmers (410 women and 217 males). Lessons from the researcher-extension-farmer partnership included gender bias to the group approach and technologies, increased stakeholder collaboration, closer researcher-extension service contact, increased use of recommended farm inputs and increased farm yields of up to three times the yield before ATIRI intervention and creation of employment opportunities at farm level. A stakeholders survey done at the end of the first phase targeted widening of partnerships in the next phase in order to improve service delivery, food and non-food farm output, household incomes and living standards. The programme targets more friendly strategies to stimulate even hired demands and sharing of knowledge and information in its second phase.

Key words: Stakeholders, partnership and collaboration, programme, technologies.

Introduction

The Agricultural Technology and Information Initiative (ATIRI) is a purposive making of the Kenya Agricultural Research Institute (KARI) in realization of the declining agricultural production and rising poverty levels despite the enormous investment in research and extension. Agricultural production had been stagnant for sometime with worsening indicators of food insecurity and poverty. The incidence of rural poverty had increased from 48% in 1992 to 53% and 56% in 1997 and 2000 respectively. Growth in agricultural production declined from 6.8% to 2.4% in 1977 and 2000 respectively. One of the reasons cited for the decline was lack of appropriate technologies in the hands of farmers to allow them to increase production and incomes (Gustafson 2004). Being the only public body charged with the responsibility of developing agricultural technologies, KARI bore direct responsibility to see that those technologies reach the end users in the manner that would demonstrate their relevance in terms of quality and the resultant impact on the livelihoods of the end users. In the recent past, KARI

increased its contacts with clients through shifting its adaptive research activities on-farm and through intensifying partnerships with various stakeholders. Such partnerships have served to heighten the relevance of KARI's research programme and induced greater responsiveness to the practical issues facing farmers, resulting to an increase in field-tested recommendations. However, the coverage was still limited and relatively very few of the improved methods had spread beyond the confines of the communities that were the focus of the intensive on-farm activities. This limited coverage and low impact was largely attributed to among other reasons the weaknesses of the extension service delivery systems and particularly dissemination of the developed technologies. This led to proposals to merge KARI and agricultural extension or otherwise to give more responsibility to KARI for dissemination of its results/technologies (Gustafson 2004). ATIRI then was formed in year 2000 with a primary context that Kenya's research is of adaptive nature on the realization of the country's immense agro-ecological and cultural variations and therefore cannot be adequately represented by even a very extensive network

of research stations (KARI 2000). The initiative was based on a model of lessons learnt from the Farmer Field School (FFS) approach that provided direct learning grants to farmer groups (Gustafson 2004).

The ATIRI Concept

The pivotal concept that KARI believed in was that ATIRI was the correct vessel towards *scaling up* technologies that are already on-shelf and those that are being developed. Like adoption, technology up scaling is a process with stages that are not isolated but are in form of a continuum. However, of all stages, KARI believed through ATIRI that there was need for community empowerment towards making demands for technologies, evaluate the technologies and provide feedback (response). The premise of “*a single player hardly wins*” was one of the basic concepts that ATIRI had as an in-built component. ATIRI therefore, was designed to recognize that different stakeholders had significant roles in the scaling up process. The stakeholders could be at various levels and included the parent Ministries of Agriculture and those of Livestock and Co-operative Development (MoA, MoL&FD and MoCD), Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs). These different stakeholders were inter-changeably referred to as intermediary organizations since they formed basic linkages between recipient farmer groups and KARI’s ATIRI (Figure 1)

The overall mission of KARI is to contribute to the achievement of the National Agricultural Research Programme 11 (NARP 11) goals of food security, reduced poverty and sustainable natural resource management. ATIRI on the other hand was designed to improve farmers’ ability to make demands on agricultural service providers and to enhance partnership with intermediary organizations and farmers’ groups in meeting the knowledge needs of their clients and members. A second objective that ATIRI sought to address was to test new approaches to the rapid scaling up of promising technologies.

The initiative was designed with a primary recognition of the farmer/end-user characteristic thereby creating room for a wider flexibility for social and economic variations and consciousness for resource scarcity. This consciousness prompted ATIRI to have to adopt a group approach thereby encouraging farmers to identify and prioritize their technological problems and make demands through their inter-mediary organisations for access to learning grants. As a principal objective, farmer empowerment to catalyze technology dissemination through peer process (farmer-to-farmer visits and open days) was also in-built in the initiative thereby enabling farm communities to enjoy the advantages of the group multiplier effect (Heinrich, 1993). Monitoring and evaluation (M&E) processes were also given emphasis through visits and subject specific reports. Recognition of existing knowledge systems and farm level innovators was also given priority for cost-effectiveness and sustainability.

Materials and Methods

Operationalization of ATIRI

KARI considered ATIRI as experimental and therefore set to operate in some nine (9) pilot centers. An operational framework was designed with an in-built decentralized management structures that provided for close linkage and continuity from KARI’s headquarter level to the various centres. These structures were in form of steering committees and secretariats. Hence, the National Steering Committee (NSC) and National Secretariat (NS) were based at headquarter level while at centre level existed the Regional Steering Committees (RSC) and Centre Secretariats (CS). The NSC and RSCs were endowed with defined roles and responsibilities to represent the interests of the KARI Director General and the respective Centre Directors during their official deliberations.

The NSC’s responsibilities included ensuring among others the following;

- that funded proposals were in line with the overall aims, objectives and guidelines of ATIRI.
- that all parties followed to the laid down procedures for project execution and disbursement procedures of funds
- that proposals upheld capacity building and enhance partnership but do not induce undue dependency
- that issues arising from any of the stakeholders were addressed and
- that there was regular monitoring and evaluation of procedures and activities supported by ATIRI and that on the basis of feedback improvements were made to the programme.

On the other hand, the RSC also had a set of responsibilities as listed below;

- Review all proposals submitted for ATIRI funding and make recommendations to the Centre Director,
- assist in mobilizing financial resources,
- oversee the implementation of projected activities in their mandate areas,
- monitor and evaluate procedures and recommended actions to be taken on the recommendations of monitoring reports,
- receive progress reports from all funded activities and
- submit regular project reports to the NSC.

At the National level, a small management team referred to as a National Steering Committee Secretariat (NSCS) was established to do the following duties; drafting of guidelines, drawing work-plans and budgets, develop a management information system, monitoring progress and reporting to the NSC, responding to requests from participating centres and designing and managing the implementation of cross-cutting activities such as capacity building. At centre level, the secretariat was also established and was responsible for receiving proposals, wide-spread information delivery to stakeholders, organizing meetings and planning for cross-cutting activities such as capacity building for all stakeholders and clients (KARI 2000a). Important to note is that both the NSC and RSC chairmanship

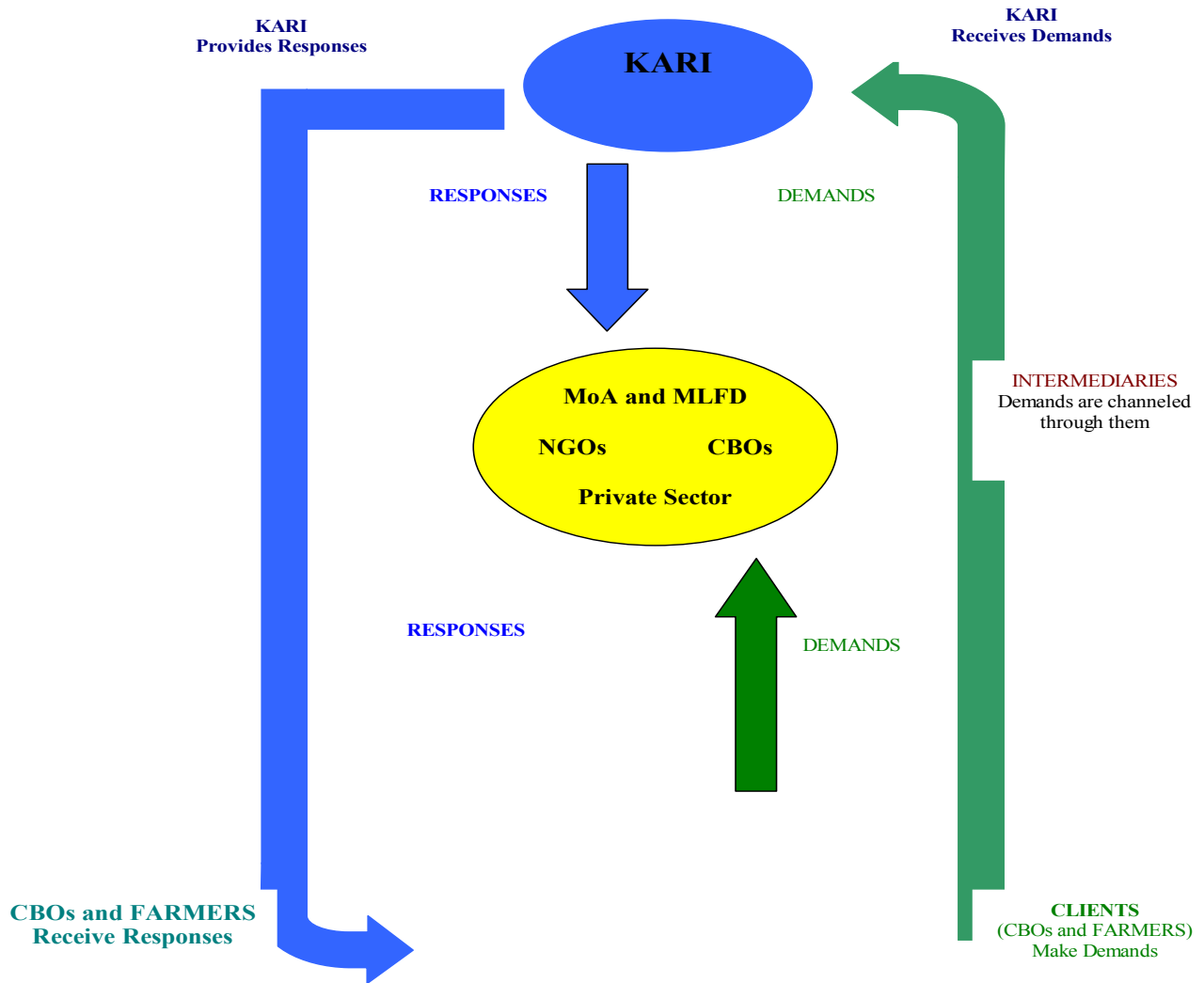


Figure 1. ATIRI - Conceptual Framework

was designated for non-civil service members, a feature which demonstrated how much KARI and the Ministry of Agriculture and Rural Development (MoARD) (then) accorded the private sector and NGO community a greater role in agricultural technology dissemination. The RSC was composed of 13 members for the case of coastal Kenya (KARI, 2000).

At group (client) level, ATIRI's operations were all based on proposal development. The proposals would therefore identify technology learning needs and then develop a periodic action plan and budget with the help of their intermediary organizations (NGOs, umbrella CBOs, extension agencies, religious organizations). Completed proposals (also called application forms) were received by the secretariat after review by the inter-mediaries.

On receipt of the proposals at centre level, the secretariat identified the support scientists or back-stopping scientists to evaluate all proposals related to their profession/ research for review in terms of content and quality thereby looking at the rationale, objectives, work plan and budget of the same.

On receiving a considerable number of the proposals, and based on the need to utilize the season, for example at on-set of rains, an RSC meeting was convened to review all the proposal based on conformity to a national criteria which evaluated seven areas namely, relevance to ATIRI objectives, innovativeness, institutional feasibility, synergies with other projects, expected impact, cost-effectiveness and sustainability of the proposed activity. Each proposal was independently scored by each member of the committee and an average was determined for each attribute/variable. All the variable scores were to add to 100. The total for all the variables for each proposal was then determined and all proposals that scored above 50% were recommended to the Centre Director for onward transmission to the NSC for further review and possible funding. In coastal Kenya, a total of 119 proposals were received and 24 of them qualified to receive the learning grants between years 2000 and 2003.

Following funding of the proposals, site inspection was done to verify existence of the group and a stock of any listed assets or property that was to complement the group's project.

Site inspection also facilitated identification of the need for capacity building in special areas related to the project implementation. Back-stopping scientists together with front-line extension service providers and group representatives then converged to up-date workplans so as to capture a schedule of crucial activities, required inputs, itinerary of visits. The RSC and its secretariat had many other responsibilities that resulted in the success of the initiative. Such included periodic monitoring, capacity building in project management and group dynamics, establishing base-lines and desired milestones and stakeholders' analysis.

Results and discussion

Achievements of the Initiative in the Region

The initiative realized some considerable achievements at various levels as shown in Table 1. However, only the very remarkable achievements were selected. Notably, the centers that realized these achievements became centres of attraction to other groups and hence became learning tools to other groups and individual farmers (Lewa *et al.*, 2004). Achievements were made at research, extension level and at individual group level.

Impacts of the Initiative in the Region

In a practical perspective, the initiative went on-farm for only two and a half years (2.5) in the region. This is a period which can not guarantee community level project impact but rather realizing outputs and outcomes. However, extrapolation of the experiences thereof would guarantee us to discuss the same at impact level. For this purpose therefore, determination of these outcomes' impacts' was based on tracking two major tools, the groups' work/action plans and the established benchmarks. The tools were therefore able to give the farm level outputs and outcomes and their respective indicators along with the various activities across the project period, the key players for every activity or sub-activity and the expected output with in-built social, technical and economic dimensions and milestones (Table 2). The social components included such activities as meetings at various levels, farmer-to-farmer exchange visits and field and/or open days while on the technical dimension, visits by technical resource persons, special learning sessions (as of the farmer field schools (FFS)) which were very instrumental. The technical and economic components were demonstrated when conventional methods of agriculture were compared with scientific research recommendations. Notably, the design of the initiative made a remarkable outcomes through stimulating awareness that made farmers to make demands for learning different technologies. Of the 24 funded groups some remarkable impacts reported are summarized in table 2.

Operational Constraints

The inception of ATIRI was received with mixed reactions at different levels which in one way or another influenced service delivery at farm level. At the research level, constraints emerged during partnership building where stakeholders shied off from meetings that were to define the design of the initiative and its operational strategy. There was general misunderstanding particularly from extension service providers and development agencies that ATIRI was a take-over strategy of the extension docket by KARI. Also on the same argument was that KARI was conflicting the reversal strategy of issuing hand-outs to farmers in form of inputs. At farmers' level, ATIRI's concept was not well received as focusing on long term technology technology transfer but rather addressing short-term farmers' financial limitations that were to address household short-term obligations. Other groups looked at ATIRI as a funding agency through which their business motives could be addressed and therefore raised huge budget proposals that included investment costs.

Within KARI and at center level, the initiative meant more work to the secretariat and to the research team in form of backstopping services. There was no extra reward for the extra input that the initiative required for its success. Finally, at group level the initiative's accounting procedures and requirements seemed unfriendly thereby leading to delays in accounting for the funds accessed by the groups.

Lessons Learnt

A number of lessons were learnt over the pilot phase that ATIRI was implemented in coastal Kenya. These are summarized in table 3 based on realities, possibilities and potentials. The realities are what observations emerged over the operational period while the possibilities are the expected features that are likely to be experienced given the present situation. On the other hand, the potentials are what will need to be done or likely to happen based on the capacities of the different players of the initiative.

Conclusion

From the lessons learnt at the different levels, group approaches demonstrated their ability to enhance technology transfer and general information sharing through the peer-based multiplier effect. The aspect of cost-effectiveness was clearly demonstrated through the group learning process as opposed to farmer-to-farmer visits by extension service providers. The initiative also enhanced stakeholder collaboration as is emphasized by KARI's strategic plan. Operational constraints observed provide a challenge through which KARI should view as a feedback for further reflection and fine-tuning of ATIRI's design for future success (KARIb). As KARI prepares itself for the Kenya Agricultural Productivity Project (KAPP), ATIRI experiences and lessons need to be incorporated for a better ATIRI or ATIRI-like undertaking for increased technology transfer and impact at farm level.

Table 1. Summary of the Initiative's Remarkable Achievements for selected CBOs

Level at which achievement was observed	Technology requested	Major Achievement
Research (Centre level)	N/A	<ul style="list-style-type: none"> ❖ Extensive awareness of the existence of technologies as demonstrated by farmer groups through the 119 applications for learning grants ❖ Direct interaction with (610) farmers through group approach over 3 years pilot period ❖ 3 major capacity building workshops for farmers and stakeholders held ❖ Enhanced collaboration with stakeholders ❖ More (23) stakeholders identified and capacities documented through an extensive stakeholders' survey
Extension providers' level	N/A	<ul style="list-style-type: none"> ❖ Closer farmer contact of up to 2 times a week ❖ Enhanced capacity in group dynamics
Selected individual groups level	Jirani Farmers' Club In Kilifi District (F=20, M=6)	<p>Capacity building in various areas of agricultural concern</p> <ul style="list-style-type: none"> ❖ Visited other farmer groups in Makueni district and were exposed to different group management strategies and challenges ❖ Milk yield increased from 7 to 12 litres a day a cow ❖ Milk processing (to yoghurt) skills acquired ❖ Trained other 2 groups they formed ❖ Established a participatory monitoring system to keep track with individual members performance
	Mpendakula Women Group in Kilifi district (F=40, M=5)	<p>Improved dairy husbandry</p> <ul style="list-style-type: none"> ❖ Learnt forage production and conservation technologies ❖ Visited other dairy farmers in Central Kenya ❖ Increased milk yield from 8 to 16 litres per cow per day ❖ Trained 200 farmers from 6 groups at a fee of K20/- a person ❖ Learnt formulation of a home made dairy meal from which they generated over K30,000/-
	Zowerani FFS in Kilifi district (F=19, M=5)	<p>Maize and vegetable production technologies</p> <ul style="list-style-type: none"> ❖ Increased maize yield from 8 to 18 bags per acre ❖ Vegetable production and preservation skills were acquired and are in practice ❖ The FFS established a tree nursery with over 2,000 seedlings ❖ The group formed 46 farmer-led FFSs
	Mkongo FFS in Kilifi district (F=12, M=13)	<p>Maize and Cowpea production technologies</p> <ul style="list-style-type: none"> ❖ Increased maize yields from 6 bags to 12 bags per acre ❖ Cowpea yields increased from one bag to 4 bags per acre ❖ Maize sales from the group's learning plot raised income for purchase on inputs for farther learning and demonstration to other farmers ❖ The group formed 2 other farmer-led FFSs
	Tumaini Women Group in Kilifi district (F=31, M=3)	<p>In Kilifi district Dairy production (use of a bull for uo-grading)</p> <ul style="list-style-type: none"> ❖ Acquisition of grade bull ❖ Members up-graded their animals ❖ 35 non-members accessed the bull's service at a cost (Ksh. 200/- per cow)
	Jaribuni Women Group in Mombasa district (F=13)	<p>Ox-ploughing and maize and sweet potato production</p> <ul style="list-style-type: none"> ❖ Acquired skills in using oxen for ploughing ❖ Members benefited from subsidized ploughing rates of K800/- instead of K1,200/- for non-members ❖ Raised income from ploughing 20 acres for non-members
	Shanzu AIC Group in Mombasa district (F=2, M=11)	<p>Cut-flowers production (Anthurium)</p> <ul style="list-style-type: none"> ❖ Weekly sales of 200 cut-flowers @ Ksh. 30/- ❖ The group trained two other groups interested in growing cut flowers
	Bofu Maskani in Mobasa district (M=29)	<p>Vegetable and banana production</p> <ul style="list-style-type: none"> ❖ Once a group of thugs, the members were transformed to an economically viable group ❖ Sales from vegetables and bananas earned the group over K60,000/-
	ACK Dabaso Youth for Christ in Malindi district (F=9, M=13)	<p>Cashew improvement and processing</p> <ul style="list-style-type: none"> ❖ Sprayed 527 trees @ K100/- ❖ Cashew-nut yields increased from 5-8 kg to 15-58 kg per tree ❖ Trained farmers in cashew spraying to control powdery mildew ❖ Processed 900 kg of cashew-nut a day ❖ Generated self employment for the group members
	Maeleano Dabaso Women Group in Malindi district (F=32)	<p>Improved dairy husbandry and milk processing</p> <ul style="list-style-type: none"> ❖ Each member established one acre of Napier grass ❖ Milk yield increased from 4 litres to 11 litres a cow a day ❖ The group learnt milk processing and packaging and sold a packet @ K30/= ❖ The group acquired a milk cooler ❖ Other groups were trained on dairy husbandry
	Shaza Women Group in Kwale District (F=24)	<p>Ox-ploughing for improved rice production</p> <ul style="list-style-type: none"> ❖ Acquired skills in using oxen for ploughing ❖ The CBO increased its acreage under rice from 0.125 asres to 7 acres and oxen from 2 to 8 ❖ Use of animal manure increased rice yields to almost twice the previous yields ❖ Members benefited from subsidized ploughing rates of K800/- instead of K1,200/- for non-members ❖ The CBO employed 2 people ❖ Raised income from ploughing 46 acres for non-members ❖ Three groups were trained on use of oxen and manure for rice production

Table 2. Impacts of ATIRI initiative in Coastal lowland Kenya

Level at which impact was realized	Type of Observed Impact		
	Social	Technical	Economic
Research (Centre level)	<ul style="list-style-type: none"> -Direct contact with 610 group members in 24 groups -Enhanced exposure of researchers to farmers' conditions -Enhanced interaction with farm communities -Increased learning visits by farmers 	<ul style="list-style-type: none"> -Total of 16 technologies shared with groups -Researcher-Farmer contact enhanced through back-stopping visits -Enhanced stakeholder collaboration realized -More work for back-stopping scientists -Instrumental in up-scaling and out-scaling of technologies through the multiplier effect. 	<ul style="list-style-type: none"> -Over KSh2.5 m was disbursed to farmer groups -Cost-effective dissemination pathways used (FFS and self help groups) -Catalyzed the rate of growth of agricultural production in the region -Instrumental in increasing Gross domestic product (GDP) contribution by the agricultural sector.
Extension service providers	<ul style="list-style-type: none"> -Enhanced farmer contact (up to 4 times a week a group) -There was enhanced understanding of the farmers' circumstances and the much needed role of the extension service -The diminished trust on extension service by farmers was re-introduced -Enhanced understanding in project management and group dynamics -Enhanced interaction with other farmer groups -Groups effectively compared their capacities with other groups and in turn gained more confidence in their deliberations -52 new groups were formed (including FFSs) through peer influence 	<ul style="list-style-type: none"> -The initiative was initially misunderstood as a take-over strategy of the extension service docket from the Ministry of Agriculture -Collaboration with researchers helped improve their technical capacity -Farmer visits became more objective -Farmers through groups prioritized their agricultural constraints, identified potential areas of intervention and who could address those constraints -Technical aspects learned through the various training methods used. -Adoption of the technologies was observed (up to 75 % of the group members) -51 field demonstrations were held and attended by 3417 other farmers (F=2302 and m=1115) - Graduating groups particularly the FFSs became instrumental in teaching/training other groups -Increased use of factor inputs such as improved seed, fertilizer, supplements and pesticides -Farm yields, processing and utilization was enhanced 	<ul style="list-style-type: none"> -Farmer visits became more cost-effective due to team work and provision of transport facilities -Per-capita output was enhanced.
Group level	<ul style="list-style-type: none"> -Enhanced understanding in project management and group dynamics -Enhanced interaction with other farmer groups -Groups effectively compared their capacities with other groups and in turn gained more confidence in their deliberations -52 new groups were formed (including FFSs) through peer influence 	<ul style="list-style-type: none"> -Farmers through groups prioritized their agricultural constraints, identified potential areas of intervention and who could address those constraints -Technical aspects learned through the various training methods used. -Adoption of the technologies was observed (up to 75 % of the group members) -51 field demonstrations were held and attended by 3417 other farmers (F=2302 and m=1115) - Graduating groups particularly the FFSs became instrumental in teaching/training other groups -Increased use of factor inputs such as improved seed, fertilizer, supplements and pesticides -Farm yields, processing and utilization was enhanced 	<ul style="list-style-type: none"> -Learning grants helped mobilise human resource and catalysed technology access to groups -Maize and rice yields were increased thereby reducing food deficits and re-directing savings to other economic activities -There was significant increase in milk yields and hence more money earned by households -Use of oxen for ploughing enhanced timely and large farm sizes and more income to groups (members paid KSh. 800/- per acre 1200/-) -There was easy access to farm inputs such as home made dairy meal (as processed by Mpendakula Women group) -Processing skills eased market problems for milk and cashew-nuts in Malindi and Kilifi
Community level	<ul style="list-style-type: none"> -Technology spill resulting to adoption -More agricultural interest groups were formed targeting learning grants 	<ul style="list-style-type: none"> -The research centre received recognition as an agricultural technology resource centre thereby experiencing increased farmer consultation -More farmers try out learned technologies 	<ul style="list-style-type: none"> -Increased mobility of factors of production and hence higher velocity of money and distribution to more hands

Table 3. Summary of lessons learnt over the implementation period

Levels at which lessons were learnt	Lessons based on		
	<i>Realities</i>	<i>Possibilities</i>	<i>Potentials</i>
Research	<ul style="list-style-type: none"> -ATIRI was the right vehicle for technology up-scaling and farmer empowerment -ATIRI concept was misunderstood by immediate stakeholders like extension service providers for a take-over strategy -Group approach enhanced quick spread of information on technologies -Farmers learnt best from their peers as they could compare capacities -KARI needed to widen its extent of collaboration to meet farmers' demands -Capacity building is an essential factor for project success 	<ul style="list-style-type: none"> -Clear concept and roles definition to stakeholders will be the basis for success of the next phase of ATIRI operation -More stakeholders will come on-board through ATIRI following the stakeholders survey and analysis 	<ul style="list-style-type: none"> -Farmers within farmer groups can develop friendly and effective technology dissemination pathways -KARI has the capacity to play the role of a convener in a stakeholders forum
Extension service providers and development agents	<ul style="list-style-type: none"> -Extension service providers can deliver excellent service with proper facilitation -ATIRI was misunderstood and seen to conflict the reversal strategy of giving farmers hand-outs -Some development agents shied off due to lack of using scientific methods in their approaches -Proposal writing capacity was very low hence minimal effective guidance was given to groups -There was need for training in special areas as proposal writing and group dynamics 	<ul style="list-style-type: none"> -Farmer groups will be assisted to come up with focused proposals that address the ATIRI concept with full guidance from the extension service providers 	<ul style="list-style-type: none"> -Good service delivery after full and positive understanding that ATIRI is not a take-over strategy
Groups	<ul style="list-style-type: none"> -Farmers can effectively prioritize their constraints -Farmer led action planning is sustainable -ATIRI intervention introduced a participatory monitoring and evaluation concept in groups' activities -Some groups misunderstood ATIRI objectives and concepts with their short term benefits 	<ul style="list-style-type: none"> -Farmers can be instrumental in technology up-scaling through formation and training of other interest groups -The initiative will not be able to cope with the demand for facilitation through learning grants given the growing number of interested groups 	<ul style="list-style-type: none"> -Farmers can initiate and run semi-formal credit schemes
Community	<ul style="list-style-type: none"> -The community appreciated the achievements realized by the groups 	<ul style="list-style-type: none"> -The demand for ATIRI intervention will increase -KARI will not have the 	<ul style="list-style-type: none"> -Innovative farmers can be brought on-board for widened partnership and

References

- Gustafson D. J., 2004. Supporting the demand for change: Recent project experiences with farmer learning grants in Kenya. Paper presented at a workshop on “Extension and Rural Development: A convergence of views on International Approaches” held In Washington DC –12th to 15th November 2002.
- Heinrich, G. M., 1993. Strengthening farmer participation through groups. Experience and lessons from Botswana. (OFCOR Discussion Paper No. 3) The Hague: International Service for National Agricultural Research (ISNAR).
- KARI 2000 a. ATIRI Booklet. Edited by G. M. Kamau, J. W. Ireri and I. W Kimani
- KARI., 2000b. KARI’s Strategic Plan 2000-2010.
- KARI., 2000c. Responding to Farmers’ knowledge demands: A KARI initiative for support under NARPII; Preliminary proposal prepared as part of the Mid Term Review of NARP 11 by representatives of KARI., 2004. The Mid term Review Team and KARI consultants
- Lewa K. and Danda, K., 2004. Summary of ATIRI activities at KARI – Mtwapa, prepared for the visiting ATIRI Review Mission 8th January 2004. Project internal report.