Developing a competitive and inclusive value chain in developing countries: Lesson learned from an ACIAR funded project in Pakistan.

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Introduction, context and description of the research

Pulses particularly chickpeas, lentils, and mung beans are among the most significant agrifood systems in Pakistan, well-suited to smallholder farming by both men and women. However, production has declined despite increasing prices and demand, largely due to the lower profitability of pulses compared to other crops, limited innovation, poor product quality for domestic consumers, and inadequate policy support. To address these challenges, the ACIAR (Australian Centre for International Agricultural Research) Pulses Value Chain project in Pakistan sought to transform the pulses industry by enhancing production, promoting value addition, and strengthening marketing systems, with a focus on improving outcomes for smallholder farmers.

The pro poor value chain approach adopted by ACIAR pulses project aimed at building six demonstration value chains involving large numbers of men and women smallholder pulses farmers. The project conducted hands-on activities to build the capacity of the farmers and other VC participants in project sites, involving 'walking the chain' activities, post-harvest handling workshops, training on storage, grading and sorting, and conducting trial shipments to identified markets. While some farmers took initiatives to adopt the best practices introduced by the project, there is limited evidence of scaling up of practices from demonstration scale to wider commercial scale at the end of four years of project activities. This is common in development initiatives. Often, when the capacity of smallholder farmers is built, their motivation and enhanced capabilities misalign with value chain building opportunities. So, the research problem revolves around identifying the best approach to smallholders' capacity building for value chain development. Expressed in practical terms, this problem requires research to identify how can we ensure that the project approach to capacity building is the right approach?

Successfully addressing the research problem means achieving the objective of understanding the factors that provide farmers with the ability and motivation to adopt value chain thinking and apply it to building demonstration value chains. This gives rise to research questions:

- How well were value chain concepts understood among the participant farmers and Farm Field Facilitators (FFFs)
- Whether they can apply the value chain concept in practice?
- What capacity building recommendations will improve the knowledge, skills and motivation of pulses farmers and other participants to successfully engage in demonstration value chain building initiatives.

Literature review

Over the last decade the main focus of development agencies is to develop pro-poor value chains that addresses the full range of activities (e.g. input supply, market-oriented technology development and its transfer, infrastructure development, credit**,** processing and marketing) in a coordinated manner rather than dealing with them in isolation (IFAD 2021, ACAIR 2015, ADB 2021, UNIDO 2016). These approaches are characterized by participatory learning, peer interaction, and exposure to real-world market conditions which demonstrate the benefits of working together (Ray et al. 2015). A common model of working together is by adopting a value chain framework (FAO 2014). Participatory approaches have significantly improved farmers' technical knowledge and skills to deal with opportunities arising in the market (Davis et al., 2012; Galtier et al., 2014).

Participatory learning is embedded in adult learning and the motivation for adults to learn stems from two sources, inadequate knowledge or inadequate capability to apply existing or new knowledge (Arbarini et al. 2024) or conceptual (technical) and operational (practical) knowledge and skills respectively (Knowles 2021). The style of learning that best suits adults is experiential learning (Knowles 2015). For learning to be effective a learning environment that is open, friendly and appreciating must be established between the participants and facilitators (Kong 2021, Arbarini 2024, Diana et al 2022). Kolb et al. (2000) claim that learning styles vary between individuals and therefore how participatory development program activities are designed and delivered will also impact on knowledge transfer and motivation to change behaviour, which varies from individual to individual especially when working in a group or cluster.

Among groups of farmers, Volerly and Macgregor (2009) posited that variation of motivation sometimes occurs due to dominance of lead farmers which results in relationships where smallholders have little say. They suggested that agricultural extension services providers could play an effective role in reducing the trust deficit among participants. However, their role should not be superficial and the success and sustainability of their involvement depends on open coordination and strong follow-up after a project finishes.

Despite the technical capacity building of stakeholders, IFAD (2021) found that remote location and disintegrated farmlands of the smallholders is another inhibiting factor to developing successful linkages with their end markets due to high transportation cost and poor services. UNIDO (2020) assumed that the private sector plays the leading role in overcoming issues of remoteness if they are convinced about the availability of desired quality in smallholders' products. However, it has been observed in a mango value chain project that small farmers who were close to high end urban markets were more motivated to develop sustainable linkages than farmers in remote areas (Mehdi et al. 2017). Some the main reasons of these successful long-term linkages are the frequent visits among the interacting partners and low transportation cost from farm to market. It is obvious that more cooperation and coordination will lead to stronger relationships among value chain actors, and this could lead to more robust and resilient value chains in Pakistan (ADB 2021).

Based on the literature review it can be summarised that successful participatory demonstration value chain approaches strongly depend on participants' motivation to change, and this resides within the members of the local community, whose ability to do their own appraisal and analysis must be included alongside expertise brought in from outside the community, such as by a project team. Innovative adaptations, localized solutions, and strong stakeholder involvement and coordination are the keys to success for developing and scaling up demonstration value chains.

Methodology and methods

The focus of this research is the evaluation of a specific development project that was implemented in a specific context over a specific period. The objectives of the evaluation, as described above, are to determine to what extent the activities undertaken as part of the ACIAR project were successful in improving value chain understanding among the farmers and field facilitators and what were the enablers and barriers associated with the application of this understanding to the DVCs lead by farmers. These features of the research suit the adoption of a case study methodology, which is largely qualitative in nature (Yin, 1994).

Patton (1990) identified credibility as a major issue in qualitative research. Janesick (1994 p. 216) describes credibility as involving description and explanation, and whether or not a given explanation fits a given description. Merriam (1998) asserts that credibility has its foundation in a research design that optimizes validity and reliability of the research outcomes. In this research validity and reliability are addressed by collecting data from multiple sources such as three farmer focus group at three different sites, field facilitators engaged in the project, and published reports concerning the project.

Patton (2002) argued that data used in qualitative case study research may be derived from a wide range of sources, but the most common are interviews, documents and personal observation and focus group studies. Semi-structured interviews were conducted with Farm Field Facilitators (FFFs) engaged in three sites of the project and three focus groups were conducted with farmers engaged in these sites including Lawa and Mankera from Punjab, KPK. Each focus group consisted of 15 farmers who had been involved for at least three years in project activities and three FFFs who were engaged by the project team from the farmer community.

Data Analysis

In qualitative analysis there is a strong emphasis on describing the world as it is or the situation perceived by different respondents or participants in particular context (Dey 1993). Therefore, the initial step in qualitative analysis is to develop a comprehensive description of the phenomenon under study which refers to as a thick description of the data. In this study, this initial thick description was achieved by breaking the interview and focus group data into short statements which reflected the individual respondent's and group perceptions of the relevant activities and their impact on knowledge, skills and behavior to develop DVCs. Connecting results to some meaningful outcome is the ultimate objective of a qualitative study. This connecting results to meaningful outcomes was conducted through reflection from data by the researcher.

Results and Discussion

The results are compiled around the three Research Questions?? objectives of the study as described in section 1.
The analysis of three focus groups indicated that the value chain understanding reflected benefits of accessing a specific market segment is in form of promising returns (20-30%) due to reduction in the wastage (Katcher, debris etc) and grading (6-7 mm in case of chickpea).

An important initial activity of the pulses project was the participatory "walking the chain" activity conducted in first year, 2019. This activity exposed participants to each element of a pulses value chain, starting from consumers and working back towards farmers. Each stage of the chain was examined by participants to understand how it created value, how that value was distributed within the chain and how information flowed between chain members. The aim was for farmer participants to learn what they could do to create value for consumers and other chain members, and how their efforts could/should be rewarded.

> *We observed clean and well graded chickpeas and other pulses in superstores (e.g. SB Faisalabad) which were prepared in their storage house by the women and packaging was done as per the store's need* (Small farmers in focus group 1)

Reactions of the lead farmer from the three focus group were also positive. These farmers had participated in other project activities such as on-farm workshops and trial shipments. Three factors summarise their overall positive responses.

- Their knowledge of alternative post-harvest practices such as cleaning, grading, storage and branding had increased. These are building blocks of value creation for end consumers.
- Their existing positive attitudes towards changing traditional postharvest practices had been strengthened and two of them agreed to buy pulses cleaning and grading machines on 50/50 cost sharing arrangement with the project.
- Their motivation had been raised by witnessing the rewards that could be achieved by adopting cleaning and grading machines, as one of the lead farmers developed new linkages for selling chickpeas at premium prices to retailers and wholesalers.

On the other hand, farmers who did not participate in the walking the chain activity but were members of farmer clusters (site 1, 2, 4) and had engaged in other project other activities such as field workshops, were unfamiliar with the market opportunities that other farmers had experienced firsthand by walking the chain. Nevertheless, they were convinced that being part of a cluster showed them the benefits of sorting and cleaning of pulses as desired by markets in Sargodha, Islamabad and Faisalabad. The participants at site 3 (Sindh) were entirely new farmers despite the facts it was asked time and again to the concerned Project team leader to engage the regular participants for focus group study.

Cleaning and grading practices were acknowledged by all the participants in each focus group and the skills needed to perform these improved practices were regarded as relatively simple and easily performed. Some of focus group 2 have tried best practices and got better prices in their villages but they showed little motivation to take their practices to greater scale as they had poor connection with the potential markets identified. It was expected that the lead farmer would play his role in pooling smallholder farmers' produce in the one place, but he had another reason not for doing this:

> *It is very difficult to bring produce from the other farmers in cluster at one place because they had different varieties and their quality is not uniform ….they also demand money immediately and I had to wait long from the customer* (Lead farmer one)

Inconsistent demand and delay in payments from commercial partners is a common characteristic of both traditional and improved value chains in Pakistan. To help address this problem, the project team facilitated a signed agreement between the lead farmers (Lead farmer 1) and a digital marketing firm (Concave Agri.) which have a well established business network across Pakistan. Concave Agri agreed to share market feedback with the farmers and fairly reward them based on the price they would receive from the end consumer. Despite multiple commercial trial shipments, the lead farmer was not convinced to capitalise on this opportunity.

> *…….due to demand of little volume and delay in payments by Concave Agri it is very difficult to continue my business with them* (Lead farmer 1).

Conversely, time and again Concave Agri registered their complaint to the project team that the farmer was unable to supply full orders for all kinds of pulses, and to supply them on time. The project team is of the view that the expectations of the Concave Agri were beyond the project scope, and they have talked to the lead farmer to supply other pulses and grain (wheat), if possible. This is the point where the project team misaligned project objectives with project activities. Giving an extra burden to a lead farmer without any control on the other products may lead to mistrust among the interacting parties, as was evident in this situation.

An alternate reason for failure to scale up might be giving multiple roles to lead farmers, such as giving lead farmer 1 responsibility for FFFs, organising machine operations, on-farm field workshops management, and trial shipments with multiple stakeholders (processor, wholesalers). These commitments impeded his ability to scale up his businesses with potential chain partners. The multiple tasks of lead farmers and limited engagement of other farmers in a cluster reduced the success of scaling up to capture business opportunities. However, his attitude to working with a new commercial partner identified from his own efforts was positive.

> *I have successfully built linkages with new superstores in my region .. Chashma Superstore.. and supplying regular consignments of chickpeas* (Lead Famer 1)

Similar outcomes were reported in the case of Bhakkar, where the lead farmer was convinced to supply trial shipments to a factory and wholesalers. He achieved some success, supplying one truck load to the factory, and has committed to work with the same factory in the coming season. However, he explained that demands of processors were very high in terms of wanting quantities that he could not meet by himself, but, like Lead Farmer 1, he was also concerned that wide variability in quality was a problem if he sourced from other farmers.as At the third site, focus group discussions provided little evidence of any commercial consignments, despite the fact that these farmers claimed to understand the benefits of cleaning and grading.

Based on the overall findings of three focus group discussions and FFF interviews, it was clear that knowledge and skills in post-harvest quality management were reinforced by market knowledge for those farmers who were directly engaged either in walking the chain activity or subsequent trial shipments and field workshops. Selling directly to retailers and wholesalers instead of being completely dependent on traditional marketing channels delivered benefits to lead farmers in focus group 1 and 2, up to the stage of trial consignments organised by the project. There has been limited success in scaling up demonstration value chains beyond preliminary trials. Participants indicated that the following inhibiting factors may be responsible.

- Little capacity of farmers to scale up under the leadership of lead farmers who exert dominance over them (Volerly and Macgregor 2009)
- High transportation costs due to remoteness of the villages (IFAD 2021).
- Expectations of the commercial partners that are beyond the project objectives e.g. demanding other pulses and other gradin machines that indicated poor coordination among the project team and participants (ADB 2021, UNIDO 2020)
- Lead farmers engaged in multiple assignments e.g. machine and workshop organisers, FFF and trial consignments were expectations beyond the capacity of a farmer and high expectations of the project team from a single farmer showed poor participatory effort to engage other farmers from a cluster (Davidson & Ahmad 2002; Roger 2003; Coutts et al. 2005)
- On-farm quality management workshops were mixed in with value chain development activities as a result of poor project management (ACIAR 2015)

Conclusion and Recommendations

This research indicates that a successful participatory value chain development project aimed to build demonstration value chains must have two critical components: knowledge and skills required and agreed to by participants; the delivery of knowledge and skills in such a way that motivates participants to transform their traditional practices. The first component of the project was met with some success as most of the participants understood the importance and benefits of cleaning and grading that is focused on meeting market needs. This level of value chain development knowledge was achieved. However, the application of this knowledge to improving

value chain practices was limited to a few lead farmers. Lack of adoption by other farmers was a major constraint to scaling up efforts. To address this problem, it is recommended that the planning and implementation of project activities must involve close and on-going collaboration and coordination with the farmers and commercial partners involved. The role of lead farmers is critical and engagement of multiple farmers is the essence of inclusive and scalable value chain development. However, assigning multiple roles to lead farmers introduces a level of complexity that can lead to problems for which amicable solutions may be hard to achieve.

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