



ELSEVIER



CrossMark

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

UMK Procedia 1 (2014) 57 – 62

UMK

Procedia

[www.elsevier.com/locate/procedia](http://www.elsevier.com/locate/procedia)

International Agribusiness Marketing Conference 2013, IAMC 2013, 22-23 October 2013, Kuala Lumpur, Selangor, Malaysia

## Effectiveness of a "whole of chain" approach in linking farmers to market: a case of Pakistan mango market

Mubashir Mehdi<sup>a,\*</sup>, Adnan Adeel<sup>a</sup>, Zahoor Ahmad<sup>b</sup>, M. Abdullah F. Hussain<sup>d</sup>

<sup>a</sup>University of Agriculture, Faisalabad, Pakistan, 36000

<sup>b</sup>University of Cambridge, UK

### Abstract

Mango is the second major fruit crop in Pakistan. The domestic retail market for mango in Pakistan is dominated by small retail shops, street hawkers, and road side stalls. The fruit sold in these retail outlets is prescribed by the traditional quality standards of size, appearance and price. However the growth of superior outlets/supermarkets chain especially in the major cities are setting additional quality standards such as blemish free, improved packaging, prestige, convenience to deliver premium quality mangoes. Similarly the export market is mainly targeted to the expatriate Pakistani consumers rather than quality conscious foreign consumers. This is because of inadequate market information and understanding all along the chain. A whole of chain approach is undertaken to improve the market understanding in an ACIAR project. Since the approach is new, a conceptual framework is developed in order to assess the effectiveness of the approach. The results indicate that the participants all along the chain would change their practices if they find the compelling reason to change in their existing businesses.

© 2014 Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Peer-review under responsibility of Universiti Malaysia Kelantan.

*Keywords:* supply chain management; experiential learning; a whole of chain; development project

### 1. Introduction

Pakistan is a country of 180 million people, two-thirds of whom reside in rural areas. The agricultural sector is one of the mainstays of Pakistan's economy, contributing 21 per cent of GDP, employing 45 per cent of the country's workforce, and being a major source of foreign exchange earnings (Government of Pakistan 2010). Mango (*Mangifera Indica*), commonly called 'king of fruits', is native to Southern Asia, especially Burma and Eastern India. The mango is considered a fruit of excellence, and thus has a prominent position among the commercial fruits grown in Pakistan. It is the second major fruit crop after citrus, with an annual production of around 1.72 million tonnes in 2008-09 (MinFAL 2010).

Marketing of mangos is mainly in private hands and the role of the public sector is confined to creating an enabling environment that may include the provision of physical infrastructure, regulatory measures, market intelligence and market promotion. Pakistani people are mango-loving consumers and 93% of the mangoes are consumed in the local market (Mehdi 2012). The domestic retail markets are dominated by small retail shops, street hawkers and road-side stalls. The fruit sold in these retail outlets is prescribed by the traditional quality standards of size and price which is mainly sourced from wholesale markets located in the cities. The wholesale markets are dominated by the traders such as contractors and commission agents who have main focus on volume sales because of associated incentives in form of commission. The main concerns of the traders is to sell out the volume as quickly as possible therefore drove the whole markets down by creating supply gluts in the wholesale markets

\* Corresponding author.

E-mail address: [mubashir\\_mehdi@hotmail.com](mailto:mubashir_mehdi@hotmail.com)

and ignoring the quality oriented supermarkets emerging rapidly in the big cities. Consequently, misappropriation of value by the traders through traditional quality standards is common in which the growers and the quality oriented consumers were the main victims.

In 2006, an initiative was taken to improve market understanding through involving all key stakeholders, growers, traders, retailers, in a demonstration project commissioned under the Australia Centre for International Agricultural Centre (ACIAR) Project. The ACAIR project built technical capacity among the commercial stakeholders all along the chain through a market oriented approach over a period of three years and the approach is known as a "whole of chain" approach. The main objective of the project was to demonstrate the benefits of premium quality at high end markets so as to modify the existing practices on improved market knowledge and skills at each level of the chain.

There is little evidence in the literature that provides the basis of assessing the effectiveness of a "whole of chain" approach in an industry development in developing countries. This study develop a conceptual framework to evaluate the effectiveness of a "whole of chain approach" in linking farmers to their market and the implication of the approach in transitional economies.

## 2. Review of literature

Maintaining reliable supplies of product that meets consumers increasing quality standards is one of the biggest challenges facing growers in the developing countries (Batt 2005; Murray-Prior et al. 2007; Shepherd 2007; Van der Vorst et al. 2007). Some critical issues in this regard are the lack of technical knowledge at the farm level in establishing and implementing quality management systems in connection to market needs and lack of infrastructure facilities from farm to market. These deficiencies inhibit efforts to improve the functioning of commodity chains (Batt et al. 2005; Murray-Prior et al. 2007; Van der Vorst et al. 2007).

Consequently, to address these problems the farm to market linkages approach which was previously focused on improving the productive capacity of rural producers in isolation needs to be revisited in a more holistic way to emphasize the interdependency of the on-farm activities and those further downstream in the marketing system (Shepherd 2007; World Bank 2010). The approach therefore have been conceptualized as 'learning and innovation network' or marketing network which holds production challenges 'inside' to the rural areas with opportunities 'outside' in the external environment or 'marketing' (Murdoch 2000; Packham et al. 2007; World Bank 2010). Companies located within these marketing clusters or networks would benefit from innovations, access to employees with the right skills and improved transparency (Porter 1998; Maropoulos et al. 2008).

Batt and Purchase (2004) supported the network approach in a supply chain management context and emphasized to build coordination among the enrolled entities on commonly identified issues so as to achieve a collaborative action based on trust and commitment. Dunne (2001) extended the arguments and declared supply chain management is a competitive strategy where businesses in a supply chain servicing a specific market segment, deliberately decide to cooperate with each other so as to improve their competitive position by enhancing the value they collectively create for their customers. Experiential learning in group of diversified stakeholders, therefore, has got prominent place in the development and extension project both in developed and developing countries (Packham et al. 2007). From a whole of chain perspective the composition of the participants involved is extended to include off-farm members of the marketing network in the ACIAR project (Collins et al. 2006).

Kolb (1984 p. 38) described experiential learning as 'the process whereby knowledge is created through the transformation of experiences'. He presented four critical dimension of experiential learning in a cyclic form- experience to reflection to conceptualization to application, which is to be continued and repeated. Experience and conceptualization are associated with obtaining knowledge while reflection and application involve transforming the knowledge into practice.

Dunne (2006) drawn on Argyris and Schön (1996) that an individual's existing practices are determined by their mental models, or theories-in-action, of what they deem to be appropriate behavior. However, if the outcomes (experience) associated with this behavior is not desirable (observation) then the individual questions why (reflects) and plans modifications to existing practices (conceptualizes) that are designed to restore outcomes to expectations. Hence, the learning cycle is completed until another unintended outcome is observed. This process is called single-loop learning (Argyris & Schon 1996).

An individual's mental models are the basis of their conceptual framework which comes into play during the reflection and conceptualization stages of the learning cycle, and govern the range of options that an individual can contemplate as acceptable behaviors or practices. Persistent dissatisfaction with outcomes generate by single-loop learning can motivate an individual to question their conceptual framework and seek the knowledge and skills necessary to transform their existing practices (Kim 1993; Knowles, Holton, and Swanson 2005). This process of self-reinterpretation is referred to as double loop learning (Senge & Tosey 1990; Argyris & Schon 1996) or second order learning (Knowles, Holton, & Swanson 1998).

The experiential learning in research and development programs that is consistent with the adult learning principles are conceptualized in a whole of chain context in Figure 1.

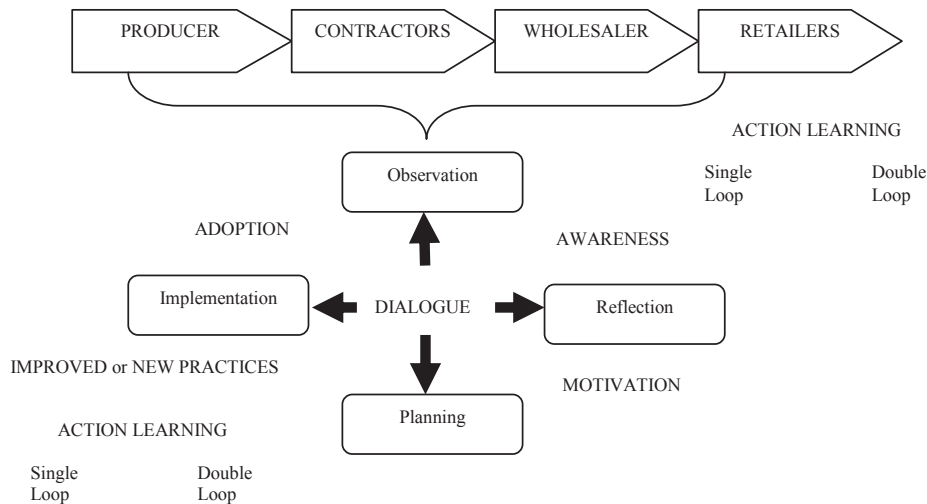


Fig. 1. Participatory learning in a 'whole of chain' context perspective

In Figure 1 the learning process is set in Kolb's learning cycle but recognizes the critical importance of participant engagement with the process of problem appraisal, solution generation and the adoption of improved or new practices in a participatory development context. Motivation to engage in the learning process is generated by the participants' awareness that their present situation can be improved and program activities designed to facilitate knowledge transfer and skill development. Central to the success this approach to the learning process is the creation of an open, trusting environment that promotes effective dialogue between the participants and facilitators as well as among the participants from diversified areas.

### 3. Methodology

The research is longitudinal qualitative study. The data is collected over three rounds of field work starting in 2008 as bench mark study followed in subsequent years 2009 and 2010 to assess the change over time in essence of level of awareness, motivation and extent of adoption of improved knowledge among the commercial stakeholders involved in development process. The impact of project activities on practice was also observed in later years. A purposive sampling method is used to conduct semi structured interviews with growers, contractors, wholesalers and retailers. The questionnaires were guided under the objectives defined under market component of the project. Majority of commercial stakeholders were interviewed repeatedly over three rounds of field trips. This had provided multiple data sources in a case study in terms of spread of respondents and spread of time (Merriam 1998). The findings of the interviews were analyzed in context of the conceptual framework established above in Fig. 1.

### 4. Results and implications

Majority of mango growers in Pakistan sell their fruit to the traders at the flowering stage for a lump sum amount. Since the domestic market research activities conducted in the project in 2007 identified the consumer perception on premium quality attributes such as medium size (300-400gm), firmness, fully ripped and fruit without blemishes could fetch 40-50% more price than the traditionally harvested mangoes among the consumers of high end stores or supermarkets. The marketing research activities associated with experimental trials in 2008 opened new areas of interest particularly for growers.

The growers who were directly involved (core growers) in the planning and implementation of experimental trials were highly aspired to be more directly involved in managing their supplies to the high end markets rather than completely relying on the contractors or wholesalers. Consequently the motivation among core growers for direct marketing was increased over the entire course of the project as long as they got confidence in identified market segment through gaining 30-40 percent more value. This is consistent with double loop learning. These outcomes clearly demonstrates the influence of the project activities in facilitating double loop learning among growers - a process in which the participants (*core* growers) observe „best practices“, in comparison to their traditional practices, that lead them to change their mental models sufficiently for them to transform their existing post-harvest practices and, to a limited extent their marketing and supply chain practices (Senge & Tosey 1990; Kim 1993; Argyris & Schön 1996; Knowles et al. 2005).

The impact of capacity building among some core growers was multi folds as they were not only improving their marketing practices themselves but also sharing their experience with their fellow growers in their respective region through seminars, personal contact and in the workshops organized under the ASLP project. The evidences was found in acknowledging the improve level of market understanding among the majority of non-core growers at the end of the project and they identified their sources of information such as on-farm field workshops and personal link with the core growers. A similar kind of attitude and aspiration was observed among the supermarkets chains involved in the project or the superior outlets targeted by the core growers themselves. An evidence from the analysis is:

*We preferred to buy ASLP “best practice” mangoes from identified grower, we promoted mangoes with premium quality in our store and got very good response. (Fruit and Vegetable Section Manager of a Supermarket Chain )*

The trial shipments and on-farm field workshops provided a learning environment that is open, friendly and respectful for the diversified stakeholders in which a dialogue between participants and facilitators concerning problem areas was embedded in the participant’s prior experience and future expectations. Moreover the evidence also laid in building with state of the art on-farm pack house facilities through attracting partial funding from other development agencies such as USAID and Agribusiness Support Funds initiated under the Federal Government through cooperation of Asian Development Bank. This process of self-reinterpretation is referred to the motivation persistently develop among growers to improve the on-farm facilities to deliver better quality mango at high end supermarkets.

*One of the success factor of this project (ACIAR) is that we are capable enough to address the issues both at the commercial level (mainly at the high ends stores) as well as institutional level to transform our practices (Grower involved in three marketing trial consignments)*

Despite the fact contractors and wholesalers also acknowledged the benefits of premium quality market segment, however, there was mix of response from these linchpin members of the chains. Contractors are mainly guided by the wholesalers under the existing marketing system of Pakistan mango industry and their focused has been on harvesting and dispatching mangoes to the *Mandi* (wholesale market) as efficiently as possible. They undertook these operations with little if any appreciation of the impact of their current practices on the quality of the mangoes delivered to the market and there was no incentive from the wholesalers to alter their traditional practices. The lack of encouragement from the wholesalers resulted in the continuity of traditional supply oriented attitude on their part.

Obviously the wholesalers were aware of the differing needs of different market segments and the willingness of some of the wholesalers and retailers servicing these sectors. However the wholesalers particularly involved in the experimental trials showed traditional attitude and declared that the size of the market, which is small, as well as inadequate infrastructure facilities at the market level did not suit them to transform their practice.

*The demand for high quality mangoes was there on supermarkets chains but negligible in volumes - around 1-2 per cent in our total sales volume...(Commission Agent 4)*

The lack of encouragement from a majority of wholesalers to the contractors was common at the end of the project and consistent to the attitude of volume focused supplies which was difficult to break without huge investment capital investment in the wholesale market. And it was beyond the ACIAR project component. If this was not the case there was no reason of direct marketing among the growers to the superior fruit outlets and supermarket in the major metropolitan cities.

The research findings do indicate that there was limited success of the ASLP project activities in altering the attitude of the wholesalers in terms of the knowledge they had gained concerning market need except they had kept their presence in the project trial shipments particularly in new markets. This outcome was consistent with their traditional attitude that focused on incremental change in their existing business and was a good example of single loop learning in which the exporter was willing to change aspects of his current practices so as to marginally improve the performance of his business (Argyris and Schon 1996) through the establishment of protocols of new markets.

## 5. Conclusion

There is little doubt that the major impact of the ASLP program activities was at the grower level. This is not unexpected as growers, especially the *core* growers, were the most motivated to change the current system. This outcome is no different from an expected outcome of a rural industry development project that would have had a traditional narrow participatory focus on growers. However there was one significant difference. Throughout the ASLP project these *core* growers had been closely associated with wholesalers/exporters who were also members of the key stakeholder group. This experience exposed the *core*

growers to the views of their chain partners in the planning and execution of the ASLP activities. One of the main advantages of this “whole of chain” approach was that it exposed *core* growers to potential chain co-operators with whom they were able to form partnerships with and develop new pathways to higher value market segments – segments that had been identified through the ASLP market research activities. This proved to be a very effective way of linking farmers to their markets.

## Reference

- Akhtar, P., Fisher, C., & Marr, N. E. (2010). Improving the effectiveness of food chain coordinators: a conceptual model in PJ Batt (ed.). *Third international symposium on improving the supply chains performance in transitional economies July 4-8 2010*, Kaula Lumpur, Malaysia, 15-21.
- Argyris, C., & Schön, D. (1996). *Organizational learning II: theory, method and practice*. Addison-Wesley, New York.
- Batt, P. J. (2005). Fulfilling customer needs in agribusiness supply chain in PJ Batt (ed.), *First international symposium on improving the performance of supply chain in transitional economies*. July 19-23, Chiang Mai, Thailand, 83-90.
- Batt, P. J., Conception, S. B., Hualda, L. T., Migalbin, L. R., Montiflor, M. O., Manalili, N. M., McGregor, M. J., & Murray-Prior, R. (2005). Exploring the antecedents and consequences of trust between vegetable farmers and their preferred trading partners in Southern Mindanao in PJ Batt (ed.). *First international symposium on improving the supply chain performance in transitional economies*, July 19-23, Chaing Mai, Thailand, 91-102.
- Batt, P. J., & Purchase, S. (2004). Managing collaboration within networks and relationships. *Industrial marketing management*, 33, 169-74.
- Collins, R., Dunne, A., Campbell, J., Johnson, P., & Malik, A. U. (2006). A constraints analysis of Pakistan mango supply chain. *Australian Centre for International Agricultural Research Canberra*.
- Davidson, A. P., & Ahmad, M. (2002). Effectiveness of public and private sector agricultural extension: implications for privatization in Pakistan. *Journal of Agricultural Education and Extension*, 8(2), 117-26.
- Dunne, A. (2001). Supply chain management: fad, panacea or opportunity: occasional Paper. *School of Natural and Rural System Management*, University of Queensland, Gatton Campus, Gatton.
- Dunne, A. (2006). Organizational learning in an Australian food industry chain. *Chain and Network Science*, 7(1), 55-69.
- Ganpat, W. G., Isaac, W. P., Brawthwaite, RAI., & Bekele, I. (2009). Farmers' attitude towards a participatory research method used to evaluate weed management strategies in Bananas. *Journal of Agricultural Education and Extension*, 15(3), 235-44.
- Ghafoor, A. (2010). Determinants of mango export from Pakistan. *PhD thesis*, University of Agriculture Faisalabad, Pakistan.
- Humphrey, J. (2005). Responding to the challenges of poverty reduction and Global competition in PJ Batt (ed.). *First international symposium on improving the performance of supply chains in transitional economies*, July 19-23, Chiang Mai, Thailand, 19-38.
- Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development*. Prentice Hall, New Jersey.
- Kim, D. H. (1993). The link between individual and organizational learning. *Sloan Management Review*, 35(1), 37-45.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (1998). *The adult learner*. Gulf Publishing Co, Houston, Texas.
- Maropoulos, P., Chauve, M., & Da Cunha, C. (2008). Review of trends in production and logistic networks and supply chain evaluation. *Dynamics in logistics*, 39-55. viewed March 2011, <<http://www.springerlink.com/content/j2m8530540t22t13/fulltext.pdf>>.
- Ministry of Food and Agriculture (2009). Fruit, vegetables and condiments statistics of Pakistan 2008-09. *Ministry of Food and Agriculture (Economic Wing)*, Islamabad, Pakistan.
- Murdoch, J. (2000). Networks : a new paradigm of rural development?. *Journal of rural studies*, 16(4), 407-19.
- Murray-Prior, R., Batt, P. J., Dambul, C., & Kufinale, K. (2007). Improving Quality in Coffee Chains in Papua New Ginea in PJ Batt (ed.). *Second international symposium on improving the performance of supply chains in the transitional economies* September 23-27, Hanoi, Vietnam, 247-55.
- Packham, R., Petheram, J., & Murray-Prior, R. (2007). A farming systems research (FSR) as a platform for RD & E in agriculture and NRM. paper presented to Australian Pacific Extension Network (APEN) Forum, Canberra, Australia.
- PARC. (2009). Characterization of mango value chain Annual report 2009; Pakistan Agricultural Research Council; <http://www.parc.gov.pk/>, Islamabad.
- Percy, R. (2005). The contribution of transformative learning theory to the practice of participatory research and extension: theoretical reflections. *Agriculture and human values*, 22(2), 127-36.
- Porter, M. E. (1998). Clusters and new economics of competitions. *Harvard business review*, 76, 77-90.
- Roger, E.M. (2003). *Diffusion of innovations*. Free Press, New York.
- Shepherd, A. W. (2007). Experiences with the " linking farmers to markets" approach in enhancing the performance of horticultural supply chain in the transitional economies in PJ Batt (ed.). *Second international symposium on improving the performance of supply chains in the transitional economies*, September 23-27, Hanoi, Vietnam, 309-16.

Senge, P., & Tosey, P. (1990). The leaders' new work: building learning organization. *Sloan Management Review*, 32(1), 7-23.

Spriggs, J. (2004). Improving the marketing systems for fresh produce from highlands of Papua New Guinea in GI Johanson & PJ Hofman (ed.). *Agri. product supply-chains management in developing countries, Proceeding no. 119e*, Australian Centre for International Agricultural Research (ACIAR), Canberra, Australia.

Van der Vorst, GAJ, Da Silva, C. C., & Trienekens, J. H. (2007). Agro-industry supply chain management: concepts and application viewed December, 2008, FAO agricultural management, marketing and finance occasional papers, <[http://www.fao.org/ag/ags/agsdivision/publications/en/?dyna\\_fe%5Buid%5D=40631](http://www.fao.org/ag/ags/agsdivision/publications/en/?dyna_fe%5Buid%5D=40631)>

World Bank. (2010). The agriculture and rural development series: building competitiveness in Africa's agriculture: a guide to value chain concepts and applications. *The International Bank for Reconstruction and Development / The World Bank* Washington, DC.