

*Full Length Research Paper*

# Evaluation tools for agricultural development initiatives in Pacific Island economies

Amos Gyau<sup>1</sup>, Zac Tchoundjeu<sup>1</sup> and Stelle Franzel<sup>2</sup>

<sup>1</sup>World Agroforestry Centre, West and Central Africa Region, P. O. Box 16317, Yaounde, Cameroon.

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This paper identifies and investigates high value agricultural products (HVAPs) related projects in the experiences of the Pacific islands developing countries (PIDCs). Based on analysis and evaluation of project reports, the paper identifies key factors and checklists which need to be evaluated in embarking on projects which affect the development of HVAPs related projects. The main elements of the proposed framework include external factors, level of integration of the value chain project to traditional agricultural system of the beneficiary country, market analysis, how holistic is the approach and linkages of the projects to other projects. The paper provokes thoughts for the development of a holistic framework to analyse HVAPs projects in the PIDC in particular and developing countries in general.

**Key words:** High value agricultural products, programmes, Pacific island countries, checklist.

## INTRODUCTION

The importance of agricultural commodities for developing countries is undeniable and its significance has been recognised in a number of studies, fora and organisations in the recent past (Mather, 2008). Consequently, the issue of high value agricultural products (HVAPs) has emerged as a key problem for developing countries' producers and has become significant topic of debate within governments, multilateral and bilateral institutions. HVAPS refer to non traditional food crops which have a higher commercial value (Temu and Temu, 2005). Therefore, HVAPs are products with higher monetary value with expanding markets compared to traditional crops.

According to the United Nations Commodity Trade Statistics Database as stated in McGregor (2007), HVAPs makes up about 65% of all developing countries agricultural exports confirming the importance of HVAPs to developing countries. HVAPs has provided opportunities for developing countries, such as the

pacific island developing countries (PIDCs) to diversify their agricultural export base, which has hitherto been dependent on few traditional commodities.

Faced with the challenge of global competitiveness, the PIDCs have been looking for opportunities to diversify their agricultural sectors and to exploit their resource base on a more rational and sustainable manner in order to enhance food security, counteract food import flow and find new trade prospects on external markets (PRAMA, 2008).

In spite of the importance and the attention given to HVAPs with respect to its potential for rural development, poverty alleviation and opportunity for diversification, there are some challenges which affect the development of the food and agricultural sector and consequently, the production and marketing of HVAPs in the PIDCs. Against this background, there has been growing presence of internationally supported economic development programmes which address some of the constraints. Whereas some of these programmes have been successful, a number of them can be considered as failures (ACIAR, 2009). The aforementioned therefore suggests that an analysis of the previous projects related to HVAPs will provide useful guidelines to improve and

\*Corresponding author. E-mail: [A.Gyau@cgiar.org](mailto:A.Gyau@cgiar.org). Tel: +237-78096788.

**Table 1.** Key trading partners of PIDCs.

Destination	Exports (\$A million)	% Share	Origin	Imports (\$A million)	% Share
Japan	955	26.1	Australia	1,527	33.3
Australia	782	21.4	France	786	17.2
U K	276	7.6	New Zealand	401	8.8
U S	276	7.6	Japan	389	8.5
Germany	266	7.3	U.S	352	7.7
Others	1,095	30.0	Others	1,121	24.5

Source: Adapted from Gordon (2000).

strengthen the research focus of stakeholders including governments and development agencies in order to determine appropriate intervention points and strategies for future projects.

In view of this, this paper aims to provide analysis of high value agriculture related projects in the PIDCs by identifying the key success and limiting factors regarding their utility for market access, poverty alleviation and rural development. The results are then synthesised and worked out as a checklist to evaluate HVAPs related projects in the PIDCs in particular and developing countries in general. While some studies such as Hughes (2003) address why foreign aid in general has failed in the pacific from a broader perspective and various sectors of the economy, this paper is delineated by taking the perspective HVAPs related projects.

### **The general features of pacific island developing countries**

The south pacific region consists of two OECD-member countries (Australia and New Zealand), 14 developing and 5 least developed countries and together, they occupy about 30 million square kilometer of the Pacific Ocean and about 540,000 square kilometer (or 1.8%) of the total land area (UNCTAD, 2001). With the exception of New Zealand and Australia, almost all of the countries in the pacific region are developing or less developed and is usually called pacific island developing countries (PIDCs). These countries which include Fiji, Solomon Islands, Vanuatu, Samoa etc are geographically isolated by vast spans of sea, and characterized by socio-cultural, economic and ethnic diversity. PIDCs consist of 22 political entities, 15 of which are politically independent (Campbell, 1996), spread out over 28 million square kilometers of ocean (Tutangata, 2000) (Appendix 1).

Agricultural production (including fisheries and forestry) remain the predominant sectors in PIDCs. On average, more than 85% of the pacific island people are rural-based and depend on this sector for subsistence, gainful employment, and income. Quite recently, there has been an emergence of non renewable resources in some

PIDCs such as Nauru, Papua New Guinea, Solomon Islands, and Vanuatu.

### **Production, trade and consumption in PIDCs**

Many pacific island economies are small and undiversified economies. Most are net exporters of agriculture, fisheries, forest, mineral and petroleum products. Moreover, they have narrow and concentrated export bases, relying heavily on two or less commodities for over 95% of their aggregate merchandise exports

(UNCTAD, 2001). For example, Samoa's main commodity exports are fish, copra, and coconut oil, cream, Tonga's are squash, fish and root vegetables, and Vanuatu's are copra, timber and cocoa. A similar pattern of narrowness is evident in the larger island nations such as Fiji whose merchandise exports are concentrated in sugar, garments and gold. External trade relations of PIDCs tend to be concentrated in a number of small countries such as Japan, Australia, UK, US, Germany and few others with Japan and Australia as principal destinations for Pacific Island's exports, while Australia and France are the major source of their imports. Table 1 provides information about main export and import destinations as well as market share for PIDCs.

### **MATERIALS AND METHODS**

The main methodology used for this analysis was evaluation of project reports in the PIDCs. Relevant reports were collected through important search engines, libraries, and journals. The literature which was searched mainly concerned with previous projects, their objectives and finally, their evaluation. Key words such as "high value agricultural projects in the pacific" "research evaluation in the pacific", "Evaluation of donor support projects in the pacific)" etc were used in order to obtain information.

Further information such as reports, articles and newsletters were obtained from organisations and institutions which are working or have worked on agriculture related projects in the PIDCs.

No restrictions were placed on the study design. Position papers, review articles and letters to the editor were included if they presented information on project evaluations in the PIDCs. Our exclusion criteria were non-English language articles.

## RESULTS

Many agricultural related research projects and programmes have been carried out in many of the PIDCs. These projects have been carried out under various forms of interventions by different organisations and development agencies, and have focused on the different aspects of the supply chain for various commodities. Some of the projects also aim to strengthen the institutional environment which guides the production and distribution of many agricultural products. The process consists of technical, organisational and political input of key institutions at both the regional and national levels. The level of involvement of various institutions is dependent on the specific market access issue being addressed, the mandated role of the institution and the capacity of the institution to deliver the required input (PRAMA, 2008).

Based on analysis of various research projects in selected countries in the Pacific, many success enhancing and constraining factors are distilled and presented subsequently.

### **Success enhancing factors for agricultural HVAPs projects**

One of the key success enhancing factors in many HVAPs projects in the Pacific is the favourable and suitable agro-ecological conditions for both tropical and temperate horticultural products. The highland regions of the Papua New Guinea (PNG) for instance are suitable for temperate crops whereas Fiji has a suitable condition for tropical crops. Report by the Asian Development Bank (ADB) (1997) indicates that Vanuatu for instance as a country has a competitive advantage in the production and export of HVAPs.

Secondly, the farmers in PIDCs have the competitive advantage in the production of and consumption of traditional commodities. According to the report "Pacific Island countries: Commodity dependency, trade and investment prospects" published by UNCTAD in 2001, many of the PIDCs possess competitive advantage in agricultural markets. In the report, it is stated that larger PIDCs tend to demonstrate revealed comparative advantage (RCA, which is the ratio (in %) of country's net exports of a commodity to its total trade of that commodity) in many products, and more dynamism in moving into new sectors and commodities.

Smaller countries which depend on one and/or two commodities for exports demonstrated little ability to diversify their agricultural sectors. Fiji, PNG, Solomon Islands and Vanuatu show stronger overall RCA, suggesting that their competitiveness in agricultural markets may improve. Fiji, Solomon Islands and Tonga have demonstrated comparative advantage and dynamism in producing fish and fish products. As an example, Tonga's RCA for fish and fish product

strengthened from 5 to 61 and its export market share increased from 5 to 20%. Fiji, PNG, Solomon Islands and Vanuatu have dynamic forestry sectors and strengthening RCA indexes and export market shares in forest product.

Furthermore, it is argued that most PIDCs retain strong traditional agricultural production system and farmers grow large quantity and quality traditional foodstuffs. In this context, farmers have indigenous knowledge which increases their competitiveness of indigenous products. Bammann (2007) revealed that subsistence food production in PNG in the year 2003 was estimated to be 4.5 million tons compared to 400,000 ton of imported food.

Aside the potential for large unexploited domestic markets for some products, New Zealand, Australia, west coast of the United States, Canada, Japan and the EU are all important markets for high-value agricultural and horticultural exports from PIDCs. Some of these markets offer seasonal windows for a range of fresh fruit and vegetable products. In addition to these factors, market access by the PIDCs is further boosted by the large and increasing population of indigenous PIDCs and Asian populations in New Zealand, Australia and the west coast of the US (McGregor, 2007). These residents often demand commodities from their home countries even when they live outside and sometimes also introduce the consumption of such commodities to the indigenous people of their new home. The report "Solomon Islands small holder agricultural studies (vol 3 (p.xv))" states that "Profitable export markets are available for a number of spices and other minor products. There are very substantial opportunities for import substitution, particularly for traditional staples, fresh fruit and vegetables and livestock products"

It is however important to note that there is a wide diversity among the PIDCs and as such, they differ significantly on a number of points which influence their market access. McGregor (2007) calculated an index for market access for selected PIDCs. His calculation was based on the premise that five main factors determine island countries ability to export horticultural products. These factors according to him are suitable agronomic conditions, availability of air and sea freight, private sector marketing capability, quarantine pest management and ability to resolve phytosanitary and other market access issues. Each factor was rated on a scale of 1 to 10 the score for the factors are summed together to obtain the total score for each country. This provides a framework within which opportunities, constraints and requirements to expand can be considered

Market access indices for selected PIDCs are shown in the Table 2.

### **Limiting factors for HVAPs projects**

Many agricultural marketing programmes have not been

**Table 2.** Aggregate indices of market access opportunities and capability for selected PIDCs.

Country	Score
Fiji	40
Vanuatu	31
Samoa	30
Tonga	28
Cook Island	27.5
Papua New Guinea	24
Solomon Island	14.5
Kiribati and atoll countries and locations	8

Source: McGregor (2007).

successful in the PIDCs due to improper planning and poor price speculations. As an example, McGregor mentions in the report “diversification into high value export products: Case study of the PNG vanilla industry” that the PNG vanilla industry underwent a serious crisis due to price fluctuations. According to this report, for three years, farmers throughout the vanilla-growing world earned unheard of returns and responded accordingly by increasing their production. This occurred because of many events such as the launch of the vanilla coke by coca cola which increased demand and cyclone which destroyed farms and outbreak of civil war in the main exporting country, Madagascar which delayed the rehabilitation of plantations. However, the prices fell dramatically when the main supplier, Madagascar began to pick up again.

As a result of this external factors and poor price speculation, vanilla farmers’ incomes dropped significantly and many vanilla plants were cut down due to lower prices.

There is the problem of market access constraints for donor programmes which aim to enhance marketing in external markets. According to the preliminary report of PRAMA (2008) for instance, although negotiating new or improved market access and ensuring the effective implementation of agreed market access protocols are mandatory responsibilities of governments, it has been slow, resulting in high level of frustration within industry and wasted export opportunities in many PIDCs. As an example, the report states that in Fiji, the most successful exporter to date of HVAPs among the PIDCs, is making slow progress in negotiating new or improved access arrangements. Some of the key constraints as outlined in the report include: (1) Poor identification of market access priorities, leading to the highly limited resources available within both exporting and importing country regulatory agencies being squandered on submissions that are unlikely to be successful or even if successful unlikely to result in significant economic benefits; (2) Limited ability of export country regulatory agencies to

actively manage the preparation and progression of high-quality market access submissions; (3) Limited capacity of exporting countries to implement biosecurity and quarantine measures required to comply with market access agreements; (4) Limited capacity to identify and conduct R&D required to establish, improve or maintain market access; and (5) Limited access to information on market access requirements, food safety standards etc.

Furthermore, the report “Solomon islands small holder agricultural studies (vol 3 (p.1)” states that “There are three major constraints to the profitable marketing of most of the commodities produced in Solomon Islands. These are exceptionally poor transportation conditions, absence of rural finance and lack of information. Poor transport poses a major barrier to the profitable movement of agricultural products to markets. The absence of finance equates to inadequate investment in processing and marketing facilities and insufficient working capital for wholesalers and traders to operate efficiently”. Transportation and logistics is another problem which exclude some countries such as PNG, Solomon Island and Timor Leste from the international markets (McGregor, 2007). In these countries, there is limited air freight from the rest of the world. In addition, Phytosanitary issues in Fiji for instance also limit market access which is further compounded by security requirements and the payment of import duties which often increase cost and make prices uncompetitive.

Furthermore, many donor programmes tend to have general focus on the development of market access capabilities of the PIDCs without a focus on specific products and targeted outcomes. These projects are carried out with the underlying assumption that the development of the appropriate skills will automatically lead to the development of market access gains (PRAMA, 2008). For various reasons, this approach has not been particularly successful in terms of managing market access. One of the reasons is that supply chains for various products may differ from one another and therefore special research and strategies may be required for various products. However, the generic chain approach usually develops common strategies for many products. The experience is that generally, strategies and experiences may not be transferable across products since there are often some peculiarities among products which make them warrant special attention.

Bammann (2007) further emphasised on the over concentration on export based commodities to the extent that commodities that have the potential to be marketed locally is sidelined. Most export commodities are highly risky and have uncertain market access. Further more, there is often insufficient knowledge about the market of the export destination and consequently, certain products fail. According to Serpagali and Taylor (2006), all investigations conducted so far on the Canarium industry in Vanuatu for instance suggest that the domestic market is under supplied and segments of the domestic demand

**Table 3.** Checklist for HVAPs project analysis.

Factor	Level of analysis
External factors	Supporting infrastructure Price fluctuations Competition and potential competition
Level of integration with traditional systems	Assessment of local knowledge
Market analysis	Current market size and potential increase Knowledge level Entry rules and regulations
Level of wholeness of the approach	Level of integration along the chain Number of sectors/intervention points
Project linkages	Relationship of project with previous projects Relationship with other projects Linkages with other donor projects

Source: Author's development.

have not been satisfied. Furthermore, over emphasis on the international market implies that many farmers are not able to participate in the chain due to quality requirements in the destination countries.

## DISCUSSIONS AND POLICY IMPLICATIONS

From the results of the review, it can be observed that the success of agricultural related projects depends on the existence of both success enhancing and success constraining factors which will henceforth be referred to "Checklists for HVAPs Project Analysis (CHVAPA)". This checklist is illustrated in Table 3.

From the experiences of the PIDCs, one can argue that for successful value chain project, the above factors need to be taken into consideration in assessing the potential success of the project.

One of the most important criteria as recommended by the CHVAPA framework is the need for thorough analysis of external factors such as the level of competition, potential competition and its effects on price levels. In market situation, where there is ease of entry by potential competitors, there is likely to be a price fall if increase in supply is not backed by corresponding rise in demand (Grenfield, 2004).

The checklist also advocates for the need to undertake strict market analysis before committing resources into projects. Market analysis in this context emphasises on knowledge in the market. Domestic market opportunity is supposed to be explored since knowledge in domestic market is often higher than that of international market. This is further justified by the fact that quality requirements in the domestic markets of many

developing countries are often not as stringent as in the international markets and therefore, more farmers may be able to participate in the chain compared to the international markets. Export market should be targeted after fully exploiting the unmet demand in the domestic market. This is against the background that venturing into the external markets requires high level of chain management and investments which are usually above the capabilities of small holders.

In cases where external markets are very promising, the model recommends the need for exporters in the developing countries to go in partnership with domestic operators in the importing countries. This argument is supported by the literature in the international market entry modes (Foley, 1999). Going into the markets alone is not recommended because for certain products where there is already local production in the importing country, it will be more difficult for the exporters to create a distribution network which can compete with the already established operators in the importing countries.

The market analysis should also incorporate the issue of market access which is linked to the market requirements in terms of product quality requirements, laws and regulations on sanitary and phytosanitary requirements. Reardon and Barrett (2000) and Kirsten and Satorius (2002) argued that quality standards could be a barrier to developing countries export of high value agricultural products.

Furthermore, the CHVAPA framework suggests the need to analyse the linkages between the agricultural value chain projects and other donor supported or development projects in the country or region of interest. The integration must also be explained from the perspective of value chain projects and interventions

points linking one another. This is supported by the theory of systems which opposes the reductionist assumptions for scientific analysis and explains that the whole is better than individual parts (Bertalanffy, 1969; Kuhn, 1974). These further suggest that when projects are handled in a more holistic manner, one part can also provide information which will be useful for the other parts.

Thus in the context of HVAPs, where as technical innovations in product improvement, processing, storage and logistics may improve product quality degradation, implementation of such product and process innovation is required to be complemented by innovations in organisations and institutions. This is rooted in the economic theory of complementarities which describes interactions among variables which affect performance of firms (Roberts, 2004). Complementarity gives rise to systems effects, with the whole being more than the sum of the parts. This implies that changing one variable of the system may not result in better performance, and may even worsen performance. The need to change variables jointly to obtain better performance implies there is coherence among these variables which in this context, is the various intervention points along the supply chain.

## Conclusions

In this article, we have reviewed the success enhancing and constraining factors for HVAPs projects in the Pacific island countries. Based on the synthesis of the literature analysis, we have proposed a framework "CHVAPA" for analysis of HVAPs projects in developing countries like the PIDCs.

The model proposed will serve as important guidelines for donors and project owners to evaluate the potential success of HVAPs related projects in the Pacific and other developing countries with similar natural and socio-cultural conditions.

While the study is first of its kind to propose a holistic framework for evaluating HVAPS related projects success in the context of developing countries in general and the PIDCs in particular, there are some limitations which must be taken into account in using the model. One of the first limitations of the proposed framework is that the model has not ranked the importance of the various factors identified. Against this background, future research can build on the framework by ranking and segregating the factors which has been considered. This framework contributes to the agriculture literature by provoking thoughts on framework for HVAPs projects evaluation in developing countries.

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## APPENDIX

### Appendix 1. Profile of pacific island countries.

Country	Political status	Population (2000 Est.)	Land area ( Km <sup>2</sup> )
America Samoa	Territory of the US	65,446	199
Commonwealth of the Northern Marianas	Commonwealth in political union with the US	71,912	477
Cook Islands	Self governing in free association with New Zealand	20,407	240
Federated States of Micronesia	Independent nation	133,144	702
Fiji	Independent nation	832,494	18,270
French Polynesia	Overseas territory of France	249,110	4,167
Guam	Territory of the US	154,623	541.3
Kiribati	Independent nation	91,985	717
Nauru	Independent nation	11,845	21
New Caledonia	Overseas territory of France	201,816	19,060
Niue	Self governing in free association with New Zealand	2,113	260
Palau	Independent nation	18,766	458
Papua new Guinea	Independent nation	4,926,984	462,840
Pitcairn Island	Overseas territory of the united Kingdom	54	47
Republic of the Marshall Islands	Independent nation	68,126	181.3
Samoa	Independent nation	179,466	2860
Solomon Islands	Independent nation	466,194	28,450
Tokelau	Territory of New Zealand	1,458	10
Tonga	Independent nation	102,321	748
Tuvalu	Independent nation	10,838	26
Vanuatu	Independent nation	189,618	14,760
Wallis and Futuna	Overseas territory of France	15,283	274

Adapted from: Burns (2003).