

Certified Coconuts

The economics of establishing a participatory guarantee system for organic certification in Cicia, Fiji

Introduction

The Secretariat of the Pacific Community (SPC), in partnership with the Pacific Organic and Ethical Trade Community (POETCom), completed a two year pilot project in December 2014 to set up a Participatory Guarantee System (PGS) for organic virgin coconut oil (VCO) producers on Cicia, in Fiji's Lau Group. The International Fund for Agricultural Development (IFAD) funded the project.

The Resource Economist of SPC's Land Resources Division (LRD) conducted a cost-benefit analysis (CBA) of the project in January 2015 in order to evaluate its likely overall impact and estimate the benefits the project needs to deliver to offset its costs. This brief presents the key findings and recommendations from this CBA.

Key messages

- The project to establish the Cicia PGS was designed to deliver economic benefits by enabling Cicia's organic VCO producers to access high-value local and export markets.
- The CBA takes into account:
 - the costs of establishing the Cicia PGS (project costs);
 - additional costs borne by Cicia producers; and
 - direct benefits of higher organic VCO revenues.
- Environmental and social benefits, as well as indirect economic benefits, are not quantified in the analysis.
- The net present value (NPV) of the project is estimated at FJD -86,000. This equates to a benefit-cost ratio BCR of 0.9, which means that each dollar invested returns just 90 cents.
- The project's additional unquantified benefits would need to be worth at least FJD 86,000 to 'break even'.
- At this early stage of the project, the start-up costs (majority of total costs) are known, but most of the benefits are expected in the future and are therefore uncertain.

Methodology

Three main scenarios were developed and identified:

- A base case scenario, where the project did not exist.
- A scenario with the project as implemented.
- A scenario with a different treatment of labour cost.

The base case scenario forms the baseline against which the impacts of the project are assessed.

The benefits of the scenarios were identified, analysed and quantified. The present value (PV) of the stream of benefits associated with each was then compared with the PV of the stream of start-up and ongoing costs over a 20-year period.

Results are reported in terms of the following metrics:

- Net present value (NPV) – the difference between the PV of total benefits and the PV of total costs.
- Benefit-cost ratio (BCR) – the ratio of the PV of total benefits to the PV of total costs.

A sensitivity analysis was then undertaken to test the robustness of the CBA results in response to changes in key assumptions.

What is a participatory guarantee system?

Participatory guarantee systems aim to provide a credible organic guarantee to consumers seeking organic produce through direct participation of farmers and consumers in the organic guarantee process. PGSs are based on recognised and publicly available standards for organic production. This is a more affordable organic certification method for smallholders than third party certification.



Organic coconut products from Cicia (SPC 2014)

Costs explicitly included and quantified in the CBA include:

- Project implementation costs – the costs incurred by SPC/POETCom and paid for by IFAD.
- Production costs associated with packaging and quality control – such costs are higher with the PGS due to higher standards.
- Opportunity cost of the labour of VCO producers.

The benefits explicitly included and quantified in the analysis are the increased revenues from selling more products to higher value local and export markets.

A discount rate of 10 per cent was selected for evaluating this project. The project was evaluated over 20 years (2013-2032).

Small scale producers from all five (5) villages in Cicia involved in the project are included. Selavo – the only existing commercial-scale producer – is excluded from the project analysis as it was not directly involved in the project.

Data for undertaking the analysis is drawn from:

- documents provided by the project team, including progress reports and a risk analysis and value chain analysis, and the original funding agreements setting out the project's purpose, objectives and budget;
- information provided by the project team; and
- Information provided by project participants.

Assumptions and uncertainties

Assumptions underlying this analysis include:

- The project would continue operating until at least 2032.
- The project's target sales volumes of 675 L per month would be reached by 2016, and sustained until 2032.
- Market prices for VCO would remain at FJD 13/L in real terms for the entire period to 2032, while production costs remain at FJD 9/L in real terms until 2032.
- The number of households involved in production remains constant at 255.
- Labour productivity and oil yield from coconuts remain constant at 1 hour/L and 25 coconuts/L.

Uncertainties include:

- The availability of coconuts to sustain production to 2032.
- The continuation of regular shipping services connecting Cicia to Viti Levu, to enable products to reach markets.

A key uncertainty is the treatment of the opportunity cost of the labour of the oil producers. Given the lack of alternative employment opportunities in Cicia, the national minimum wage of FJD 2 per hour is adopted as the opportunity cost. However, a case can also be made to consider the cost to be negligible.

Results

Two (2) scenarios were developed to reflect the impact of the project. The only difference between the two scenarios is the treatment of the opportunity cost of the labour of the VCO producers:

- Scenario 1 excludes the opportunity cost of labour.
- Scenario 2 includes the opportunity cost of labour.

As discussed in the assumptions section, a case can be made for excluding the opportunity cost of labour. This is due to the lack of alternative employment opportunities in Cicia, the lack of recreational activity options, and the finding that oil producing activities are a form of social activity for the islanders. In particular, the fact that oil producing is a social/recreational activity suggests that it is an enjoyable activity, and so perhaps should not be considered as imposing a cost on those engaging in it if there are no substantive alternative activities.

Both scenarios include FJD 0.2 million in project implementation costs and FJD 1.2 million in additional production costs over 20 years, including shipping, packaging and associated costs. Scenario 2 also includes FJD 0.3 million in opportunity costs.

Benefits for both scenarios are FJD 1.8 million over 20 years in real terms, or FJD 0.74 million in PV terms.

Given total benefits of FJD 0.74 million and costs of FJD 0.70 million in PV terms, Scenario 1 yields net benefits of FJD 39,000. This translates to a benefit-cost ratio of 1.06; that is, every dollar spent on the project delivers just over a dollar in returns.

Under Scenario 2, the benefits remain the same, but the costs are higher, at FJD 0.83 million, yielding a NPV of FJD –86,000. The BCR is 0.90; each dollar invested returns 90 cents.

These results only include quantifiable direct costs and benefits, and exclude a number of indirect costs and benefits.

The analysis also found that production costs need to be increased by an estimated FJD 4/L in order to deliver a revenue increase of FJD 5/L.

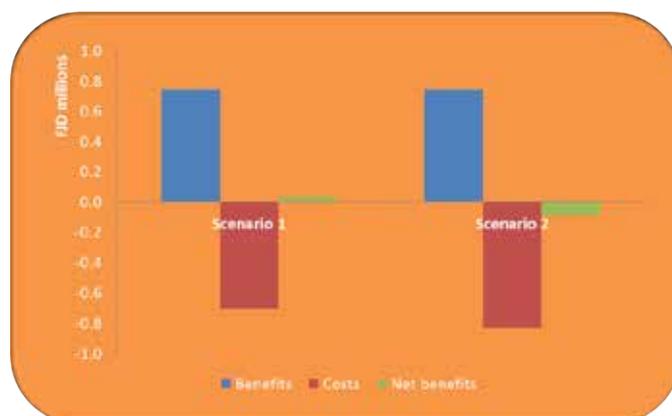


Figure 1: Costs and benefits of the Cicia Organic VCO PGS project



Cicia Island Organic
Monitoring Agency logo



Organic Pasifika

Establishing the Cicia Island Organic Monitoring Agency (COMA)

Development and Pilot Implementation of Integrated Pacific Island Organic/Ethical Trade Initiatives is a project funded by IFAD and implemented by SPC in partnership with POETCom, to help poor, rural smallholders and producers.

The project is designed to enhance the ability of these producers to service higher-value local and export markets, gaining access to higher incomes by gaining organic certification for their products by establishing a PGS. Cicia Island Organic Monitoring Agency (COMA) was established as part of this pilot programme.

PGSs are shaped by farmers and the consumers that they serve. PGSs have transparent, systemised decision-making processes, and aim to share the responsibility for the organic guarantee and for verifying that farmers are maintaining standards. PGSs involve less administration and lower costs than export-focused third party certification.

Producers that meet specific standards are eligible to use the Organic Pasifika PGS mark on their products.

As coconut oil production on Cicia is predominantly a women's activity, empowering the women of Cicia is an additional benefit of this project. Further benefits include the environmental benefits of excluding non-organic pesticides and other chemicals from the island, the promotion of biodiversity, improved waste management on the island, and the development of Cicia's 'brand' as an organic, unspoiled island.

A sensitivity analysis was conducted to check the robustness of the results from the CBA by evaluating the two scenarios with alternative discount rates: 5 per cent and 15 per cent.

The range of NPVs of the project under Scenario 1 are:

- FJD 144,000 (5 per cent discount rate); and
- FJD –41,000 (15 per cent discount rate).

This translates into a BCR ranging from 0.96 to 1.15.

The range of NPVs under Scenario 2 are:

- FJD –20,000 (5 per cent discount rate); and
- FJD –111,000 (15 per cent discount rate).

These results for Scenario 2 yield BCRs ranging from 0.83 to 0.96. All variations of this scenario yield net costs.

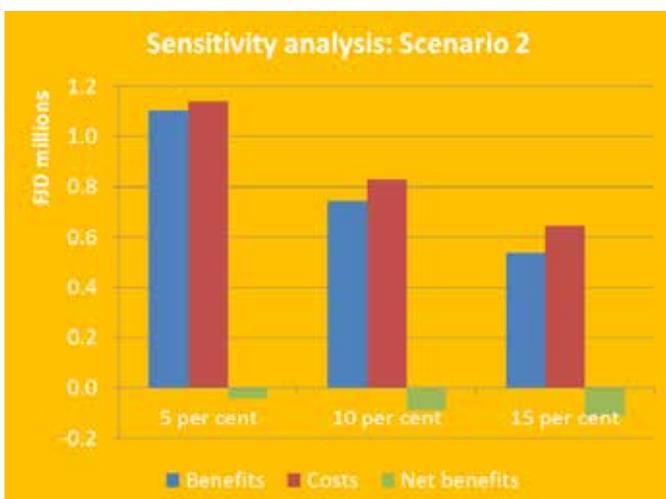
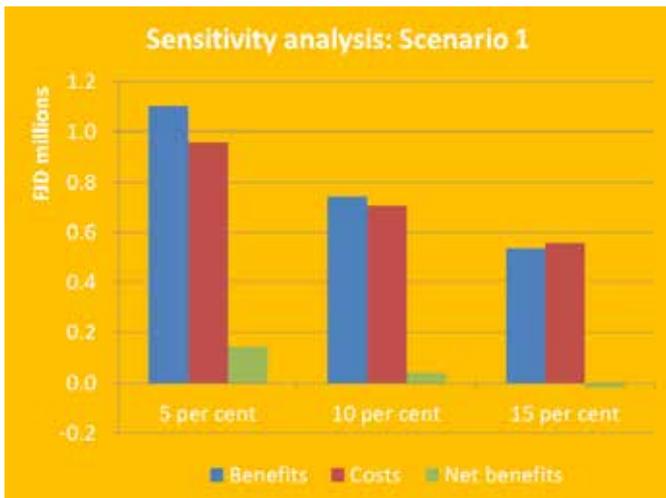


Figure 2: Sensitivity analyses for Scenarios 1 and 2

What if?

As the lifetime of the PGS project is expected to stretch over 20 years, the costs and benefits of the project over time need to be converted to an equivalent or comparable value – the NPV – using the discount rate. This is because costs and benefits that accrue earlier in the project's life are given more weight, reflecting the reality that human beings are innately impatient, and would prefer to consume a resource now rather than in the future unless they are adequately compensated for waiting.

A discount rate of 10 per cent was adopted for the analysis, as stated in the methodology section, in line with the Asian Development Bank's practice of adopting a discount rate of 10 to 12 per cent for development projects. The 'Cost-benefit analysis for natural resource management in the Pacific' (Buncle et. al. 2013) – a guide publication of the Pacific Cost-Benefit Analysis Initiative (P-CBA) – identified the rate that is typically selected for Pacific projects as being in the range of 7 to 10 per cent.



Cicia school children supporting the organic project (SPC 2014)



Conclusions and recommendations

The cost-benefit analysis of the SPC/POETCom/IFAD project to establish a PGS for organic VCO producers in Cicia found that the project is expected to deliver benefits that are lower than its total costs, based on the assumptions in the analysis.

However, the inclusion of the opportunity cost of labour has a pivotal impact. When this cost is excluded the project is expected to deliver FJD 1.06 in benefits per dollar invested.

In considering the results of the analysis, it must be remembered that the CBA does not include all costs and benefits in the calculation of the NPV and BCR. The excluded benefits include:

- Non-economic benefits, such as social and environmental benefits, including the empowerment of Cicia's women, which are major objectives of the project; and
- Un-measured economic benefits, such as market diversification, export diversification and the potential for building the reputation of Cicia as an organic island. For example, the FRIEND group in Fiji has started working with producers in Cicia to market products such as desiccated coconut, sweet potato and breadfruit flour, and tavola nuts, since the implementation of the project.

Similarly, a number of unquantifiable costs have also been excluded from the quantitative analysis. The project's findings also depend on the assumption that the project meets, and does not exceed, its stated market targets.

An interpretation of the quantitative analysis results is that the NPV of the additional environmental, social and economic factors not measured in this analysis, as discussed earlier

in this report, will need to have an equivalent value of at least FJD 86,000 in order for the project to 'break even', if the opportunity cost of labour is taken into account. If this opportunity cost is excluded, the unquantified additional benefits could further boost the project's measured value.

Regardless, a major issue identified in the analysis is the high costs imposed by the project, with production costs needing to increase by an estimated FJD 4/L in order to deliver a revenue increase of FJD 5/L.

A key limitation of the CBA results is that the project has only just completed its implementation phase, while its benefits will be delivered over the next 20 years. Therefore, while the project costs are known, the value of its benefits is uncertain. It is recommended that further analysis be conducted later in the project's life cycle to derive more accurate estimates of its benefits and net impact.

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