



PREEN newsletter

Pacific Resource and Environmental Economics Network

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Dear PREEN members

Welcome to the August 2015 edition of the PREEN Newsletter.

This edition includes details of recently released work including a cost-benefit analysis of flood disaster risk reduction options in Fiji. You will also find articles on soon-to-be released studies on the state of the Pacific maritime sector and organic certification of coconut oil in Fiji. Finally, you will find reports of recent training events in locations throughout the Pacific.

Our aim is to keep the network informed of developments in the Pacific, so please do share your findings, projects and events with the PREEN as they emerge. Please contact jamesj@spc.int to do so.

James Jolliffe
PREEN coordinator

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Cost-Benefit Analysis of Flood Reduction in Fiji

A recent cost-benefit analysis (CBA) was conducted by Landcare Research New Zealand and the University of the South Pacific's (USP) Institute of Applied Sciences. It compared the costs and benefits of a range of ecosystem-based adaptation (EbA) and hard infrastructure options to mitigate flooding in the context of climate change in Fiji. These options included planting riparian buffers, afforesting degraded grasslands, adding floodplain vegetation, reinforcing riverbanks, raising houses, and river dredging. The study employed survey data and climate change projections to document the costs of flooding under the current climate, moderate, and severe climate change in the Ba and Penang catchments, Viti Levu, Fiji. The researchers also constructed a hydrological model to simulate the potential benefits these options provided through avoided damages from reduced flood levels.



Photo: River catchment in the study area (Credit: Adam Daigneault)

The CBA found that planting riparian buffers is the most cost-effective option in both catchments, with benefit-cost ratios (BCR) between 2.8 and 22.5, yet the absolute protection it provides is low. Afforesting degraded grasslands in the upper catchment would provide the greatest overall benefits in both catchments, yielding net present values (NPVs) between FJD 8.6 million and FJD 101.8 million, but would incur substantial implementation costs. Planting floodplains and reinforcing riverbanks provide some monetary benefits under some scenarios; however, these benefits are generally lower than those provided by riparian and upland planting. River dredging was estimated to only yield a positive NPV in some scenarios and was never preferred over one of the EbA options. Raising households is not economically viable in either catchment under any of the climate scenarios considered.

The comprehensive economic analysis can be found at:

http://www.landcareresearch.co.nz/__data/assets/pdf_file/0004/77341/fiji-disaster-risk-reduction-full-report.pdf

For more information, please contact Adam Daigneault (daigneaulta@landcareresearch.co.nz) or Pike Brown (brownp@landcareresearch.co.nz) of Landcare Research.

Certified Coconuts: Economics of Establishing a Participatory Guarantee System for Organic Certification in Cicia

SPC's Land Resources Division (LRD) recently completed a cost-benefit analysis (CBA) of a pilot program to establish a participatory guarantee system (PGS) for organic virgin coconut oil (VCO) producers on the island of Cicia, in Fiji's Lau Group.

The project was funded by the International Fund for Agricultural Development (IFAD) and implemented by the SPC on behalf of the Pacific Organic and Ethical Trade Community (POETCom). The project spanned a course over two years from December 2012 to 2014. The CBA was conducted in January 2015 at the conclusion of the project's implementation phase.



Photo: Schoolchildren in Cicia support the project (Credit: Matthew Ho)

The project was designed to deliver economic benefits by enabling Cicia's organic VCO producers to access high value local and export markets.

The CBA took into account:

- The costs of establishing the Cicia PGS (project costs);
- The additional costs borne by Cicia producers; and
- The direct benefits of higher organic VCO revenues.

Environmental and social benefits, as well as indirect economic benefits are not quantified in the analysis.

The project's NPV was estimated at FJD 86,000, equating to a benefit-cost ratio (BCR) of 0.9. That is, each dollar invested returned just 90 cents in direct quantified economic benefits. In order to break even, the project's additional unquantified benefits would need to be worth at least FJD 86,000.

A key limitation of the analysis is that at this early stage of the project's lifecycle, the start-up costs (majority of total costs) are known, but most of the benefits are expected in the future and are, therefore, uncertain.

For more information, please contact Matthew Ho of SPC's Land Resources Division (matthewh@spc.int).

The Economics of Managing the Invasive Small Indian Mongoose in Fiji



Photo: Small Indian Mongoose (Credit: Landcare Research)

Economists from Landcare Research in New Zealand recently partnered with the USP and Pacific Invasives International (PII) to conduct cost-benefit analyses (CBAs) of options for mongoose control on Viti Levu, Fiji. Four distinct options for managing mongooses were considered: doing nothing, live trapping, kill trapping, and rifle hunting.

First introduced to control rats in sugar cane fields in Fiji in 1883, the small Indian mongoose derives at least 15 per cent of its diet from fruit and vegetable matter – including crops – and is an agile predator that has been implicated in the extinction of a number of native birds. For these reasons, control of mongooses on the islands of Fiji and elsewhere has been under investigation since the 1950s. Nevertheless, the costs and benefits of the management options are still poorly understood.

In total, 360 households in 30 indigenous Fijian villages were surveyed to quantify the value of livestock and fruit crops lost to mongooses and the time and money spent managing them. Despite the results of the survey, indicating how households experience losses of chickens and crops to mongoose, just 2 per cent of households revealed they spent an hour or more per week on trapping or shooting. The average household devoted just 3.2 minutes per week to trapping or hunting mongooses. This suggests that additional measures must be implemented to incentivise active management of the pest.

The CBA revealed that kill trapping is more cost effective than live trapping or shooting on a per hectare basis. Indeed, given that about 6 per cent of eastern Viti Levu is currently under cultivation and at risk from attack by mongooses, the value of using kill trapping to manage mongoose is at least FJD 13.5 million over the next 50 years. However, kill trapping also entails comparatively high capital costs, meaning shooting is an attractive and less expensive alternative to kill trapping. Live trapping is less effective than kill trapping and less efficient than shooting, making it the third-best option. Nevertheless, all three management options are more cost-effective than doing nothing.

The research was funded by the Critical Ecosystem Partnership Fund (CEPF).

For more information, please contact Adam Daigneault (daigneaulta@landcareresearch.co.nz) or Pike Brown (brownp@landcareresearch.co.nz) of Landcare Research.



Improving Development Opportunities in the Pacific Region through a Responsive Maritime Sector



Credit: Uchenna Onuzo

The maritime sector plays a fundamental role in the livelihoods of Pacific Islanders, their economic wellbeing and social development. Safe, affordable, efficient and sustainable maritime transport systems that comply with international standards are central to national development objectives and strategies.

Despite recent progresses, Pacific Island Countries and Territories (PICTs) face several challenges in developing their maritime sectors. With the support of a number of development partners, the SPC's Economic Development Division assessed some of the key maritime transport sector challenges faced by PICTs. The studies identified gaps constraining the contribution of the maritime sector to development outcomes, and proposed specific sustainability measures and action plans to strengthen port and maritime operations.

The underlying causes were found to be myriad with the most prominent being limited financial resources and an inadequate number of technical staff. Due both to national financing constraints and few prospects for self-financing, the limited fiscal space in which the maritime sector operates greatly limits their ability to fully carry out their responsibilities. A safety culture deficit was also evident across all the studied countries. Despite these persistent challenges, the study identified several good regional models that can be replicated and tailored to PICTs facing similar maritime challenges.

It is anticipated that these studies will inform current and future efforts by PICT governments to effectively address issues impeding their regional maritime transport systems. Furthermore, it is envisaged that these studies will form the basis of coordinated action by development partners in the region to support the identified funding needs.

For more information on the studies, please contact Uchenna Onuzo (uchennao@spc.int) of SPC's Economic Development Division.

The Establishment of an Agriculture Market Information System (AMIS) in the Cook Islands



Photo: Dr Saia Kami, team leader of AMIS development team at dragon fruit farm, Rarotonga

An Agriculture Market Information System (AMIS) has been established in the Cook Islands. The AMIS is the first of its kind in the region and will be used to capture vital information for effective agricultural policy development. The work was led by the Department of Policy, Planning and Projects (DPPP) and the Ministry of Agriculture (MoA) in partnership with the European Union (EU)-funded Pacific Agricultural Policy Program (PAPP) implemented by SPC.

The purpose of the database is to collect specific market and production results to capture the performance of farmers, enterprises and the market. The information will then be used to form the building blocks for evidence-based policy making and the design of projects aimed at supporting the growth of the sector.

Following a period of data collection, it is hoped that farmers will be able to know exactly what crops are suitable for the market in different seasons by looking at market prices and input costs. Banks will have information on potential clients to help facilitate the approval of agricultural loans. The Business Trade and Investment Board (BTIB) should be able to, for example, identify weaknesses and strengths in the dynamics of the agricultural market and provide targeted assistance to farmers through its soft loan programme.

Information from the AMIS will be readily available to planners and project developers across government agencies. The AMIS is housed at the MoA but is designed to both collect and distribute data to other stakeholders, including the Office of Statistics, Customs and the Ministry of Health. Furthermore, it will also help answer some of the private sector's vital questions by sharing information with the Chamber of Commerce, Development Bank and the BTIB.

The MoA is grateful in particular to the consultancy team, Dr Saia Kami (Team Leader), Mr Jone Seniloli (Database Specialist) and Mr Rajh Noel for their work and to the EU-funded PAPP programme for its support.

For more information, please contact Patrick Arioka (patrick.arioka@agriculture.gov.ck).

Pacific Cost-Benefit Analysis Initiative (P-CBA) Workshop for the Government of Tonga

The SPC/United States Agency for International Development (USAID) project Vegetation and Land Cover Mapping and Improving Food Security to Build Resilience to a Changing Climate provided funding for a P-CBA Initiative workshop in Tonga from 24-27 March 2015. In total, 25 participants from seven different government departments completed the course at the National Emergency Management Office in Nuku'alofa.

Organised in partnership with the Ministry of Agriculture, Forestry, Fisheries and Food (MAFF), the workshop was targeted at would-be practitioners and managers overseeing CBAs. Following the P-CBA course structure, five case studies were identified by different ministries for development into a CBA work-plan. The majority of attendants worked in the climate change and food security sectors, leading to a wide range of case studies from biodiversity protection to agriculture adaptation.

For more information on the workshop or the P-CBA Initiative, please contact James Jolliffe (jamesj@spc.int) of SPC's Geoscience Division.

Pacific Cost-Benefit Analysis Initiative (P-CBA) Workshop for the Government of Fiji

Around 40 Fijian Government officials participated in a three-day workshop on the principles of conducting CBA. With participants from a number of different ministries, the workshop focussed on public sector projects and policies that are at the proposal stage, in progress, or completed.

Funded by USAID through the Vegetation and Land Cover Mapping and Improving Food Security to Build Resilience to a Changing Climate project, the workshop was organised by SPC at the request of the Fiji Public Service Commission (PSC) and delivered by a team of economists under the P-CBA Initiative.

The Permanent Secretary for Finance and Acting Permanent Secretary for Strategic Planning, National Development and Statistics, Mr Filimone Waqabaca, delivered the opening address at the workshop held at the Suva Regional Office of SPC in Nabua from 8-10 April 2015.

In his remarks, Mr Waqabaca expressed the Fijian Government's support for "such important training programmes" and acknowledged the important role of CBA: "Given the Government's emphasis on investment and growth, cost-benefit analysis has become even more relevant in ensuring that the benefits to taxpayers are maximised."

According to Mr Waqabaca, "building in-country capacity to undertake such assessments not only gives the public added confidence that Government funds are being invested wisely, but also saves consultancy fees that can now be directed to more productive use."

For more information on the workshop or the P-CBA Initiative, please contact James Jolliffe (jamesj@spc.int) of SPC's Geoscience Division.



Pacific Cost-Benefit Analysis Initiative (P-CBA) Workshop for the Government of Tuvalu

As part of a wider effort to strengthen the integration of climate and disaster risk into 'mainstream' policy and related budgetary and decision making processes, a workshop on CBA under the P-CBA Initiative was conducted recently.

The P-CBA workshop provided training for the completion of a case study of alternative household energy sources as identified by the National Advisory Council on Climate Change of the Government of Tuvalu. This project is at the concept note phase and, therefore, provides a great opportunity for integrating economic analysis and climate resilience at the output stage.

To practice the skills presented during the course, a team of participants developed a work-plan for a CBA of installing biogas digesters for cooking gas across 40 households. An expert consultant, to be steered by the national team, has been contracted to support the full analysis. The analysis will be used to inform the design document of the biogas project (which is being supported with funding from the EU-Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)).

Support for the P-CBA workshop was provided through the Pilot Programme on Climate Resilience: Pacific Regional Track (PPCR-PR), the SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR) and the EU-GIZ Adaptation to Climate Change and Sustainable Energy (ACSE). The PPCR-PR is being implemented by the Secretariat of the Pacific Regional Environment Program (SPREP) and Asian Development Bank (ADB) and is funded through the Climate Investment Fund (CIF). The CCCPIR is being implemented by SPC and GIZ and is funded through the Federal Ministry for Economic Cooperation and Development (BMZ).

For further information, please contact Marita Manley (marita.manley@giz.de) or Aaron Buncle (aaronb.ext@sprep.org).

Pacific Economic Outlook, USP-Laucala Campus, 15-16 July 2015

To mark the official launch of the Asian Development Bank and Asian Development Bank Institute's report 'Pacific Opportunities: Leveraging Asia's Growth', the USP hosted the 2015 Pacific Economic Outlook at the Japan-ICT centre at the Laucala campus, Suva. Organised in partnership with the Development Policy Centre of the Crawford Institute of Public Policy at the Australian National University and attended by academics, policymakers, development partners and private sector representatives, the conference followed the broad theme of 'Pacific Development in a Changing Global Economy'.

Billed as the premier forum for research and analysis related to contemporary economic and public policy issues in the region, the conference opened with a discussion of the opportunities for Pacific Island countries to benefit from Asia's growth. Constraints faced by the Pacific region in terms of small land and population base, distance from large markets, small natural resource base and the recurrent shocks caused by cyclones and other climatic factors were discussed.

Running parallel to round-tables devoted to topics, such as macroeconomic policy and long-term fiscal modelling were sessions with an environmental and resource focus; papers were presented on agriculture and fisheries, extractive industries and energy markets and disaster risk management and climate change, among others.

For more information on the conference, including links to the presentations given throughout the event, please go to the following link: <https://www.usp.ac.fj/index.php?id=19169>.

Don't forget! The PREEN website and forum are open for use

PREEN's website is currently available at: <http://www.sopac.org/preen> where you will also find the PREEN forum. Please use the forum to post updates regarding practices in areas relevant to resource and environmental economics in the Pacific.

We look forward to receiving feedback and articles from our readers.
Please send these to jamesj@spc.int

The Pacific Resource and Environmental Economics Network aims to progress economic analysis for sustainable resource management in the Pacific by providing a forum for practitioners in Pacific to exchange information, ideas and experiences for mutual learning and professional development.