

DECENT WORK

A better world starts here.



International
Labour
Organization

Green Jobs in the South Pacific

A PRELIMINARY STUDY

Green Jobs in the South Pacific

A PRELIMINARY STUDY

Copyright © International Labour Organisation 2010
First published 2010

Publications of the International Labour Office enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorisation, on condition that the source is indicated. For rights of reproduction or translation, application should be made to ILO Publications (Rights and Permissions), International Labour Office, PO Box 500, CH-1211 Geneva 22, Switzerland or by email to pubdroit@ilo.org. Alternatively permission can be requested by fax: +41 22 799 6117 . The International Labour Office welcomes such applications.

Libraries, institutions and other users registered in the United Kingdom with the Copyright Licensing Agency, 90 Tottenham Court Road, London W1T 4LP [Fax: (+44) (0)20 7631 5500: email: cla@cla.co.uk], in the United States with the Copyright Clearance Centre, 222 Rosewood Drive, Danvers, MA 01923 [Fax: (+1) (978) 750 4470: email: info@copyright.com] or in other countries with associated Reproduction Rights Organisations, may make photocopies in accordance with the licenses issued to them for this purpose.

Green Jobs in the South Pacific
International Labour Office, Suva: ILO, 2010
58 p

ISBN: 978-92-2-123524-8 (print)
ISBN: 978-92-2-123525-5 (web pdf)

International Labour Organization, Office for Pacific Island Countries, Suva, Fiji

ILO Cataloguing-in-Publication data

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or if its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them.

Reference to names of firms and commercial products and process does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

Visit our website: www.ilo.org

Foreword

If the adverse effects of climate change on the natural environment, infrastructure and livelihood in Pacific Island countries are well known and documented, uncertainty still remains on the social and employment dimensions of climate change and its resulting policies and measures such as climate mitigation and adaptation. Furthermore, greater consciousness around the vulnerability of life support systems, the need to reduce the impacts on nature of human activities and adapt to the adverse effects of environmental and climate change in particular has brought out the importance of studying further the linkages between the environment, socio-economic development and employment in the Pacific. The research report 'Green Jobs in the Pacific' is a first attempt to address this information gap and better understand the impacts of environmental changes on the labor market as well as the dynamics of green employment.

In this regard, broad research was carried in four Pacific island countries and the challenges and opportunities that are associated with the expansion of some climate stressed economic sub-sectors analysed specifically in two pilot countries (Fiji and The Solomon Islands). In the process, the potential for the preservation of existing jobs and the creation of new decent jobs were also reviewed, in particular amongst young populations.

Information and data has been collected through desk and field research and consultations with government agencies, employers' organizations and trade unions as well as NGOs and specialized international agencies. In this context, due attention was paid to the potential and constraints attached to Green Jobs policies that are both supportive of the long-term objectives of a low-carbon, environmentally friendly, climate resilient development and of the immediate objectives of job recovery and decent work.

This report has been prepared in the context of the Green Jobs Initiative, an initiative launched in 2007 by the ILO in collaboration with the United Nations Environment Program (UNEP), the International Trade Union Confederation (ITUC) and the International Organization of Employers (IOE). Through concerted effort by governments, employers and trade unions, the Green Jobs Initiative aims to promote research and awareness, enhance the capacity of ILO constituents, develop policies and measures to achieve green jobs and green workplaces and facilitate a "just transition" that reflects the environmental, economic and social pillars of sustainable development.

This report is also a contribution to the implementation of the *Port Vila Statement on Decent Work* endorsed by the Tripartite High Level Meeting on Decent Work for Sustainable Development in the Pacific, held in Port Vila, Vanuatu, 08-09 February 2010. The meeting was attended by tripartite constituent delegates, including Labour Ministers, Senior Labour Ministry officials, Presidents and National Secretaries of Workers' organizations and senior representatives of Employers' organizations, from Australia, Fiji, Kiribati, New Zealand, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tuvalu and Vanuatu.

I trust that the findings of the report will help build the knowledge base that is necessary to assist policy makers and the social partners in addressing the defining challenges in the Pacific Islands states of overcoming poverty and providing decent work for the thousands of the coming working-age adults while at the same time finding policy responses that can tackle rapid environmental changes, in particular climate change.

I take this opportunity to thank the Foundation of the Peoples of the South Pacific International and its executive Director, Mr Rex Horoi for suggesting the consultant to undertake the country consultations and desk review for this report. I would like to also thank all the ILO staff who contributed towards this consultation and analysis including our Green Jobs focal person Tasneem Ali. My special thanks also goes to Professor Paresh Narayan formally from Fiji and now a Professor of Finance at Deakin University in Australia, for taking up this assignment despite tight schedules while also being able to deliver the report covering four countries in close collaboration with the ILO in a responsive and timely manner.

Trevor Riordan
Director a.i.
ILO Office for Pacific Island Countries

CONTENTS

EXECUTIVE SUMMARY		1
List of Acronyms		4
1.0 INTRODUCTION		5
2.0 BACKGROUND INFORMATION ON ECONOMY AND LABOUR MARKETS		7
3.0 FIJI		13
3.1. Sectoral contribution and main environmental challenges		13
3.2. Decent work issues for related sectors	14	
3.3. SWOT Analysis		18
4.0 Solomon Islands		27
4.1. Sectoral contribution and main environmental challenges		27
4.2. Decent work issues for related sectors	29	
4.3. SWOT Analysis		32
5.0 CONCLUSION		38
REFERENCES		42
Annex 1: ADAPTATION TO CLIMATE CHANGE: A SWOT ANALYSIS OF Pacific Island countries		46
Annex 2: DECENT WORK: A BRIEF OVERVIEW	49	
Annex 3: A NOTE ON COUNTRY REPORTS	5	3
List of Tables		
Table 1: Sectoral contribution to GDP	8	
Table 2: Labour force participation rate (LFPR)	9	
Table 3: Wage and salary earners and percentage of subsistence workers		9
Table 4: Total employment by sex, urban and rural areas (%)		10
Table 5: Sectoral contribution to GDP, Fiji	13	
Table 6: Components of real GDP (1985-100)	28	
Table 7: Natural disasters from 1982-2007	37	
Table 8: Status of decent work in Fiji and the Solomon Islands		50
List of Figures		
Figure 1: Growth rates of agriculture real value added (percentage)	12	

EXECUTIVE SUMMARY

The purpose of this report is to assess the challenges and opportunities that are associated with the expansion of specific economic sub-sectors, which are under stress from climate change in Fiji, Solomon Islands, Samoa and Vanuatu, with particular emphasis on the first two countries. In the process, the aim is to review the potential for the preservation of existing jobs and the creation of new decent jobs, in particular amongst young populations, as well as assess the decent work environment and challenges. The specific approach taken to achieve the objectives of this study were: (a) a detailed and thorough desk research, and (b) a wide country consultation process, involving key government ministries, NGOs, the private sector, and trade union bodies, on two Pacific Island countries—Fiji and the Solomon Islands—on which the case study on the ILO decent work agenda is based upon.

The main findings of this report are as follows. First, the Pacific Island countries, particularly their coastal and low lying areas, have been affected by a range of environmental issues, including deforestation, land degradation, sea level rise, waste disposal, inland water pollution, depletion of coastal and marine resources, loss of biodiversity, aquatic fish, and coral, depletion of energy resources, high population growth, rural and urban migration, and natural disasters, such as floods, droughts, cyclones, tidal waves, and earthquakes.

Second, there is insufficient awareness of the implications of climate change in the region, and hence countries lack sector-specific climate change adaptation and mitigation strategies.

Third, where climate change mitigation and adaptation strategies exist, there is lack of institutional capacity and financial and human capital constraints in implementing the programmes.

Fourth, some attempts have already been made to implement green technologies, such as solar systems, as a means of electricity in rural areas of Fiji and the Solomon Islands, leading to green job creation. However, generally among policy makers there is lack of awareness of green jobs and its gender implications on the female and male populations.

Fifth, the labour market in the Pacific Island countries is weak in the sense that the bulk of the workers are employed in the informal sector. It follows that in Fiji around 65 per cent of the workers and in the Solomon Islands around 85 per cent of the workers are in the informal sector. For these workers, the quality of a decent work environment is weak.

Sixth, of all the key sectors, it seems that sectors having the most potential for green job creation are: (a) tourism through sustainable tourism, eco-tourism and village

based tourism as is the case currently in Fiji and the Solomon Islands; (b) renewable energy with the implementation of solar energy systems in Fiji and the Solomon Islands, although further studies are needed to quantify the cost, benefit and sustainability issues related to this project; (c) food production, given that Pacific Island countries generally have fertile agricultural land and the bulk of their population is rural-based; and (d) recycling and waste management, where opportunities exist for implementing programmes that employ a significant number of people in ensuring efficient recycling and waste management.

Finally, the finding of this study with regard to green jobs is twofold:

(a) that the impact on the creation of new jobs (green jobs) from climate change adaptation and mitigation will be different for each of the four countries considered here; and

(b) that the loss of jobs and the absorption capacity of laid off female and male workers by other sectors will be different for different Pacific Island countries. This is significant in that it implies that Fiji, the Solomon Islands, Vanuatu, and Samoa, when it comes to sectoral contribution to GDP, are very much heterogeneous.

The broader policy implication of this with respect to green jobs is that different policy packages will have to be considered for each of the Pacific Island countries. From the point of view of green jobs and absorption capacity or otherwise of different sectors of the economy from climate change mitigation and adaptation, Pacific Island countries are likely to face different development challenges.

Our findings reveal a number of recommendations.

First, it seems that the government in Pacific Island countries needs to play a more proactive role in ensuring that countries move swiftly towards implementing key climate change mitigation and implementation strategies.

Second, there is a need for the government and the trade union bodies to work closely on the key labour market issues. The ILO needs to play a central role in ensuring that a robust relationship exists between key stakeholders on labour market issues, as at present, as the country consultations revealed, there is: (a) lack of knowledge on potential green jobs emanating from climate change adaptation and mitigation strategies; and (b) there is lack of capacity to develop sector-specific climate change adaptation and mitigation strategies.

Third, country consultations revealed that in both Fiji and the Solomon Islands, there is lack of communication between the government and line Ministries when it comes to climate change adaptation and mitigation strategy implementation. There needs to be a more focused and coherent approach to devising and implementing these strategies, with a clear monitoring framework in place. The ILO can play an integral part in assisting in the formulation, implementation, and

monitoring processes with respect to climate change adaptation and mitigation programmes.

Fourth, country consultations revealed that in both Fiji and the Solomon Islands, there is a concern regarding lack of data and documentation of the green growth-led activities in the region, which makes it difficult to identify projects and green jobs created in the process of climate change adaptation and mitigation. The ILO needs to play a lead role in ensuring that all activities relating to green jobs is documented and a specific gender disaggregated database established, so as to ensure that progress (or otherwise) on green jobs resulting from climate change can be monitored. Such a gender disaggregated database is important given the widely accepted fact that climate change (in particular sea level rise) will seriously affect Pacific Island countries.

The ILO needs to take a leadership role in undertaking climate change adaptation and mitigation led green job based studies for the other Pacific Island countries. This will be important to understand the issues impacting the labour market in the region as a whole, so that a more clear policy stance could be developed.

Finally, with the threat to gender inequality and child labour in the Pacific Island countries due mainly to the large informal sector, the ILO needs to undertake in-depth studies on two aspects of climate change: (a) the implications of climate change on women and children, with the aim of ensuring that gender inequality is not worsened as a result of climate change; and (b) a time use study of female work to ensure that their skills (and the need for re-skilling) can be developed in light of the potential evolution (although gradual, in the case of the Pacific Island countries) of a green job-based green growth economy in the region.

LIST OF ACRONYMS

ADB	Asian Development Bank
CBSI	Central Bank of Solomon Islands
CO ₂	Carbon dioxide
DW	Decent Work
DWCP	Decent Work Country Programme
DSE	Development Service Exchange
ESCAP	Economic and Social Commission for Asia and the Pacific
FSPI	Foundation of the People's of the South Pacific International
FTIB	Fiji Trade and Investment Bureau
FTUC	Fiji Trade Union Congress
GDP	Gross Domestic Product
GHG	Green house gases
HDI	Human Development Index
ICM	Integrated Coastal Management
ILO	International Labour Organisation
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
MDGs	Millennium Development Goals
MECM	Ministry of Environment, Conservation, and Meteorology
NGO	Non-government Organisation
PIC's	Pacific Island Countries
SWOT	Strengths, Weaknesses, Opportunities, and Threats
SICHE	Solomon Islands College of Higher Education
SICTU	Solomon Islands Council of Trade Unions
SOPAC	Pacific Islands Applied Geoscience Commission
SPTO	South Pacific Tourism Organisation
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
WTTC	World Travel and Tourism Council

1.0. INTRODUCTION

The last three decades has experienced significant greenhouse gas (GHG) emissions; it has averaged approximately 1.6 per cent per year. Over the corresponding period, carbon dioxide (CO₂) emissions from the use of fossil fuels have averaged around 1.9 per cent per year (Rogner *et al.*, 2007). Since the 1970s, the global warming potential of weighted emissions of GHGs have increased by approximately 70 per cent—most significantly, this increase has been about 24 per cent since 1990. The main source of this increase has been CO₂, which increased by around 80 per cent since 1970 and by around 28 per cent since 1990.

There are essentially seven sources of CO₂, namely electricity plants, industry, road transport, residential and service sectors, deforestation, refineries, and international transport. The main contributor to CO₂ has been power generation, industry and road transport, with power generation achieving the highest growth over the 1970 to 2004 period, followed by road transport and industry (Rogner *et al.*, 2007).

The last century experienced on average a 1°C global warming; greenhouse gases of which CO₂ is the main contributor has been recognised as the main reason behind this global warming. The most alarming fact is that even if CO₂ emission is maintained at its present level, which is highly unlikely, global mean temperature increase of around 2.8°C is still predicted. If this prediction is true, which is very much realistic given the rising trend in GHG emissions, then it is natural to expect further rises in sea level. The sea level rose on average 10-20 cm over the last century (Pachauri, 2007). The IPCC (2007a: 7) predicts sea level rises to be in the range of 0.18 to 0.59 cm this century. As with any prediction model, and the IPCC uses several of them, there is uncertainty about the forecasts, thus unsurprisingly, the IPCC does warn that the actual level of sea level rise can be much higher than those predicted.

Fiji, the Solomon Islands, and Vanuatu make up the high islands of the Western Pacific. In the Solomon Islands and Vanuatu around 80-85 per cent of people make a living in rural areas; by comparison, in Fiji only around 65 per cent of people participate in economic activities in rural areas. Around 90 per cent of Solomon Island's workforce is farmers. The main environmental problems for these countries are land degradation, unsustainable deforestation, water pollution from mining, invasion of exotic species, and depletion of coastal fisheries¹.

Samoa, by contrast, is a small island of Polynesia, and compared with the Melanesian countries, is relatively less developed. It has limited land resources, no commercial forests, and no commercial mineral deposits. As a result of a different dynamic economic structure, the environmental challenges faced by Samoa is relatively different from the three Melanesian countries, in that it faces scarcity of land, loss of native forest areas with associated loss in biodiversity, decline in coastal fishery resources, coral reef degradation, and solid waste disposal (Hay and Sueasi, 2006).

¹ This information was obtained during country consultations.

The purpose of this report is to examine the sectoral and labour market issues prevalent in the key sectors that are likely to be impacted by adverse environmental effects, in particular climate change. Also, the report will review the prospects for the creation (or loss) of green jobs in the Pacific Island Countries (Pacific Island countries), namely Fiji, the Solomon Islands, Vanuatu, and Samoa from environment related measures, in particular climate change adaptation and mitigation efforts. The study examines the need to adapt to the effects of climate change and possible climate change mitigation policies for these countries, and highlights the key challenges in this respect. Adaptation to and mitigation of climate change will be given specific consideration in this report, although other environmental issues will also be addressed.

Climate change adaptation²: includes strategies devised to minimize the adverse effects on countries from climate change. In short, adaptation measures—which can be technological, managerial, behavioral or policy related—are generally broad based, and this is indeed the case in the Pacific Island countries. It is generally believed that an amalgam of these measures can potentially be more effective, however.

Climate change mitigation, on the other hand, includes strategies aimed at reducing the anthropogenic contributions to the emissions of GHGs, which are considered to be the main source of global climate change through the greenhouse effect³. The four main mitigation strategies considered in the Pacific Island countries are: (a) reducing energy use (energy conservation) and improving energy efficiency through the use of new and innovative technology that decreases energy demand, (b) increasing the use of renewable through using energy sources that contribute lower emissions, such as biomass, and (d) sequestering carbon dioxide through increased carbon capture capacity (Solomon Islands, 2009). These mitigation strategies can be achieved through technological innovations, environmental management, and behavioral change, or a combination of these approaches, which can potentially be relatively more effective.

The paper specifically considers a case study of two Pacific Island countries—Fiji and the Solomon Islands on a strengths, weaknesses, opportunities and threats (SWOT) analysis of the green jobs prospects in the relevant sectors and analyses the key constraints for the creation of green jobs, including a detailed analysis of the status of and implications for the decent work agenda of the ILO.

² Adaptation to global warming consists of initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effect (Intergovernmental Panel on Climate change).

³ An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (Intergovernmental Panel on Climate change)

2.0. BACKGROUND INFORMATION ON THE ECONOMY AND LABOUR MARKETS

The goal of this section is to examine sectoral contributions to GDP and examine some key features of the labour market in the four Pacific Island countries—Fiji, the Solomon Islands, Vanuatu, and Samoa. Significant disparities are noticed in terms of key sectors contributions to GDP across all four countries based on latest data available—2006 for the Solomon Islands, 2007 for Fiji and Vanuatu, and 2008 for Samoa (see Table 1).

The main features of the data are as follows. First, the Solomon Islands is still heavily dependent on agriculture, which contributes over 35 per cent to GDP. By comparison, agriculture contributes 16 per cent to GDP in Vanuatu, 15 per cent in Fiji, and 10 per cent in Samoa. These statistics imply that in Samoa the role of agriculture in GDP is relatively small, in a comparative sense.

Second, for Vanuatu and Fiji the wholesale and retail trade sector seems to be the most important contributor to GDP, with its contribution in 2007 valued at over 31 per cent and 18 per cent for Vanuatu and Fiji, respectively. In the Solomon Islands, the wholesale and retail sector is the second most important contributor to GDP at 11.5 per cent, while in Samoa the sector is amongst the least important.

Third, the manufacturing sector is most important for Fiji's economy, with its contribution in 2007 valued at around 15.4 per cent, followed by Samoa at 10.6 per cent of GDP in 2008. The manufacturing sector is relatively less developed in Vanuatu (3.4 per cent) and the Solomon Islands (5.8 per cent).

The main implication of this finding with regard to green jobs is twofold: (a) that the impact on the creation of new jobs (green jobs) from climate change adaptation and mitigation will be different for each of the four countries considered here; and (b) that the loss of jobs and the absorption capacity of laid off female and male workers by other sectors will be different for different Pacific Island countries. This is significant in that it implies that Fiji, the Solomon Islands, Vanuatu, and Samoa, when it comes to sectoral contribution to GDP, are very much heterogeneous. The broader policy implication of this with respect to green jobs is that different policy packages will have to be considered for each of the Pacific Island countries. From the point of view of green jobs and absorption capacity or otherwise of different sectors of the economy from climate change mitigation and adaptation, Pacific Island countries are likely to face different development challenges. The sectoral impacts are considered in detail based on a SWOT analysis in Section 4.

Table 1: Sectoral contribution to GDP

Fiji	(2007, FJD)	Solomon Islands (2006, SBD)	Vanuatu (2007, VUV)	Samoa (2008, WST)
GDP Constant (‘000)	2,871,047	3,165,300	20,550,000	1,070,368
Agriculture, hunting & fishing	432,787 (15.1)	1,122,200 (35.5)	3,308,000 (16.1)	113,544 (10.6)
Manufacturing	440,993 (15.4)	184,500 (5.8)	701,000 (3.4)	125,133 (11.7)
Electricity, gas and water supply	122,564 (4.3)	53,900 (1.7)	484,400 (2.4)	49,475 (4.6)
Construction	152,334 (5.3)	37,900 (1.2)	871,000 (4.2)	129,136 (12.1)
Wholesale, retail & trade	528,799 (18.4)	362,700 (11.5)	6,417,000 (31.2)	190,493 (3.6)
Hotels & restaurants	n.a	67,700 (2.1)	1,232,000 (6.0)	38,476 (3.6)
Transport, storage and communication	391,838 (13.6)	263,700 (8.3)	2,439,000 (11.9)	156,308 (17.8)
Finance & business services	420,595 (14.7)	72,900 (2.3)	1,746,000 (8.5)	103,805 (9.7)

Source: Pacific Regional Information System—downloaded from www.spc.int/prism/economic/GDP/gdpconstant_.htm. Downloaded on 28 December 2009. Note: The percentages are in parenthesis and are computed by the author.

Next, we consider some key features of the PIC labour market with respect to each of the four countries considered here. The labour force participation rate is presented in Table 2 for each of the four countries for the latest year for which data is available. Although current data is lacking for the Solomon Islands and Vanuatu in particular, if anything, given the growth in population rate and lack of job opportunities as reflected in weak economic growth rates, one would expect the labour force participation rate would have fallen in the Solomon Islands and Vanuatu. This data limitation granted, we notice that total labour force participation rate is highest for Vanuatu (78.2 per cent), followed by the Solomon Islands (66.4), Fiji (55.0 per cent), and Samoa (50.0 per cent). Samoa has the lowest rate of participation.

Like we noted with sectoral contribution to GDP, there are significant disparities in total labour force participation rates in the four Pacific Island countries. In terms of gender disparities in labour force participation rates, similar level of heterogeneity exists; the male-female labour force participation rate disparity is largest for Fiji and least for Samoa, where female labour force participation rate is actually higher than that for males. It follows that Samoa is the only country where this is the case.

Table 2: Labour force participation rate (LFPR)

Fiji	(2007)	Solomon Islands (1999)	Vanuatu (1999)	Samoa (2006)
Male	72.0 72.2	85.5 67.5		
Female	37.6 60.4	70.9 73.0		
Total	55.0 66.4	78.2 50.0		

Source: Pacific Regional Information System—downloaded from www.spc.int/prism/economic/GDP/gdpconstant_.htm. Downloaded on 28 December 2009.

ESCAP (2008: 2) notes that one reason for this difference in labour force participation rate among Pacific Island countries may be likely due to the fact that “some countries consider all those engaged in subsistence activities as economically active, while others include only those who indicate that they are working for cash”. Moreover, ESCAP (2008) study points out that women’s engagement in economic activities is also treated differently.

In addition, we provide some additional data in support of the role of the subsistence economy in the four Pacific Island countries considered in this study. The total wage and salary earners and the percentage male, female and total subsistence workers are reported in Table 3. Interestingly, we find that there is a striking difference in the role of the subsistence economy-based employment amongst the four Pacific Island countries. Subsistence workers as a percentage of total employed is highest in the Solomon Islands (76.2 per cent), followed by Vanuatu (74.1 per cent). The role of subsistence income earners is relatively less in Fiji (15.6 per cent) and Samoa (29 per cent).

A second feature of this labour market is that while significant gender disparity in subsistence work is found in Fiji, the Solomon Islands, and Vanuatu, in Samoa there is barely any gender inequality.

Table 3: Wage and salary earners and percentage of subsistence workers

Fiji	(2007)	Solomon Islands (1999)	Vanuatu (1999)	Samoa (2006)
Male	181,691	39,761	41,236	17,714
Female	70,708	17,711	33,874	10,465
Total	252,399	57,472	75,110	28,179
Subsistence workers— Male	10.5 58.1	38.1 28.2		
Subsistence workers— Female	26.2 76.2	74.1 30.5		
Subsistence workers— Total	15.6 66.1	56.1 29.0		

Source: Pacific Regional Information System—downloaded from www.spc.int/prism/economic/GDP/gdpconstant_.htm. Downloaded on 28 December 2009.

Another important feature of the PIC labour market, given that traditionally they have mostly been agricultural (and hence rural based) economies, is the rural to urban distribution of employment. We provide some latest data on this in Table 4, and make the following observations. First, male employment as a percentage of total employment is over 67 per cent in Fiji, the Solomon Islands and Samoa, but lowest in Vanuatu at around 55 per cent.

Second, female employment as a percentage of total employment is fairly evenly distributed in three of the four countries—at around 30 per cent—except for Vanuatu where it is the highest at around 45 per cent.

Third, rural employment as a percentage of total employment is significantly high in the Solomon Islands and Vanuatu at 88 per cent and 82 per cent, respectively, while in Fiji there is an even distribution of rural-urban employment.

Fourth, in the Solomon Islands and Vanuatu over six times more women are employed in rural areas than in urban areas, while in Fiji the inequality is significantly less, with 15 per cent women in rural employment and 17 per cent in urban employment; Fiji is the only PIC in the region where there are more women employed in urban areas.

Table 4: Total employment by sex, urban and rural areas (%)

Fiji	(2007)	Solomon Islands (1999)	Vanuatu (1999)	Samoa (2006)
Total employment	298,974	574,474	75,110	53,928
Male employment				
(% of total)	67.939	68.511	54.901	67.642
Female employment				
(% of total)	32.061	30.816	45.099	32.358
Rural employment				
(% of total)	50.336	88.301	82.392	n.a
Male employment rural (% of total)	35.301	61.256	44.102	n.a
Female employment rural (% of total)	15.034	27.045	38.264	n.a

total)				
Urban employment (% of total)	49.664	11.696	17.634	n.a
Male urban employment (% of total)	32.638	7.925	10.799	n.a
Female urban employment (% of total)	17.027	3.770	6.835	67.642

Source: Percentages computed from raw data available at the Pacific Regional Information System—downloaded from www.spc.int/prism/economic/GDP/gdpconstant_.htm. Downloaded on 28 December 2009.

These statistics, from the point of view of green jobs, imply that in Solomon Islands and Vanuatu the impact on jobs from climate change adaptation and mitigation attempts will be different than in Fiji. For example, the bulk of the labour force in Vanuatu and the Solomon Islands is rural based (which is essentially agricultural activities – although the growth rate of agricultural value added has been fluctuating; see Figure 1). It follows that the inability to adapt to climate change leading to loss of agricultural activities will lead to large rural unemployment. The urban centers in these countries is neither developed enough to cater for rural-urban migration nor has the capacity to provide substitute employment opportunities.

Unfortunately, there is lack of time series data on unemployment rate for the Pacific Island countries. Of the limited data that is available, the ADB (2009) reports that for Fiji, the unemployment rate has increased from 5.4 per cent in 1995 to 8.6 per cent in 2008. This seems to be an understatement because poverty in Fiji was estimated to be around 35 per cent in 2002-2003 (Narsey, 2008), and with some estimates of poverty rate being as high as 40% (Narayan 2009).

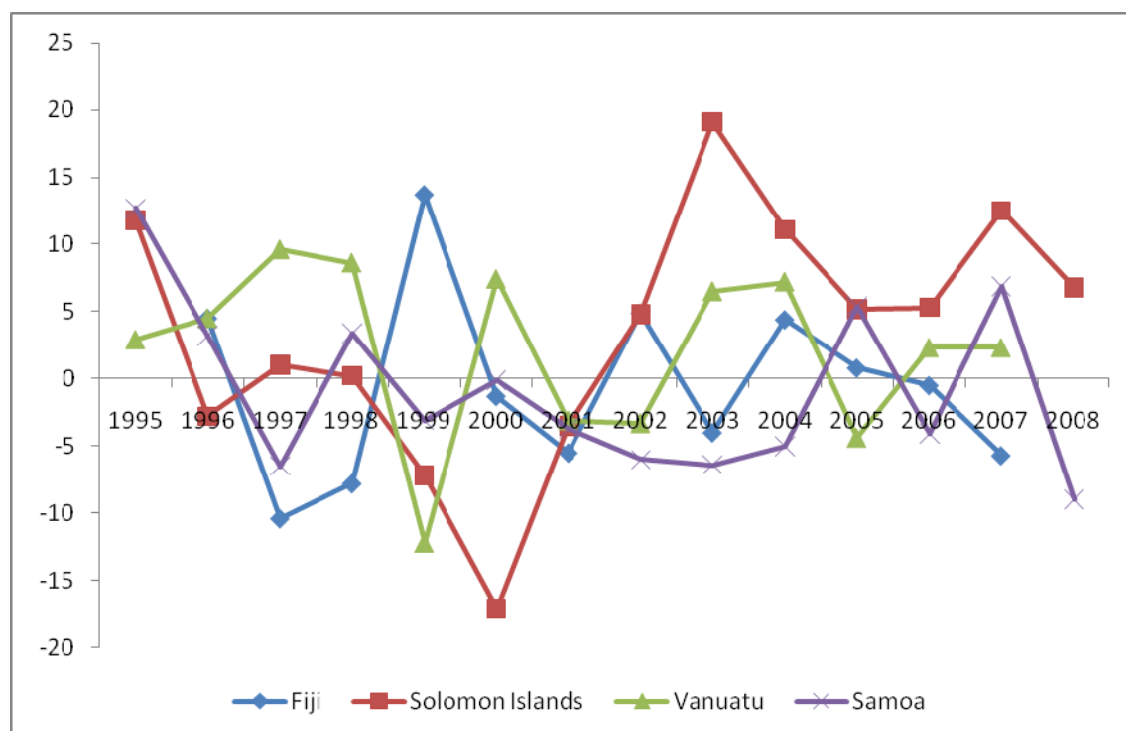
According to the ADB (2009) study, the unemployment rate has declined for Samoa, from 4.4 per cent in 2001 to 1.3 per cent in 2008. The unemployment rate for the 15-24 year olds was 13.1 per cent (Fiji, 1996), 12.2 per cent (Samoa, 2001), 46 per cent (Solomon Islands, 1999) and 3.1 per cent (Vanuatu, 2000). While the latest year for this data is relatively old, these figures are most likely higher now given that over the last decade or so the economic performance of these countries has been weak.

In Fiji and Samoa, for the years mentioned earlier, more females (16.7 per cent and 15.4 per cent, respectively) were unemployed than males. The same is true for the Solomon Islands, although the rate is significantly high: 48.8 per cent for females and 44.4 per cent for males.

In Vanuatu, by comparison, the trend is the opposite: there are more males unemployed (4 per cent) than females (2.1 per cent). These figures, for the same reason as alluded to above, are likely to be much higher for all the four countries.

These statistics reveal two things : (a) the unemployment rate, both total and by gender, is the lowest in Vanuatu; and (b) the Solomon Islands is a country with very high levels of unemployment. These two issues imply that the capacity to create new jobs in these countries is low. Moreover, the loss of jobs is likely if a particular industry, such as tourism or agriculture, shrinks due to sea level rise. Given the coastal location of tourism industry and agricultural activity based on low-lying areas, this is a possibility if adaptation strategies fail. As is clear from Figure 1, the growth rate of agricultural value added has been volatile for all the four Pacific Island Countries, and while over the last five years the growth rate in value added has declined, it is negative for Fiji, Samoa and Vanuatu. This trend does not augur well for job creation in agriculture for these countries.

Figure 1: Growth rates of agriculture real value added (percentage)



Source: ADB (2009).

3.0. FIJI

3.1. Sectoral contribution and main environmental challenges

The main economic activities, which are likely to be impacted by environmental changes, are tourism, agriculture, fisheries and construction. These industries together contribute over 35 per cent of Fiji's GDP. The sectoral contribution to GDP is presented in Table 5. The main features of the data are as follows. The contribution of agriculture has fallen over the period 2005 to 2008, from around 11.6 per cent of GDP to 10.3 per cent of GDP. The main reason for this has been the expiry and non-renewal of agricultural land leases, of which sugar cane production has traditionally been the main activity. A slight fall in activity in the construction and manufacturing sectors is also noted. These slowdowns are most likely due to weak overall economic performance—very subdued and negative economic growth rates over the 2005 to 2008 period. On the other hand, a slight increase in the contribution of the fishing sector and the hotel and restaurant sector is noted. The contribution of the fishing sector to GDP increased from 2.4 per cent in 2005 to 2.7 per cent in 2008, while over the corresponding period the contribution of hotel and resort sector increased from 4.3 per cent to 4.4 per cent.

Table 5: Sectoral contribution to GDP, Fiji

Sector	2005	2006	2007	2008		
Agriculture	11.6	11.5	12.0	10.3		
Fishing	2.4	2.9	2.5	2.7		
Manufacturing	14.2	15.0	14.5	14.1		
Hotels and restaurants	4.3	4.0	4.1	4.4		
Construction	3.2	3.2	2.8	3.1		

Source: Computed from the Reserve Bank of Fiji Quarterly (2009).

The main environmental challenges⁴ for Fiji are deforestation, land degradation, sea level rise, waste disposal, inland water pollution, depletion of coastal and marine

⁴ While all Pacific Island countries are expected to be greatly impacted by the effects of climate change and sea level rise, Tisdell (2008: 895-896) explains that the magnitude and nature of this impact will be contingent on geographical features of the islands, in that “States consisting of atolls will lose most of their habitable land, whereas those comprised mainly of high islands will be affected less”. Samoa, for example, is made up of high islands and is expected to lose limited land from expected sea level rises. On the other hand, Fiji, the Solomon Islands, and Vanuatu—lands that are made up of high islands and atolls, will lose atolls, but will have the capacity to reallocate people within their borders (Tisdell, 2008: 896).

resources, loss of biodiversity, aquatic fish, and coral, depletion of energy resources, high population growth, rural and urban migration, and natural disasters, such as floods, droughts, cyclones, tidal waves, and earthquakes (Tadulala, 1998). Deforestation has been common for decades now, mainly driven by the timber export market. In the process, this has become one of the most serious environmental problems in Fiji because clearing of trees has led to land degradation, loss of biodiversity, sedimentation of inland and marine waters, soil erosion, air pollution, landslides, and an increase in food hazards.

Sea level rise is the most serious threat of climate change. It matters most for Fiji because the coastal areas are rich in economic activity, such as tourism (Fiji's largest industry) and subsistence and commercial agriculture (which has significant linkages with the rest of the economic sectors, such as retail and trade, hotel and transportation and water and electricity). The most vulnerable industries, settlements and societies will be those in coastal and river flood plain areas, such as Navua, Rewa, Nadroga, Nadi in the case of Fiji. There are a number of squatter settlements that are located around coastal and river flood plain areas. The squatter population in Fiji is expected to be around 100,000, approximately 12 per cent of Fiji population. Around 80 per cent of the squatter population will be affected directly from sea level rise in Fiji. Hence, the economic cost of sea level rise to Fiji is likely to be significantly high compared with other Pacific Island countries (see related discussion in Mimura, 1999: 138-139).

Rainfall patterns: Climate change by virtue of changing rainfall patterns is likely to lead to severe water shortages and/or flooding. Temperatures are rising, contributing to changes in crop growing and harvesting seasons (IPCC, 2007). This is particularly relevant for Fiji, where agricultural production is the key to economic growth. The change in seasonality of crop harvesting will have adverse effects on food security; and, as a result, more and more people will be exposed to diseases, including diseases emanating from hunger. At present around 5 per cent of Fiji's population suffer from hunger (Narayan, 2010).

3.2. Decent work issues for related sectors

The total agricultural labour force includes waged agricultural workers, self-employed farmers and self-employed workers. The bulk of this labour force is engaged predominantly in cultivation and harvesting in plantations, commercial agriculture, horticulture, and primary agricultural processing. In addition, a significantly large number of (as explained by the Ministry of National Planning) unpaid family labour is engaged in small-scale farming, including vegetable farming.

Employment deficit

Employment deficit refers to a condition in which people are unable to find jobs or operate a business within the formal economy. Naturally, in the absence of employment opportunities in the formal economy, people engage in less productive,

less remunerative, and less ideal work environments. In Fiji, the informal sector has expanded substantially, from around 40 per cent in the 1980s to over 65 per cent in 2009. This has been brought about by over two decades of weak economic growth, where economic growth has averaged only around 3 per cent per annum against expectations of a 5 per cent per annum growth rate, and weak investment performance—private investment have only averaged around 10 per cent against expectations of a 25 per cent of GDP. There is limited capacity for informal sector workers to switch to formal sectors due to underdeveloped skills and qualifications, and due to lack of opportunities in the formal sector. The informal sector's capacity to develop is constrained by lack of access to formal credit institutions and markets. Accessing capital through informal suppliers comes at a higher cost. Moreover, due to lack of training and knowledge on technological issues, informal sector workers are restricted to low productivity.

The current level of unemployment in Fiji is high. While around 9 per cent is reported by official figures, unofficially this figure is around 35 per cent at least (Narayan, 2009). The lack of formal sector job opportunities has led to the creation of a large informal sector, which stands at around 65 per cent of the total work force.

Hence, Fiji has accumulated a huge formal employment deficit.

Rights deficit

Generally speaking, informal sector workers and self-employed workers are not recognized or regulated by the government. As a result, they are not entitled to legal protection under business and labour laws and regulations. The lack of legal protection means that workers are intermittently subjected to bribery and repression, harassment (including sexual harassment), and extortion. In Fiji's case, as the FTUC explained, the informal sector workers are not covered by labour legislation because there is no formally recognized employer-employee relationship. Even in the formal sector, the FTUC explained that it was difficult to engage employer-employee relationships for low-skilled workers because of the fear on the part of the employees that they could lose their jobs. Thus, these workers are unable to demand a minimum wage, improve their working conditions, etc. It follows that given the growing and large informal sector, with no formal legal and institutional obligations, the bulk of Fiji's work force face a rights deficit.

Social protection deficit

The social protection deficit essentially deals with insecurity of job and income and the absence of protection in the workplace and society. In Fiji, the informal sector workers are at risk of exposure to serious occupational safety and health hazards. One good example pointed out by the Ministry of Environment regards the waste scavengers. Waste pickers are unemployed youths and school children (street children) who basically search for usable or saleable waste to supplement their families' income. The items collected are also likely to be potentially dangerous and,

among other things, includes chemicals from factories and hospitals. Without the use of appropriate gear, such as gloves, boots, and masks, the scavengers are exposed to health risk.

Similarly, child domestic workers, which have increased over the last decade or so with the expansion of squatter settlements (with around 12 per cent of population living in squatter settlements) are exposed to lack of social protection. They miss out on schooling and work under poor conditions and in stress. Similarly, other activities in Fiji's informal sector, such as mechanical work, tailoring, and electrical work are all performed under poor working conditions and environment. It follows that informal sector workers in Fiji generally suffer from poor working conditions, income insecurity, and exposure to serious occupational health and safety hazards. Moreover, children working in informal sectors often experience physical and moral threats, suffer from poor health, have little educational opportunities and work in unsafe and unhygienic conditions. It follows that given the large informal sector, in Fiji there is a net social protection deficit.

Implications for specific sectors

Tourism: the growth of Fiji's tourism industry has led to the creation of the prostitution industry. This is an illegal activity in Fiji. Prostitutes in the industry are at huge risk of sexual transmitted diseases. Moreover, the commercial sexual exploitation of children is of concern in Fiji. A recent study established a strong connection between child commercial sex work and the booming tourism industry in Fiji (Save the Children Fiji, undated). Their unfavorable working conditions are well understood. It follows that for these workers, there is no social protection and no opportunities for social dialogue.

For the informal sector workers of the tourism industry there is no social safety network as they are not members of the Fiji National Provident Fund.

Agriculture: There are two specific issues in this sector relating to decent work. First, is the seasonal nature of employment in the sugar industry. Sugar planting is a seasonal activity where workers work only six months in a year. Workers, hence, are part-time workers who are not affiliated with any trade union body. They are not part of any social dialogue, they do not have any social security safety net, their work conditions including wage rates are determined by the landlords, and their exposure to weather (mainly extremely heat) is a health hazard. There is also the use of child labour in Fiji's agriculture sector, which limits educational and formal sector opportunities for children, and exposes them to be health risks. The same is true with women workers in Fiji's agricultural sector. More and more women workers in the form of unpaid labour are used in agricultural production, which contributes to the gender disparity in employment.

While there is no official statistics on child labour in Fiji, it is a common practice in the agricultural sector. Numerous cases of child labour have been reported in the media. One survey based study by Farm Consultancy (2004) found high incidence of child labour in Fiji, and found that the main motivation for child labour was to escape poverty.

Stability and security of work: in the agricultural sector, this is uncertain. In Fiji slightly over 50 per cent of the population, engaged mainly in agriculture, forestry and fisheries activities, find themselves with insecure work and incomes. These economic activities are prone to natural disasters and global commodity price swings; both factors are beyond the control of policy makers. This uncertainty exposes the bulk of the workers in these countries to insecure and unstable jobs. Similarly, the largest industry, tourism, while an important source of income for over 40,000 workers, is also unstable and insecure. The instability and insecurity is linked to the political instability over the last couple of decades. As a result, hotel occupancy rates can fall to as low as 20 per cent and many workers are laid off as a result.

Waste management: as explained above, the health risks are serious, particularly for children. There are a number of waste dumps in Fiji. These are open and accessible to waste pickers. The waste pickers, who search for potential usable or sellable waste items, are mainly unemployed youths and school children. These workers operate without the use of appropriate gear such as gloves, boots, and masks—the absence of which exposes scavengers to health risk.

General decent work issues for the above-mentioned sectors

Social security: Fiji has in place a national provident fund. The social welfare benefits of such a fund are, however, only restricted to the formal sector, which is very small (35 per cent of the labour force). It follows that there is inadequate social security for the bulk of the work force in Fiji.

Social dialogue and employees' and employers' representation: In Fiji, social dialogue relating to work conditions, including setting up of minimum wage rates, is well contained in the various Labour Acts and Wages Acts. However, this opportunity is only available to the formal sector employees'; the bulk of the workforce which includes many female workers, which is based in the informal sector, does not have the freedom of social dialogue when it comes to their terms of conditions of work.

Economic and social context for Decent Work: In Fiji, the economic and social context for Decent Work is weak. On the social side, unemployment and poverty are at alarming rates and are a major policy/development challenge. On the economic side, Fiji suffers from inadequate economic growth, which has, in part, contributed to inflationary pressures: the inflation rate in Fiji over the last five years has averaged over 5 per cent per annum, meaning that real incomes of people have fallen in recent years.

Equal opportunities and treatment: The issue of gender gap exists in Fiji. Female work, particularly unpaid care work, goes unnoticed in many developing countries, and Fiji is no exception. In recent study on Fiji, based on the Household and Income Survey data, Narsey (2008) found that males earned 19 per cent more than females. The adult literacy rates for male and females are much narrower, however, at around 5 per cent.

Safe work environment: In Fiji, the Workers Compensation Act covers for work related injuries and illness. Alas, this is only true for the small formal sector. As highlighted earlier, the informal sector is large and growing and represents over 65 per cent of the workforce. This means that for the bulk of the workforce—those in the informal sector—the work environment may pose serious threats and could well be a health hazard for a large proportion of the informal sector workers.

3.3. SWOT Analysis

Sustainable tourism

Strength: The Fiji tourism industry has taken a leadership role in ensuring an environmentally sustainable tourism industry through the establishment of the Green Fiji Standard—the Green STAR Accreditation rating from AAA Tourism and the AAA STAR Rating Scheme. To be awarded a Green STAR Accreditation, a set of strict practical environmental criteria needs to be met. These criteria include: (a) achieving energy efficiency, (b) minimize waste, and (c) efficient water management.

In Fiji the ecotourism sector is relatively more developed, creating jobs mainly for the villagers. While no exact figures on jobs in this sector are available, there are numerous ecotourism products which are “village-labour intensive” or involve local communities. These include the Colo-I-Suva Forest Park which was established in 1972; The Singatoka Sand Dunes National park which was established in 1989; the Bouma National Heritage Park, which is purely community based and began in 1990; the Koroyanitu National Heritage Park, which is also community based, and started in 1990; and the Taveuni Hill Fort, another community-based ecotourism product, which started in 1992.

In a recent study by the Fiji Ministry of Tourism, it was revealed that the proportion of tourists engaging in non-organised activities has increased. For example, the percentage of tourists interested in Fijian Meke has been around 19 to 38 per cent between 1998 to 2002; similarly those interested in village tours has been around 17 to 22 per cent over the same time period. Another study has shown the willingness of tourists to support green initiatives in the Fiji tourism industry. Becken (2004), for instance, found that tourists would be most willing to pay for the protection of coral

reefs and marine life (around F \$18 per tourist). Tourists were also willing to support forest conservation efforts, contributing on average around F\$14 per tourist.

Weakness: Weaknesses: there is a lack of marketing of “green tourism” and indeed ecotourism of Fiji.

Opportunities: Fiji’s tourism industry has embraced a range of mitigation measures such as: (a) improving driving behavior, (b) maintaining sufficient tyre pressure, (c) maintain the engine and cleaning oil filters (the transport authority in Fiji conducts intermittent road checks on vehicles and imposes a heavy financial penalty on owners of vehicles considered not to be of sufficient standard), (d) switching off the engine when waiting, (e) maintain comfortable temperature levels in guestrooms at levels ideally between 20-25 degrees Celsius, (f) planting trees to provide shade and where building new accommodation consideration is given to designing buildings that maintain cool temperatures, (g) setting water temperatures at no more than 60 degrees Celsius, (h) covering swimming pools to avoid heat loss, (i) making best use of daylight to avoid high electricity costs for lighting, (j) using energy efficient light bulbs (fluorescent bulbs), and (k) encouraging staff to switch off lights when rooms are not in use. These measures are likely to boost the sustainability of Fiji’s tourism industry. In the process, the industry is likely to create jobs.

Threats: In Fiji’s tourism industry, there are several concerns with regard to sustainable tourism. First, is that the well-developed Fiji tourism industry infrastructure has been underutilized in recent years, depriving investors and people involved with the industry (including the 40,000 workers) from reaping full benefits from the industry.

Second is the issue of water supply and waste water treatment. In some cases, and in particular in Small Island based tourism locations such as the Yasawa islands, drinking water is of poor quality, as it is supplied through a local stream. It is predicted that this stream water is contaminated or polluted.

Third, some resorts collect rain water. However, this collection of water is associated with health risks, which result from poor maintenance of catchment areas (such as roofs). It follows that a strict maintenance of water quality is required to ensure that sufficient health standards are maintained in the industry.

Fourth, most of the smaller tourism operators have septic tanks that are inadequate for treatment as retention periods are very short, which is a result of high water consumption by tourists.

The sea level rise is a major threat to employment in Fiji’s tourism industry given its geographical location—that is, the bulk of the operations are coastal and/or based in low-lying areas. The loss, given that Fiji’s tourism infrastructure is highly developed, is likely to be immense. Unfortunately, there are no studies on this. The issue of adaptation of the tourism industry from sea level rise poses the question: how far

inward can the tourism industry move to sustain itself? The answer is not very optimistic, as found during consultations with the Ministry of Tourism. Moving inland will meet residential resistance and rugged terrain, the cost of addressing both these issues and converting land currently used for other purposes into tourism infrastructure will be both costly and time consuming. The Ministry of Tourism and the trade union bodies were probed on likely challenges and possible ways of addressing this problem, but there seems to be no policy direction on this. While relocating is a long-term solution, the short term could be integrated coastal management. With the negative effects of tourism on the environment a traditional problem, coastal tourism has become a key component of integrated approaches towards coastal management (Hall, 2001). This is indeed the case in Fiji given that Fiji's tourism industry is largely coastal based.⁵

The bulk of the 40,000 people employed in Fiji's tourism industry are likely to lose jobs from sea level rise. This is because due to sea level rise, given the coastal location of the industry, a lot of tourism infrastructure will be lost. This is because some studies show that sea level rise poses a major risk to tourist locations. For example, Gravelle and Mimura (2008) find that the high risk and priority locations due to sea level rise in Fiji are Suva, the major tourist centre and arrival port of Nadi, and Fiji's second largest city, Lautoka.⁶ It follows that as a result of sea level rise, the tourism industry will be most seriously affected. The net effect will be a reduction in the size of the industry. The development of potentially new infrastructure is likely to create jobs. Developing new infrastructure will be one of the solutions for maintaining the size of the industry, and essentially re-allocating the industry in-land. The other solution will be village-based (or eco-tourism) tourism. Of course this will lead to a change in Fiji's tourism product, from luxurious beach-based tourism to village-based tourism. The main risk is that it is uncertain whether tourists will be able to make the switch from one type of tourism service to the other. This adaptation process actually makes the labour market response complex for the following reasons.

First, it is unclear whether Fiji possesses the capacity (both financial, including foreign investors, and human capital) to develop this potentially fresh tourism infrastructure. There is lack of confidence on this option from the Ministry of Tourism and the Fiji Trade and Investment Bureau (FTIB). They are of the view that the state lacks the

⁵ Integrated coastal management was a concept that emerged from the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit (held in Rio de Janeiro, Brazil). The importance of integrated coastal management and, as a result, oceans and coasts for sustainable development is well contained in Chapter 17 of Agenda 21 of the UNCED. In particular, it is worth noting that through integrated coastal management, oceans coastal areas in many cases present excellent opportunities for development, which if sustainably conducted can yield significant economic and social benefits for coastal human settlements while at the same time protecting environmental integrity (Cicin-Sain *et al.*, 1995).

⁶ A leading regional scientist, Professor Patrick Nunn, has also predicted that by 2027, Nadi town (the main tourist town), Lautoka, and Labasa will be under water (Pareti, 2008).

capacity to invest large sums of money on the industry given budgetary constraints and, equally importantly, the investment decisions will have to be dependent on a feasibility study on this project.

Second, even if Fiji does pursue a long-term strategy of developing new tourism infrastructure, it is most likely (although additional work needs to be done to ascertain this) that the bulk of those laid off (given their nature of skills) will be unable to make the switch to a “tourism infrastructure development” based job opportunities.

Sex Tourism is also a concern for the tourism sector workers in the Tourism industry that is rapidly becoming the key economic backbone for many Pacific Island countries such as Solomon Islands and Vanuatu. The ILO standards department, SECTOR, in close cooperation have developed a HIV/AIDS guideline

Energy efficiency and renewable energy generation

In Fiji, the majority of energy consumed is from biomass. Traditionally firewood was widely used for domestic energy needs, particularly those relating to cooking and heating. However, over the last decade access to fuel wood has been limited; its scarcity has been in large part due to over harvesting. In both countries, imported petroleum, such as petrol, diesel, oil and kerosene, is the largest source of energy demand, with over 95 per cent of electricity generated from diesel generators or combusting other fuels.

Strength: national development plans identify the need for prudent government policies for planning and management of the energy sector. There is some evidence of green job creation in Fiji’s energy sector, mainly through the production and installation of solar energy systems. The Fiji government has in place a rural electrification program, which encourages more homes and schools to install solar energy systems. The scheme is focused on the second largest island of Vanua Levu. The way it works is that the electricity tokens that trigger the system to provide electricity to households are dispatched to various postal agencies where the villagers buy them at a cost of \$14 per month.

A local company is contracted to assist in monitoring and maintenance of the project. So far a total of 1039 solar home systems for lighting purposes have been installed (over the last seven years). It is expected that another 400 systems will be installed by the end of March 2010 and a further 400 systems by the end of December 2010. The target is to have 15,000 solar systems installed by 2016. Under this program, five local companies are involved in providing two specific services—installation and suppliers of solar system related products.

Weaknesses: there is lack of investments in green technologies that can potentially deliver energy efficiency.

Opportunities: there are opportunities for green jobs emanating from renewable energy. In Fiji, for example, under the rural electrification scheme, solar energy systems have been implemented, which in the short term is likely to generate around 2,000 jobs⁷. The job types are mainly related to installing of solar energy systems

⁷ Source: Fiji Department of Energy.

(technicians), providing maintenance services, delivery of equipment and parts (drivers), and general administrative jobs in management of operations. The secondary employment effects are also there, such as banking services, transportation, and utilities; however, it is difficult to quantify the exact jobs created in this process.

The other source of opportunity is through biogas. The Fiji Department of Energy has embarked on a venture that aims to promote biogas plants to ensure greater use of energy from bio-degradable waste material from animals (Panapasa, 2009). However, a field survey report by SOPAC reveals that while the prospects of utilizing animal waste for producing biogas for household energy use, such as cooking, is promising, there is lack of capacity in the construction and installation of biogas plants. Lastly, one of the other options that Fiji can explore is wind mills, which maybe a cost effective option. However, feasibility studies would need to be conducted in order to ascertain the effectiveness of wind mills in Fiji.

Threat: there is a need for building public-private partnerships in producing and implementing green technologies/products and systems. At present, according to the FTIB, green technology related investment is not a priority of the government. There are possible financial constraints in terms of developing green technology based production infrastructure.

*Water conservation*⁸

Strength: Fiji has in place an integrated water resource management plan.

Weaknesses: lack of data regarding water quality is a key concern in Fiji. While the quality of water in major rivers and streams is believed to be reasonable, data are not organized and well coordinated. SOPAC (2007) reports that there is limited data on the impacts of agricultural chemicals on surface water resources.

Opportunity: The Water Resource Programme provides opportunities to address climate change and climate related issues. Water resource managers can address

⁸ Freshwater resources are considered to be an important but threatened resource in the island countries. Population growth in all the four Pacific Island countries, more so in the Solomon Islands and Vanuatu, and economic activities, such as those relating to construction, agriculture and tourism, are likely to elevate water use to unsustainable levels. Scarcity of water as a resource for these sectors will lead to loss of jobs in these sectors. Scarcity of water—given that clean water supply is an existing problem in the Solomon Islands and Samoa in particular, is likely to create health problems. Except for Fiji and Vanuatu, where governments filter and chlorinate water supply, thus water is safe to drink, structural problems, such as lack of government motivation to upgrade and maintain water reticulation and treatment systems, exist in the Solomon Islands in particular.

current stress on water supplies and bring flexibility and robustness into the system in anticipation of climate change.

In terms of opportunities for green jobs through water conservation efforts, there is clearly potential, but only if the water resource management plans are fully implemented. In actual fact, the water resource management plan identifies the lack of human capital as a key factor responsible for the failure of plan implementation. It follows that from a green job perspective there is a need for re-skilling labour force to meet this market demand.

Threat: there is lack of policy coordination, and institutional capacity to implement the water resource programme. The main threat to water conservation effort is not the lack of policy but one of lack of commitment and understanding of the importance of water conservation.

Food production

Strengths: Fiji has abundance of fertile land for food production. There are local markets for food, such as the tourism industry, in particularly the hotel and catering sector of the industry, and the local consumption demand. Food production, in particular vegetables and a range of tropical fruits are not imported, but are produced and consumed locally. So the food production market, at least for small scale farming, exists in Fiji. The agricultural sector, because traditionally it has been considered as the backbone of the economy, has received greater emphasis in national development plans. In terms of agricultural growth policies, such as government support for agricultural farming in terms of subsidies for agricultural inputs, such as fertilizer and other farming inputs, the sector has benefited. Moreover, specific initiatives such as agricultural extension services including research and development is provided to farmers by the Fiji College of Agriculture.

Weaknesses: there is lack of policy coordination between the Government and line ministries in terms of strengthening agricultural production capacities, as reported by the Ministry of National Planning. This is because agriculture and in particular food production has not been given prominence in light of the push towards industrialization and service sector outputs, which are believed to have relatively greater potentials for job creation. As a result, Fiji has moved away from rice production, regarding which at one time Fiji was self-sufficient but now imports all its rice consumption demand. With unresolved issues on land, such as land tenure, the situation with respect to sugar production is likely to follow that of the rice industry. With greater emphasis placed on the non-agricultural sectors, there has been lack of investments in the agricultural production area due to the heavy emphasis on manufacturing and service sectors, seen as engines of growth. In terms of consumption pattern in Fiji, over the last decade, there has been a switch towards the consumption of imported goods (see Narayan and Narayan, 2009). This has been attractive because canned processed food, particularly from Asian countries, mainly China, into Fiji has been cheaper than local alternatives. While climate mitigation

policies recommend reducing dependence on external markets, globalization—leading to cheaper processed food imports—have actually led to the antithesis.

Opportunity: The bulk of the population is still mainly rural-based, although over the last decade, with the expiry of agricultural land leases in Fiji, it has started to gradually switch from agricultural to service sector-led growth. Despite this, however, the main comparative advantage remains with fertile agricultural land. It follows that in light of increasing food prices, due mainly to the oil price hikes in recent times, an opportunity exists for employment creation in food production, mainly those that relate to domestic markets, such as vegetables, fruits, poultry, and dairy farming. An issue that needs to be examined in detail, however, is what types of food production these two countries can engage in as they attempt to adapt to climatic changes. One aspect of farming that needs to be explored in some detail is the prospects of organic farming, as the potential for green job creation is likely to be high. Because organic farming relies on crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity, the tourism industry—which is already on the path of greening the industry—may be one of the main markets for organic farm outputs. The future for organic farming is also bright in the sense that as more and more industries and indeed the economy moves towards adopting green approaches to economic growth and development, the demand for organic farm products will increase. Moreover, food production will reduce dependence on cheap imported processed foods, thus contributing to the mitigation of climate change and creating green jobs.

Threats: Increased intensity and frequency of cyclones have been having a long lasting effect on food production in Fiji. In the aftermath of cyclones and flooding substantial damage to subsistence and commercial agriculture has been recorded. For example, heavy flooding of the Wainibuka and Rewa rivers in Fiji in April 2004 damaged between 50 per cent and 70 per cent of crops (Lal, 2004). In Fiji, the expiry of land leases and its non-renewal has sparked a decline in agricultural production and output. It follows that issues related to land (and property rights) threaten food production and indeed food security.

Recycling and waste management

The dumping of solid waste is affecting reefs, lagoons, inshore fisheries, beaches and land. In Fiji, the issue of solid waste has become a significant problem. To address this problem, Fiji has introduced the National Solid Waste Management Strategy, which has the following objectives: (a) reduce the amount of waste generated by each community; (b) make best use of generated waste; (c) develop and implement social and economic incentive mechanisms to change wasteful behavior; (d) improve and upgrade existing waste management and disposal systems; and (e) encourage and provide waste management practices, which minimize the environmental risk and harm to human health (Department of Environment, 2008).

Strength: There is relatively more commitment on the part of policy makers to implement a waste management strategy that is consistent with the need to reduce the environmental impact posed by waste generation including in the context of changing climate conditions (sea level rise, changing rainfall patterns, floodings, etc). The progress is, however, slow but the Environment Act is in place.

Weaknesses: There is also lack of technical knowledge on how to manage solid waste. There is lack of technical skill on solid waste management. Moreover, existing organizations' training plan on solid waste management might be outdated and inefficient in light of technological innovations in this sector. It follows that there are significant loopholes and backwardness on human resource and technical capacity issues.

Opportunity: recycling and waste management is likely to create jobs in waste collection and recycling, which is likely to be medium skilled jobs, such as scrap metal, composting, battery recycling, etc. While this can be considered as green jobs, whether or not it will be creation of 'decent green jobs' is something that remains to be seen for two reasons: (1) this transformation (that is, towards recycling and waste management) has not been achieved yet, although policies are in place; and (2) given that these are likely to be medium skilled jobs, poses two specific issues—whether these will be formal sector jobs given the already large informal sector and whether these will be decent work.

Waste pickers are an integral part of recycling. Recycling by waste pickers can potentially save municipalities money by reducing the volume of waste that needs to be collected, transported, and disposed. Through organized recycling—that can be achieved through government regulations—waste pickers can strengthen their bargaining position with stakeholders (mainly industry and government). A collaborative work in an organized manner can lead to higher and stable income for waste pickers, lower cost of recycling for municipalities, and legalization of waste picking activities. Government needs to consider formalizing this sector so that effective social and economic principles can be followed in contracting work for waste pickers and in dealing with their work conditions. This is likely to contribute towards a relatively more efficient and effective recycling scheme. The waste management plans do not propose formalizing waste picking activities. There is an opportunity to do this.

Threat: waste mismanagement poses a serious threat to the environment, making it unsafe and unattractive for both residents and tourists, and is a serious health threat. It is a source of several health related diseases, which if uncontrolled, will put pressure on state resources to fund health care.

Essentially, the work of waste pickers remains the biggest threat. Many waste pickers belong to vulnerable groups, mainly the unemployed, disabled, women, children and

elderly. They work in hostile environments, where daily contact with all kinds of waste (including chemical waste) is common.

Adaptation to climate change

Strength: the largest industry, tourism, has developed a climate change adaptation plan, as outlined in the South Pacific Action Strategy for Green Tourism.

Weakness: There are two main weaknesses. First, apart from tourism Fiji does not have a climate change adaptation plan for other sectors, including agriculture and fisheries. Because tourism is coastal based, a coastal resource management plan, leading to the protection of mangroves, corals and other marine species, will ensure mitigation of climate change; and the activities involving the coastal resource management will lead to creation of green jobs. Second, as it became evident during the country consultations, there is little knowledge among key institutions about Fiji's adaptation capabilities in response to climate change, particularly with respect to the labour market. Moreover, the FTUC identifies the lack of coordination between the trade union body and government as a major impediment for active labour market policies in Fiji.

Opportunity: The adaptation action plan for tourism could be used as a benchmark and/or a model to develop action plans for other key sectors such as agriculture and fisheries, which share common environmental issues with the tourism industry.

Threat: Lack of human and financial resources are identified as main constraints towards the development of sector specific climate change adaptation plans and their implementation. Lack of knowledge on sector-specific climate change implications is identified as the main reason for the lack of climate change adaptation plans for the agricultural sector.

There is generally a lack of understanding of the issue of green jobs amongst key institutions in Fiji, except for the Fiji Energy and Electrification Department. The seven Institutions that were consulted, when probed about green jobs, had no idea of the specific impacts on the labour market, such as jobs created or lost as a result of embracing climate change adaptation and mitigation strategies. This would imply that there is lack of knowledge on sector-specific climate change adaptation measures.

4.0. SOLOMON ISLANDS

4.1. Sectoral contribution and main environmental challenge

The Solomon Island economy is largely dependent on agriculture, forestry and fisheries. A large proportion of population is rural or village-based; as a result, a large proportion of agricultural activity is production of subsistence foods. Commercial agriculture includes copra production, cocoa, market vegetables, and marine products, such as fish and shells. The main exports are gold, copra, cocoa, wood, and fish. As can be seen from Table 6, the key production sectors have made an increasing contribution to real GDP over the period 2004 to 2008. The agricultural component of real GDP, for instance, has increased from an index value of 106.2 in 2004 to 167.7 in 2008; forestry and logging has increased from 263.6 to 398.6 over the corresponding period; and the construction sector contribution has more than doubled, from 45.6 in 2004 to 110.3 in 2008. While all sectors have made increasing contributions to GDP, the least improvement is noticed in the case of fisheries and manufacturing sectors.

The key economic sectors are agriculture, forestry, fishing, manufacturing, construction, and transport and communication. Many of the environmental problems relating to these sectors have emerged from exploitative and destructive activities including logging, land clearing, adverse effects of climate change and sea level rise, urban growth and construction, population growth, over-fishing and marine resource exploitation, and subsistence farming practices. These developments have created environmental stress because they have led to loss of biodiversity, loss of species, land and soil degradation, depletion of fish stocks, ecosystem destruction and habitat loss, loss of water quality and quantity, coastal erosion and degradation, sedimentation, loss of soil fertility, and an increase in incidence of diseases (Ministry of Environment, Conservation and Meteorology, 2009).

To-date, the main environmental challenges are: (a) the impact of forest degradation through large scale logging, which is estimated to be at the rate of one million cubic meters over the period 2005-2007; (b) land clearing for subsistence agriculture, which has resulted from rapid population growth; and (c) unsustainable harvesting of marine resources (MECM, 2009).

Table 6: Components of real GDP (1985=100)

Industry	2004	2005	2006	2007	2008
Agriculture	106.2	118.1	123.1	146.4	167.7
Forestry, logging, sawmilling	263.6	288.3	306.3	381.5	398.6
Fishing	115.5	104.4	120.6	110.8	122.1
Manufacturing	135.8	137.1	141.0	144.1	147.7
Construction	45.6	52.9	79.1	101.2	110.3
Transport and communication	143.9	146.7	213.2	225.9	250.9

Source: Central Bank of the Solomon Islands (2009).

The Solomon Islands is categorized as a least developed country. Under Articles 4.8 and 4.9 of the United Nations Framework Convention on Climate Change (UNFCCC), the Solomon Islands is classified as a amongst the most vulnerable countries as a result of climate change. Between 1982-2007, there were a total of 12 natural disasters in the Solomon Islands, the bulk of them were cyclones. While deaths due to natural disasters are low (158 people killed), the number of people affected is huge, at over 270,000 people. On average, natural disasters caused the Solomon Islands economy an estimated damage of US\$769,000 per year over the period 1982-2007 (see Table 7). In Table 7, corresponding natural disaster statistics for the other three Pacific Island countries are also presented. Based purely on the economic damage from natural disasters statistics, it seems clear that Fiji and Samoa are the most negatively affected by natural disasters.

Climate change will impact almost all sectors of the economy in the Solomon Islands. A large proportion of economic activity in the Solomon Islands is agricultural, with over 85 per cent of the population being rural-based. In addition, over 70 per cent of food consumption is produced locally in the Solomon Islands. Climate change, because it influences rainfall patterns, is likely to create severe water shortages and/or flooding. These will reduce crop output and quality in the Solomon Islands, posing a direct threat to food security. Over the 2003-2005 period, around 9 per cent of the Solomon Island's population suffered from hunger. It follows that any negative shock to food security, such as that resulting from climate change, will increase the proportion of people in hunger.⁹

⁹ A very comprehensive national capacity environment development plan for the Solomon Islands for the period 2008-2012 exists, which identifies a number of constraints for addressing environmental

4.2. Decent work issues for related sectors

Around 85 per cent of the Solomon Island population is rural and agricultural, forestry and fisheries based. In addition to agriculture, the other sectors of economic importance to the Solomon Island economy, as alluded to above, are manufacturing, construction, and transport and communication. Hence, the decent work issues mainly relate to these sectors.

Employment deficit

With the bulk of the Solomon Islands work force being rural/village based, the informal sector is substantial, with over 80 per cent of the labour force estimated to be in the informal sector. The large informal sector and the lack of employment opportunities generated in the formal sector, implies the limited capacity for informal sector workers to switch to formal sectors. Moreover, informal sector workers (that includes a large proportion of female workers), which constitute the bulk of the labour force in the Solomon Islands due lack of opportunities for education and skill development, remain unskilled. It follows that their capacity to switch jobs, particularly those that may result in the formal sector in future, will be weak. This implies significant gaps in the labour market, created mainly by the large informal and small formal sector. In terms of future planning on the part of the government, this existing skill gap in the labour market implies the need to invest significant resources to re-skill and train future labour force in key economic sectors.

The informal sector is further incapacitated by the lack of development finance, as due to the non-existence of legalized informal sector activities, access to development finance is limited. As a substitute, informal sector operators have to access capital through informal suppliers, which is often costly. As a result of the high cost of borrowing, and lack of opportunities for learning and training, the informal sector labour force is characterized by low productivity. Perhaps providing access to credit to entrepreneurs, say through a micro-finance credit scheme, may be an avenue for boosting economic activity and productivity in the informal sector.

The unemployment rate is over 40 per cent in the Solomon Islands. This together with a large informal sector, which is estimated to be employing 85 per cent of the labour force, of which around 30 per cent are female workers, implies two things: (a) that the formal sector is weak in terms of job creation; and (b) because the informal sector is unregulated and labour market is not legally protected, workers rights are at risk with indecent work conditions.

Against this background, we conclude that a huge employment deficit exists in the Solomon Islands.

management issues. These constraints range from poor governance, ineffective legislation and policy framework to lack of human capital and financial resources (see Thomas *et al.*, 2009).

Rights deficit

One of the main issues facing the informal sector labour market is the fact their activities are not recognized or regulated by the government. As a result, they are not entitled to legal protection under business and labour laws and regulations. This implies that workers are subjected to bribery and repression, harassment (including sexual harassment), and extortion. In the Solomon Islands, over 80 per cent of the workers are not covered by labour legislation because there is no formally recognized employer-employee relationship. Even in the formal sector, the unionization rate of Solomon Island workers is low. Thus, these workers are unable to demand a minimum wage, improve their working conditions, etc. It follows that given the growing and large informal sector, with no formal legal and institution obligations, the bulk of the Solomon Islands work force faces a rights deficit.

An example relates to waste scavengers, who are mainly the unemployed youths and school children (street children). The items collected are also likely to be potentially dangerous, and among other things includes chemicals from factories and hospitals. Without the use of appropriate gear such as gloves, boots, and masks, the scavengers are exposed to health risk. The third example relates to child domestic workers, which have increased over the last decade or so with an increase in unemployment. It follows that given the large informal sector, in the Solomon Islands there is a net social protection deficit.

Social protection deficit

Social protection matters in a society where job and income security is high. Solomon Islands, where 85 per cent of the population is informal sector based, is greatly exposed to social protection issues. The issue of a social protection deficit is of concern, as the informal sector workers are at risk of serious occupational safety and health hazards. Farmers are exposed to agricultural chemicals, which have significant health risks as chemicals are used and applied without proper knowledge and gear. *Implications for specific sectors*

Tourism: According to the World Travel and Tourism Council (WTTC, 2009), direct employment from travel and tourism industry in the Solomon Islands is around 3,000 representing around 1.7 per cent of total employment in 2009, while both directly and indirectly, the industry employs around 11,000 people, representing around 6.1 per cent of total employment in 2009. The WTTC predicts that by 2019 around 5,000 jobs will be directly in the travel and tourism industry, while total direct and indirect jobs are expected to be around 16,000. The bulk of these jobs are likely to be in the transport (including domestic transport, infrastructure, low skills jobs such as tour guides, and local food and vegetable production, and hotel and catering based jobs.

The scope for decent work will depend on two aspects: (a) the magnitude of these new jobs that are in the formal sector; (b) the minimum wage rate; and (c) the unionization rate in the formal sector, which is relatively low, as per advice obtained from the Solomon Islands Congress for Trade Unions (SICTU).

Agriculture and forestry: In 2008, the Solomon Islands economy grew by 6.9 per cent. This growth was driven by agriculture and forestry sectors, which contributed 17 per cent and 16 per cent, respectively. With the rise in national poverty, rural-urban migration, rising unemployment and an expanding informal sector, the unreported cases of child labour is likely to be of concern in the agriculture and forestry sectors. Child labour and forced labour is a major problem in the Solomon Islands currently. In 2001, the ILO estimated that over 22 per cent of children in the age bracket of 10-14 years were working (ADB, 2006: 189)¹⁰.

Stability and security of work: in the agricultural sector, this is uncertain in the Solomon Islands. Over 80 per cent of the population is rural-based, engaged mainly in agriculture, forestry and fisheries activities, find themselves with insecure work and incomes. These economic activities are prone to natural disasters and global commodity price swings. This uncertainty exposes the bulk of the workers in these countries to insecure and unstable jobs and incomes.

General decent work issues for the above-mentioned sectors

Social security: The Solomon Islands has a national provident fund. The social welfare benefits of such a fund are, however, only restricted to the formal sector, which is very small (around 15 per cent of the labour force). It follows that there is inadequate social security for both male and female workers in the Solomon Islands.

Social dialogue and employees' and employers' representation: social dialogue relating to work conditions, including setting up of minimum wage rates, is well contained in the various Labour Acts and Wages Acts in the Solomon Islands. However, this opportunity is only available to the formal sector employees'; the bulk of the workforce, which is based in the informal sector, does not have the freedom of social dialogue when it comes to their terms of conditions of work.

Economic and social context for decent work: The Solomon Islands is classified as a least developed country, and amongst the Pacific Island countries it is the most underdeveloped country. As a result, a solid economic and social context for decent work is absent. Underdevelopment comes at a huge cost: unemployment and poverty

¹⁰ A major human rights and public policy issue in the Solomon Islands is the commercial sexual exploitation of children. It is believed that several hundred children were fighting in the ranks of the Guadalcanlese and Malaitan militias in 2000 (UN Committee on the Rights of Child, 2002).

in the Solomon Islands is predicted to be over 40 per cent. Average economic growth in the Solomon Islands was 6.9 per cent, 10.7 per cent and 6.9 per cent in 2006, 2007 and 2008, respectively. While these economic growth rates look impressive, the inflation rates in the same years were unimpressive at 9.9 per cent, 10.9 per cent, and 17.5 per cent (IMF, 2009). These significantly high inflation rates have meant that real incomes of people have fallen in recent years.

Equal opportunities and treatment: In the Solomon Islands evidence suggests that gender imbalance (favouring males) exists in primary and secondary enrollments, as well as in adult literacy rates where the gap is about 15 per cent.

Safe work environment: the Workers Compensation Act covers for work related injuries and illness. But, given the small formal sector, only around 15 per cent of the workforce benefits from a relatively safe work environment.

4.3. SWOT Analysis

Sustainable tourism

Strengths: In the Solomon Islands, their Tourism Development Plan makes it clear that large scale tourism development is currently impossible given the lack of capacity to absorb the infrastructure, institutions. The Solomon Islands tourism sector is sustainably placed in the sense that development is targeted at niche markets, such as: (a) interpretive war tours, (b) nature sites on lagoons, rivers, waterfalls, caves and smaller islands, (c) cultural tourism through festivals, village visits and village stays, (d) eco-adventure activities such as kayaking, trekking, surfing and camping, and (e) special interest tourism such as anthropology (culture), ornithology (birds), volcanology (volcano) and speleology (caves). These are likely to provide significant formal and informal sector jobs in the Solomon Islands tourism industry.

Weaknesses: There is lack of tourism marketing in the case of the Solomon Islands, hence there is lack of awareness in the region and indeed globally for the Solomon Islands as a potential destinations for green tourism.

Opportunities: tourism development in the Solomon Islands so far has been led by the private sector. There is now an opportunity to develop marketing support, eco-tourism based legislations, regulations, policy and planning. This is where the state can play a lead role in providing the institutional support.

ILO and UNWTO (2009) recognize that sustainable tourism is one of the most dynamic sectors of economic activities in modern times, and given the resilience shown by the interest, it has the capacity to mitigate the effects of economic crises. Thus, tourism can be used by governments to reactivate their economies affected by economic crises. Moreover, traditionally tourism has had strong links with the agricultural sector through the supply of fruits, vegetables, dairy products, and other supplies. Making this link stronger can ensure a productive relationship between the tourism and agricultural sectors, both of which employ low-income workers, often

fighting against poverty. Hence a robust relationship between the two sectors can potentially contribute to poverty alleviation, thus contributing to the achievement of Goal 1 under the Millennium Development Goals commitments.

Threats: key ecosystems offering certain tourism sporting activities and beach holiday facilities in the Solomon Islands will be directly threatened by climate change and sea level rise. This may have an impact on the quality of tourism services.

Energy Efficiency and renewable energy generation

Strength: national development plans identify the need for prudent government policies for planning and management of the energy sector.

The Industrial Development Division within the Ministry of Labour is already promoting the use of green products, such as solar panels, wind power and other reusable and sustainable methods of energy usage in rural areas. These activities are likely to produce green jobs.

Weaknesses: there is lack of investments in green technologies that can potentially deliver energy efficiency.

Opportunities: the Solomon Islands are a rural-based society with 85 per cent of its population residing in rural areas. The bulk of this population, particularly those on relatively more outer islands, has no or limited access to energy supplies including electricity. Through a scheme, such as the rural electrification scheme implemented in Fiji, the Solomon Islands can venture towards installing solar home systems. A recent study by Berdach and Llegu (2007) that there are significant potentials for developing renewable energy exists, including solar, biomass, hydropower, geothermal, wind, wave, and ocean thermal energy resources. However, these opportunities have not been explored. Due to lack of technical resources and capacity, the Solomon Islands will need assistance in exploring at least some of these options.

Threat: There is no investment in green technologies. The Chamber of Commerce is concerned about the weak investment climate and the urgent need to raise the investment profile of the Solomon Islands. A turbulent economy, marred by periods of political instability has deteriorated investor climate, thus having a deleterious effect on investment. This has meant that no meaningful public-private partnerships have been developed. This is likely to be a major impediment to producing and implementing green technologies/products and systems. A final threat to energy efficiency in the Solomon Islands is the rising price of oil. This is contributing not only to the high cost of doing business but it also has a detrimental effect on overall investment.

Water conservation

Strengths: the Solomon Islands has in place a Water Resources Programme, which has the objective of applying hydrology to meet the needs of sustainable development and use of water and related resources, mitigate water related disasters and ensure effective environmental management (Ministry of Environment, Conservation and Meteorology, 2009).

Weaknesses: lack of data is a key concern for the Solomon Islands. There is evidence that water quality and quantity in the Solomon Islands¹¹ is falling, but this is not well understood due to lack of data and lack of understanding of the local hydrological systems and water resources.

Opportunity: The Water Resource Programme provides opportunities to address climate change and climate related issues. Water resource managers can address current stress on water supplies and bring flexibility and robustness into the system in anticipation of climate change. A wide range of activities relating to climate change adaptation has been identified as priority areas, which are likely to create green jobs in the Solomon Islands, and these are as follows: (a) improve water management and water use efficiency to reduce vulnerability to water shortages; (b) encourage agricultural and land management practices that improve productivity and protect soil and water resources; (c) encouraging forest management and watershed protection to improve yields, provide habitat, and reduce flood hazard; and (d) implementing projects and programmes to enhance capacity building at the national level with functions related to water resources sector.

Opportunities for green jobs through water conservation efforts can be realised if the water resource management plan is fully implemented. There are constraints in implementing this plan which need to be addressed first. These constraints include lack of human resources and lack of funding to implement the plan. The funding and initiative on this is expected to come from the state given that these institutions are state owned. For example, the Solomon Islands College of Higher Education is keen on establishing a "Green Jobs Unit" within their existing School of Natural Resources.

Threat: In the Solomon Islands, there is lack of policy coordination, and institutional capacity to implement the water resource programme. The quality of fresh water is threatened by discharges of untreated wastewater with associated pathogenic organisms into streams, rivers and coastal estuaries; direct faecal contamination of catchments and streams from animals; solid waste disposal sites located close to streams; soil erosion resulting from exposure of soil leading to increased sediment discharges; erosional effects of tropical forest clearing in surface water catchments; runoff from agricultural land containing nutrients, among others. These issues are considered to be the main threats to water conservation and management in the Solomon Islands.

¹¹ Information obtained during country consultations.

Food production

Strengths: The Solomon Islands has abundance of fertile land for food production. Agriculture, forestry and fisheries is one of the main sources of food security for Solomon Islanders. Local production of food crops contributes over 70 per cent to household incomes.

Weaknesses: there is lack of policy coordination between the Government and line ministries in terms of strengthening agricultural production capacities. This is because agriculture and in particular food production has not been given prominence in light of the push towards industrialization and service sector outputs, which are believed to have relatively greater potentials for job creation. With greater emphasis placed on the non-agricultural sectors, there has been a lack of investments in the agricultural production area due to the heavy emphasis on manufacturing and service sectors, seen as engines of growth.

Opportunity: the Solomon Islands is a rural-based economy with 85 per cent of its population living in rural areas.

Threats: Increased intensity and frequency of cyclones have been having a long lasting effect on food production. Natural disasters are a major concern. Storm surges and flooding, particularly in low-lying areas, have in the past destroyed food stock for livestock as well as direct loss of stocks. These effects in both countries have been exacerbated by continuous cultivation, which has exposed soil to climatic conditions. Sea level rise and coastal erosion has become of greater concern over the last decade or so, as land available for agriculture has been lost in the process.

Unsustainable logging and fishing is a major concern. Moreover, the impact of climate change is already visible in the atoll islands of Malaita and Ontang Java, Sikaiama, Fanalei, and Walande, where the informal sector workers are most affected. There is a consensus that people located in coastal areas are already been affected by climate change—there is evidence of rivers widening and drying up, and atolls are already short of water. Islands, such as Lau lagoon, Ontang Java, Western Province Islands, Walande, Fataleka, and the reef islands, have seen sea level rise but there is lack of public awareness. In addition, concerns have been raised regarding the unsustainable harvest of beach debris by foreign investors; they have been using trolleys on atolls, leading to severely damaged reefs. The net effect is erosion of the hub of some villages by sea water.

Recycling and waste management

Solid waste management is becoming a perennial problem in the Solomon Islands. This problem involves mainly the uncontrolled dumping of rubbish in public places, a lack of effective planning and implementation of existing waste management plans,

lack of sustainable funding, and ineffective legislation (Solomon Islands, 2009). The dumping of solid waste is affecting reefs, lagoons, inshore fisheries, beaches and land.

Strength: There is relatively more commitment on the part of policy makers to implement a waste management strategy that is consistent with the need to ensure efficient adaptation to climate change. In the Solomon Islands, preliminary work has begun, with an identification of infrastructure, such as roads, landfill and equipment, such as compact refuse vehicle and incinerators, testing/monitoring equipment and facility, garbage bins and disposal containers that need to be addressed as a matter of priority (Solomon Islands, 2009).

Weaknesses: the Solomon Islands have had this problem of waste mismanagement for over 30 years, and a waste management strategy has never been developed to address this issue. Now that it has been developed, there is doubt in term of how successfully it can be implemented. One of the issues raised by some of the key ministries during the country consultation was the lack of coordination and effective communication between government and line ministries, and between government and civil society. For a waste management strategy to work, the different stakeholders (that is, the state, the civil society, and the private sector) will need to work together.

Generally, it is perceived that there is lack of government commitment and support for a waste management strategy (Solomon Islands, 2009). There is also lack of technical knowledge on how to manage solid waste. There is lack of technical skill on solid waste management. Moreover, existing organizations training plan on solid waste management might be outdated and inefficient in light of technological innovations in this sector, which the Solomon Islands has not kept pace with over the last 30 years. It follows that there are significant loopholes and backwardness on human resource and technical capacity issues.

There is also lack of consistent data on the composition and quantity of solid waste being produced. Data is imperative for two reasons: (a) in setting targets for waste reduction, reuse, recycling; (b) in measuring success or otherwise of any waste minimization activities; and (c) for the design of a new landfill site for Honiara and provincial towns (Solomon Islands, 2009).

Opportunity: recycling and waste management is likely to create jobs in waste collection and recycling, which is likely to be low skilled jobs. Will this create 'decent green jobs'? To a large extent this will depend on whether or not the government can legalize waste picking activities given that waste pickers are an integral part of recycling, bringing about both economic gains (saving municipalities money by reducing the volume of waste) and environmental gains (such as a clean and safe environment). Alas, the waste management plan of the Solomon Islands does not propose formalizing waste picking activities. This is one area where an opportunity exists to change the way waste picking has been conducted in the Solomon Islands.

Threat: waste management poses a serious threat to the environment, making it unsafe and unattractive for both residents and tourists, and is a serious health threat. It is a source of several health related diseases which, if uncontrolled, will put pressure on state resources to fund health care.

Table 7: Natural disasters from 1982-2007

Indicators Solomon Islands (1982-2007)	Fiji (1980-2008)	Vanuatu (1981-2006)	Samoa (1983-2005)	
Number of events	12	33	28	8
Number of people killed	158	205	212	31
Average number of people killed per year	6	7.81		
Number of people affected	273,949	1,099,156	272,179	285,000
Average affected per year	10,537	37,902	10,507	12,391
Economic damage (US\$000)	20,000	693,472	205,000	558,250
Economic damage per year (US\$'000)	769.23,	913	7,885	24,272

Source: <http://preventionweb.net--assessed> on 27 December 2009.

Adaptation to climate change

The Solomon Islands government has come up with a climate change adaptation plan. The priority sectors were identified through synthesis of existing information on vulnerability and adaptation and community consultations. The sectors identified have been agriculture and food security, water supply and sanitation, education, awareness and information, human settlement, human health, waste management, fisheries and marine resources, infrastructure, coastal protection, and tourism.

Strength: the main strength of the adaptation to climate change in the Solomon Islands is that the government has moved very quickly towards preparing a national policy document on climate change adaptation which clearly identifies the key sectors that need urgent attention and state resources in terms of building their resilience to climate change. Priority is given to economic activity and human life that is based on low-lying and artificial islands, which are most at risk to climate change.

Education is seen as an agent of change as the Solomon Islands braces for the effects of climate change. There is a need to review core curriculum in order to re-skill some fraction of the workforce in readiness for green technology and green growth based jobs. The SICHE has the capacity to establish specific training courses in adaptation to and mitigation of climate change; however, this will require donor support.

Weaknesses: The National Adaptation Programme of Action document on climate change adaptation considers a large number of sectors which it perceives as key sectors at risk; however, is no time frame established to monitor its implementation.

The concept of green growth/jobs and indeed 'green development' are new concepts and is not well understood by policymakers and indeed the various stakeholders involved. This implies that issues related to climate change adaptation are less understood as well.

Threat: While the National Adaptation Programme of Action is very detailed, the Ministry of Environment is concerned that there is lack of resources, both financial and human capital, to implement the programme.

There is a natural policy concern among policymakers that like most regional projects, funding for green jobs, the bulk of it will be consumed in administrative fees, leaving only a fraction of funds for implementation of adaptation and mitigation strategies. This is most likely in the Solomon Islands given the concern that government lacks foresight to prepare its future generations in green jobs.

Finally, there is lack of gender balance in policymaking with regard to climate change adaptation and mitigation strategies, despite a large number of highly qualified women lawyers and professionals. Equally importantly, the role of Churches in rural development with respect to climate change is crucial, but remains unexplored in the Solomon Islands.

5.0. CONCLUDING REMARKS

The purpose of this report is to assess the challenges and opportunities that are associated with the expansion of specific economic sub-sectors, which are affected and are likely to be affected from climate change in Fiji, the Solomon Islands, Samoa, and Vanuatu, with case studies based on Fiji and the Solomon Islands. The second priority of the report is to look at opportunities for Decent Work and Green Jobs from possible climate and environment related response policies, measures and programs. A thorough desk research is undertaken, and country consultation in Fiji and the Solomon Islands is undertaken, which involves key government ministries, NGOs, the private sector, and trade union bodies, in order to achieve the objective of this study.

We find that there are a wide range of environmental challenges, including sea level rise, natural disasters, and waste mismanagement, facing Pacific Island countries. Evidence gathered during country consultations revealed that: (a) there is insufficient awareness of the implications of climate change in the region, and hence countries lack sector-specific climate change adaptation and mitigation strategies; (b) Fiji and the Solomon Islands have in place climate change adaptation programmes with respect to some sectors, but there is lack of institutional capacity and financial and human capital constraints in implementing these programmes; and (c) generally among policy makers there is lack of awareness of green jobs. Moreover, the decent work environment is weak in the Pacific Island countries with the bulk of the workers (65 per cent in Fiji and 85 per cent in the Solomon Islands) in the informal sector.

With respect to green jobs, we unravel two things: (a) that the impact on the creation of new jobs (green jobs) from climate change adaptation and mitigation measures will be different for each of the four countries considered here; and (b) that the loss of jobs and the absorption capacity of laid off workers by other sectors will be different for different Pacific Island countries. This is significant in that it implies that Fiji, the Solomon Islands, Vanuatu, and Samoa, when it comes to sectoral contribution to GDP, are very much heterogeneous. The broader policy implication of this with respect to green jobs is that different policy packages will have to be considered for each of the Pacific Island countries. From the point of view of green jobs and absorption capacity or otherwise of different sectors of the economy from climate change mitigation and adaptation, Pacific Island countries are likely to face different development challenges.

Finally, the impact of climate change is likely to have serious repercussions for the growth and development of women and children in Pacific Island countries. At present, child labour is already a serious problem—one that is negatively impacting the education and health of children in Pacific Island countries. Gender inequality, in terms of employment and decision making, is heavily weighted in favour of males: only around 30 per cent of the PIC workforce is made up of women, and a significantly large proportion is either in subsistence employment or in unpaid care work.

Climate change mitigation and adaptation, because they will demand a different skill set, are likely to disadvantage women and children further for two reasons. First, the bulk of them are in informal and subsistence workforce with underdeveloped skills, not sufficient to make a smooth and effective transition to the formal sector labour market. This would mean that the most likely scenario for women and children would be informal sector jobs that may be created due to societies responses to climate change. The concern, as highlighted in this report, is that the bulk of these jobs are unlikely to be decent work. Second, since climate change is likely to affect the quantity and quality of land, given the large proportion of women in Pacific Island countries who work in subsistence and commercial agriculture, more and more women are likely to become unemployed.

This will widen the gender gap in terms of opportunities for cash income, participation in economic activities, self-development, happiness, and self-esteem. As a result, more and more women are likely to engage in unpaid care work, a component of productive work that is unrecognized by the economy. The implications of this are serious, when considered in the context of the Millennium Development Goals (MDGs). As a result of the marginalization of women and children through lack of work and lack of decent work, it will have implications for achieving three of the eight MDGs. These are: eradicating extreme poverty and hunger, promoting gender inequality and empowering women, and achieving universal primary education. It should be noted that Pacific Island countries are already in danger of not achieving the first two of these goals, and climate change is likely to worsen their plight.

Based on these findings the following recommendations, which require some involvement of the ILO, are proposed:

1. The government in Pacific Island countries needs to play a more proactive role in ensuring that countries move swiftly towards implementing key climate change mitigation and implementation strategies.
2. There is a need for the government, the employers, and the trade union bodies to work closely on the key labour market issues. The ILO needs to play a central role in ensuring that a robust relationship exists between the key stakeholders on labour market issues, as at present, as the country consultations revealed, there is: (a) lack of knowledge on potential green jobs emanating from climate change adaptation and mitigation strategies; and (b) there is lack of capacity to develop and implement sector-specific climate change adaptation and mitigation strategies.
3. Country consultations revealed that in both Fiji and the Solomon Islands, there is lack of communication between government and line Ministries when it comes to climate change adaptation and mitigation strategy implementation. There needs to be a more focused and coherent approach to devising and implementing these strategies, with a clear monitoring framework in place. The ILO can contribute to the formulation, implementation, and monitoring processes with respect to climate change adaptation and mitigation policies and measures in particular by addressing their social and labour dimensions.
4. Country consultations revealed that in both Fiji and the Solomon Islands, there is a concern regarding lack of data and documentation of the green growth-led activities in the region, which makes it difficult to identify projects and green jobs created in the process of climate change and environment related measures. The ILO needs to play a lead role in ensuring that all activities relating to green jobs is documented and a specific database established so as to ensure that progress (or otherwise) on green jobs resulting from climate change can be monitored. Such a database is important given the widely accepted fact that climate change (in particular sea level rise) will seriously affect Pacific Island countries. The informal sector, as explained in this study, is large and growing in the Pacific Island countries, yet the dynamics of the informal labour market is not understood fully. A detailed study on the informal labour in the Pacific Island countries is needed to fill this knowledge gap, and the ILO should play a lead role in facilitating this research.
5. The ILO needs to take a leadership role in undertaking climate change adaptation and mitigation led green job based studies for the other Pacific Island countries. This will be important to understand the issues impacting the labour market in the region as a whole, so that a more clear policy stance could be developed.

6. Some activities, like waste management and recycling, which have potential for job creation, are not formalized by government. This has been identified as the case in both Fiji and the Solomon Islands. The government's clearly lack the capacity to engage waste pickers, for example, with formal institutions. The ILO should assist the governments in this type of projects to expedite creation of green jobs.
7. The ILO needs to undertake in-depth studies on two aspects of climate change: (a) the implications of climate change on women and children, with the aim of ensuring that gender inequality is not worsened as a result of climate change; and (b) a time use study of female work to ensure that their skills (and the need for re-skilling) can be developed in light of the potential evolution (although gradual, in the case of the Pacific Island countries) of a green job-based green growth economy in the region.

REFERENCES

- Asian Development Bank (ADB, 2001) Growth and Change in Asian and the Pacific: Key Indicators, ADB, Manila.
- ADB (2003) Millennium Development Goals in the Pacific, Relevance and Progress, ADB, Manilla.
- ADB (2006) Pacific Regional Social Protection Systems Assessment. Report prepared for the Asian Development Bank – TA 6207: REG
- ADB (2009) Key Indicators for Asia and the Pacific 2009 40th Edition, ADB, manilla.
- Becken, S., (2004) Climate change and tourism in Fiji—Integrating adaptation and mitigation, USP, Suva.
- Berdach, J.T., and Llegu, M., (2007) Solomon Islands country environmental analysis, TA: 6204-REG, Asian Development Bank, Manilla.
- Chand, S., (2004) Labour mobility for sustainable livelihood in Pacific island states, Unpublished Manuscript, ANU, Canberra.
- Chand, G; 2000; “Labour Market Deregulation in Fiji” in A. H. Akram -Lodhi (ed) *Confronting Fiji Futures*; Canberra: Asia Pacific Press; p. 165.
- Department of Environment (2006) National Solid Waste Management Strategy and Action Plan 2006-2010, Department of Environment, Fiji.
- Farm Consultancy (2004) Child labour in the Fiji Tobacco Industry, downloaded from <http://www.eclt.org/filestore/BAT-%20Fiji.pdf> (assessed on 30 December 2009).
- Gravelle, G., and Mimura, N., (2008) Vulnerability assessment of sea-level rise in Viti Levu, Sustainability Science, 3, 171-180.
- Hay, J.E., and Sueasi, T., (2006) Samoa: Country environmental analysis, Asian Development Bank, TA:6204-REG
- Hall, C.M., (2001) Trends in ocean and coastal tourism: the end of the last frontier, Ocean and Coastal Management, 44, 601-618.
- Maebuta, H.E., and Maebuta, J., (2009) Generating livelihoods: a study of urban squatter settlements in Solomon Islands, Pacific Economic Bulletin, 24, 118-131.
- Mimura, N., (1999) Vulnerability of island countries in the South Pacific to sea level rise and climate change, Climate Research, 12, 137-43.

Narayan, P.K., (2009) Social Policies in Small Island States: A Case Study of the Fiji Islands, United Nations Research Institute for Social Development, Unpublished Report.

Narayan, P.K., and Narayan, S., (2009) Understanding Fiji's declining foreign reserves position, Pacific Economic Bulletin, 24, 95-112.

Narayan, P.K., (2010) Fiji MDG Progress Report 2010, UNDP (Unpublished Report).

Narsey, W., (2007) Gender issues in employment, underemployment and incomes in Fiji, Vanuavou Publications, Suva.

IPCC (2007) Climate Change 2007: Synthesis Report, available at www.ipcc.ch (accessed 30 December 2009).

IPCC (2007a) Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B.M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 996 pp.

IPCC (2007b) Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Parry, M.L., O.F. Canziani, J.P. ... Palutikof, P.J. van der Linden, C.E. Hanson (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

ILO (2008) Global Wage Report 2008/9: Minimum Wages and Collective Bargaining Towards Policy Coherence, ILO, Geneva.

ILO (2009) Guide to the new Millennium Development Goals Employment Indicators including the full set of Decent Work Indicators, ILO, Geneva.

ILO and UNWTO (2009) ILO/UNWTO statement on tourism and development, 18 September, Geneva/Madrid.

IMF (2009) The Solomon Islands: 2009 Article IV Consultation—Staff Report; Staff Statement; Supplement to the Staff Report; Public Information Notice; Statement by the Executive Director for the Solomon Islands, IMF Country Report No. 09/309, IMF, Washington, D.C.

Pachauri, R.K., (2007) The IPCC Fourth Assessment Working Group Report: Key Findings, United Nations, New York, available at www.ipcc.ch (accessed 30 December 2009).

Panapasa, G., (2009) Biogas energy plant in Suva, Fiji Times, Friday, August 28: <http://www.fijitimes.com/story.aspx?id=128269>.

Pareti, S., (2008) Climate Change and Variability, Islands Business, Suva.

Rogner, H.-H., D. Zhou, R. Bradley, P. Cra bbé, O. Edenhofer, B.Hare (Australia), L. Kuijpers, M. Yamaguchi, 2007: Introduction. In Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Save the Children Fiji (undated) The Commercial Sexual Exploitation and Sexual Abuse of Children in Fiji: A Situation Analysis; available at http://www.unescap.org/esid/gad/Issues/CSEC/CSEC%20Fiji%20Report%20_Edited%201205.pdf (assessed on 31 December 2009).

Solomon Islands (2009) National solid waste management strategy and action plan, 2009-2014, Ministry of Environment, Conservation and Meteorology, The Solomon Islands.

South Pacific Tourism Organisation (SPTO, 2006) Feasibility study on Pacific Ecotourism, SPTO, Suva.

SOPAC (2007) National Integrated Water Resource Management Diagnostic Report—Fiji Islands, SOPAC Miscellaneous Report 637, SOPAC, Suva,

Tadulala, M., (1998) Sustainable Development in Fiji, Issues Paper, volume 3, number 1, Parliament of Fiji, Suva.

Thomas, J., Siho, F., and Makini, A., (2009) Solomon Islands National Environmental Capacity Development Action Plan, 2008-2012, EN Digital Printing Technology Ltd, Honiara.

UN Committee on the Rights of the Child (2002) Consideration of Reports Submitted by State Parties Under Article 44 of the Convention: Solomon Islands, online CRC/C/51/Add.6, Geneva available from [http://www.unhcr.ch/tbs/doc.nsf/\(Symbol\)/CRC.C.51.Add.6.En?OpenDocument](http://www.unhcr.ch/tbs/doc.nsf/(Symbol)/CRC.C.51.Add.6.En?OpenDocument).

World Travel and Tourism Council (WTTC, 2009) Country Reports and Data Tables, WTTC (<http://www.wttc.org/>) assessed on 7 February 2010.

Annex 1

ADAPTATION TO CLIMATE CHANGE: A SWOT FOR Pacific Island countries

Strengths: Climate change will bring with it a regulatory and legal dimension. This can encompass a broad range of issues, ranging from land use zoning laws to avoid land degradation and erosion, water use regulations, business caps on emissions (resulting in emissions trading schemes), to environment related taxes.

Risks in terms of loss of market share for business may become an issue if public knowledge become perfect on the businesses that pollute the environment most and violate environmental regulations. Consumers may boycott products from such businesses.

Climate change may also instigate a change in consumer preference for certain types of products. One possibility is that products that are relatively more sensitive to heat or make use of relatively more water may be less preferred to substitute products. This may mean that large public and private consumers of such low carbon emitting products will change their indifference curves towards energy efficient products. This is likely to stimulate demand for green goods and services.

Weakness: Capital constraints may be an impediment for investments and re-investments and/or business expansions. Securing loans and other debt financing for businesses that are most directly impacted by climate change, due to the higher risk factor, will be a major challenge. It follows that businesses which violate environmental regulations, do not curb carbon emissions, and make inadequate risk assessment and water resources by not implementing efficient energy systems, which are all likely to become key selection criteria for securing investment finance, will struggle to obtain such funds.

Opportunity: As much as there are risks to businesses from climate changes, adapting to it can also potentially open up opportunities. Adaptation essentially means opportunities for employment, such as in intensive infrastructure related works, coastal management works, sustainable and climate resilient infrastructure and buildings, relocation works, training-skills development needs in various sectors. While this is likely to generate jobs, the main challenge will be to ensure that the required human capital is available to respond to the demands of the labour market that will result from these projects. In terms of job opportunities, significant proportions of formal sector employment in both Fiji and the Solomon Islands are expected. The types of jobs are likely to be in the construction sector, in environmental management and monitoring sector, and education sector. There is likely to be jobs in different categories, such as carpenters, engineers, electricians, technicians, environmental scientists and analysts, among others. A related challenge,

particularly of the trade union bodies in these countries, will be to reach out to these workers and ensure that they have a decent work coverage.

In the Solomon Islands, there are a number of signs and indeed opportunities for green jobs emanating from climate change adaptation strategies. First, there is now a concerted effort at bringing the rural population into the green job/growth agenda. The central idea is to integrate local consciousness, conservation, and preservation with local wisdom, knowledge, experience, skills, talents and approaches to protect the environment. This will engage rural populations in green jobs, albeit in the informal sector.

Moreover, embracing more energy and water efficient processes will lead to reduction in costs and efficiency gains in the long-term. In the short-to-medium term, the marginal cost is likely to be greater than the marginal benefit. Another source of cost reduction could be achieved through improved labour productivity through the use of water and energy efficient processes. This is also a long term opportunity in that acquiring productivity improvements would require a set of prudent fiscal policies, including tax reforms, to boost production, while keeping costs low, to the point that productivity gains compensate for production costs. It follows that a smooth transition for workers to the use of relatively more efficient energy mechanisms can boost productivity and profitability.

Businesses, which will be seen as contributing most to building a public-private partnership on environment sustainability, will elevate themselves to the extent that consumers will develop a preference for their products. This will boost brand names and profiles of such business. A good example of this is the solar energy system being implemented in the rural areas of Viti Levu in Fiji, where a number of private firms producing inputs to the solar energy system installations have been favoured solely because they are only involved in production of green technologies, and production for green industries¹². So there exists an opportunity for businesses to growth through actively participating in environmentally friendly relationship with the state through making advances towards adapting to climate change.

Opportunities will arise for businesses, which are able to design new products and services in response to market demand for energy friendly products such as cooling systems, healthcare, infrastructure, hybrid vehicles, and alternative energies.. These opportunities for energy friendly products and low carbon technologies could become an avenue for increasing private investments and developing export markets. The Pacific Island countries are in need for both of these. Niche markets, based on energy friendly products and low carbon technologies, could be developed. This may also create opportunities for public-private partnerships. It is clear, like with any investment venture, that the first movers have an advantage. In the Pacific Island countries, the investment climate is relatively stable compared to other small island

¹² Information provided by the Fiji Department of Energy.

countries such as those in the Caribbean. Fiji, for example, due to the emergence of the labour-intensive garment industry in 1988 has created export processing factories and zones and numerous investment incentives are available for investors producing the bulk of their products for the export market. Other island countries could follow the Fiji model and explore possibilities for some niche markets. The export processing zones could be further improved in light of the proposed new investment projects in the specific area of energy friendly and low carbon technologies. The Fiji country consultation revealed the installation of solar energy systems in rural Fiji. This may be one area that can be considered to be developed as part of the export industry. Essentially, this Fiji rural based solar energy system can be adopted as a model in the other Pacific Island countries, where the bulk of the population is rural based. Initially, the production of solar energy systems can target PIC markets. One of the advantages that the Pacific Island countries have in the global investment environment (compared with most other small states) is that they have English speaking labour force with a high literacy rate and open and relatively cheap communication links exists between the Pacific Island countries and their two main developed country neighbours—Australia and New Zealand.

Threats: Businesses need to adapt to climate changes. Tourism and agricultural sectors in both Fiji and the Solomon Islands are amongst the most at risk sectors to climate changes. The implications of disruptions to these sectors in the face of lack of adaptation strategies, will be immense in the sense that over 80 per cent of population depend on these sectors for their survival.

There will be greater risks associated with impacts of climate change on business facilities, in infrastructure, equipment, employees and supply chains. There will, as a result, be uncertainty regarding long-term capital investment projects, particularly in sectors most likely to be directly affected by climate change, such as tourism, transportation, agriculture, and construction. Businesses are likely to suffer from interruptions and/or irregular supply of electricity, water and transport services. The net effect is likely to be a rise in the cost of doing business. The key cost components in this regard are likely to be through higher commodity and resource prices and higher insurance premiums. All these risks will have to be considered in business projections and planning.

It follows that all businesses will be affected by climate change in one way or another and should factor the impacts into their risk planning. In the manufacturing and energy sectors it is anticipated that economic competitiveness will increasingly be determined by carbon intensity and resource efficiency. Responses by governments, civil society and other business actors will affect the way businesses operate in the future.

Annex 2

DECENT WORK: A BRIEF OVERVIEW

The ILO Decent Work Agenda offers a practical way forward based on four strategic components of rights at work, employment and enterprise development, social protection, and social dialogue and tripartite consultations (ILO, 2008:). One avenue for decent work is to have in place a minimum wage rate framework. The ILO defines a minimum wage as a wage which provides a floor to the wage structure. The purpose of a minimum wage floor is to protect workers at the bottom of the wage distribution (ILO, 2008: 34). To effectively monitor member countries commitments and progress on minimum wages and other aspects of the functioning of the labour market, the ILO has developed a minimum wages database. In what follows we use information from this database, combined with our own desk research, to create a labour market matrix. Some of the key features of the PIC labour market are as follows: (a) all countries do not have a national minimum wage rate, rather countries have several rates for minimum wage rates based on either economic activity or professional occupation; (b) the level at which minimum wages are set and the frequency at which they are updated varies from country to country.

There are minimum wage regulations in both Fiji and the Solomon Islands. In Fiji, the minimum hourly rate is set for different classes of workers—there are in total 15 such classes of workers and minimum wage rate per hour range from a low of F\$1.76 in the case of a watchman to F\$3.70 in the case of a foreman. This class of wage regulations was last updated in March 2007. There is also a minimum hourly wage rate set for workers under the age of 18 and those above the age of 18 for 13 different classes of workers; normally those workers over the age of 18 have marginally higher hourly wage rates. This class of wage regulations was last updated in September 2006. There are 10 Wage Council Acts; the council consists of three employee representatives and three independent members, who are mandated to consider issues of wages, vacations and other terms of conditions of employment in industries where inadequate collective bargaining machinery exists. In addition, there are eight Acts that ensure good labour relations and social welfare of the employees.

In the Solomon Islands, the minimum wage rate for all sectors is SI\$4 per hour while for the agriculture and fisheries sector, the minimum wage rate is set at SI\$3.20 per hour. These wage regulations were last updated in 2008. In terms of social security, the Solomon Islands has in place a national provident fund scheme; by law each employer contributes 7.5 per cent of each employee's wage every month while the employee makes a compulsory contribution of 5 per cent. Work related injuries and illnesses are covered for under the Workmen's Compensation Act, while the Labour Act provides for industrial relations, collective bargaining, dispute resolution, and trade training and testing schemes. There are a total of 14 trade unions in the country, affiliated to the Solomon Islands Council of Trade Unions. The two largest associations are the Chinese Association and the Federation of Employers.

In Table 8, the decent work agenda is examined for the two case study countries, Fiji and the Solomon Islands. The ILO (2009) proposal for the decent work agenda recommends several statistical indicators to judge the decent work environment. From this list, we selected those directly relevant to Fiji and the Solomon Islands and in particular those indicators for which data could be obtained in order to assess the decent work environment.

Table 8: Status of decent work in Fiji and the Solomon Islands

Elements of the decent work agenda	Some selected statistical indicators	Fiji	Solomon Islands
Employment opportunities	1. labour force participation rate (LFPR) 2. unemployment rate (UR) 3. informal employment (IE)	LFPR (2005): total = 41.1; Male = 55.7; Female = 25.8 UR = 8.6% (2008) IE = 43% of total workforce (1990)	LFPR (1999): total = 35.4; Male = 46.0; Female = 23.9 UR = 46% (1999) IE = 60% of total workforce (predicted)
Adequate earnings and productive work	1. Low pay rate (LPR) 2. average hourly earnings (AHWR) 4. manufacturing wage index (MWI)	LPR = yes, and it varies by class of workers AHWR = F\$2.70 (2004) MWI = yes, has increased from 110 in 1971 to 875 in 2004	Minimum wage rate: SI\$4 for all sectors except agriculture and fishers for which it is SI\$3.20
Decent hours	1. excessive hours (>48 hours/week) (EH) 2. Paid annual leave (PAL)	EH = No, working hours is between 40-48 hours/week PAL = yes, at least for 10 working days per year	EH = No, working hours is between 40-48 hours/week PAL = yes, at least for 10 working days per year
Combining work, family and personal life	1. Maternity protection	12 weeks leave with pay	12 weeks leave with pay

Work that should be abolished	1. Child labour 2. Forced labour	There are cases of child labour reported in the media intermittent but no official statistics on this is available.	CL = yes, ILO estimates 22.4% of children aged 10-14 years were working in 2002
Stability and security of work	1. casual workers 2.informal employment	With poverty estimated at 40 per cent and unemployment as high as 35 per cent (Narayan, 2009), the number of casual workers and informal sector employment is expected to be high	With unemployment estimated at over 43 per cent, and the workforce predominantly rural, there is likely to be a large informal sector in the Solomon Islands.
Equal opportunity and treatment in employment	1. Gender wage gap	Males earn about 19% more than females (Narsey, 2007)	Gender gap in primary enrollment was 3% in 1998; 12% in secondary enrollment; and 15% in adult literacy rates (ADB, 2003) Participation of women in decision making is limited (ADB 2003)
Safe work environment	1. Occupational injury rate (OJ)	OJ = covered under the Worker's Compensation Act	OJ = covered under the Workmen's compensation Act
Social security	1. Population benefiting from pension (P) 2. share of population covered by basic health care provision 3. beneficiaries of cash income support	The Fiji National Provident Fund Act provides regulations for social security and old age benefits. Both employer and employee are legally obligated to contribute 8% of gross salary each to this fund.	The only pension scheme is the national provident fund. No state health care funding scheme Only means of security is the national provident fund where a compulsory 12.5%

	4. Sick leave (SL)	No there no state health care funding Social welfare and SL =yes, under the 10 Wages Regulation order, sick leave days to be granted are covered.	of an employee's salary goes into (7.5% employer and 5% employee contribution) SL = yes
Social dialogue, employees' and employers' representation	1. Union density rate 2. collective bargaining	The Fiji Trade Union Congress has 30 member affiliates covering both the public and private sectors; however given that around 40-50% of employment is in the informal sector, the unionization rate is likely to be low. Over 1992-1995, the overall unionization rate was estimated to be around 36.6% (Chand, 2000)	Only 15% of workforce is in formal sector and 85% in informal sectors Collective bargaining is contained in the Labour Act
Economic and social context for decent work	1. HIV positive cases 2. inflation rate (IR) 3. Adult literacy (AL)	HIV= has increased from about 5 in 2000 to about 25 in 2008 IR = high; has increased from 4.8% in 2007 to 7.7% in 2008 Al = 99%	HIV = 12 cases (2008) IR = fell from 10% in 2005 to 6.3% in 2008 AL = 76.6

Notes: columns 1 and 2 are obtained from ILO (2009).

Annex 3

A NOTE ON COUNTRY REPORTS

Fiji

The Fiji country consultations were held over a 2-day period, from the 7-8 January 2010. A total of eight key stakeholders were considered for consultations. These eight organizations included the Fiji Trade Union Congress, The Fiji Islands Hotel and Tourism Association, the Fiji Employers Federation, the Ministry of Labour, Industrial Relations and Employment, the Ministry of Public Enterprise, Tourism and Communications, the Ministry of National Planning, the Ministry of Local Government, Urban Development, Housing and Environment, and the Fiji Energy and Electrification Department. These eight institutions were identified as broadly representing labour market issues emanating from the effects of climate change on the adaptation capacity of Fiji.

List of people consulted:

1. FTUC: Mr. Rajeshwar Singh, Assistant National Secretary; Ms Jyoti Singh and Agni Deo Singh (executive officers); and FTUC representatives.
2. Fiji Islands Hotel and Tourism Association (FHTA): Mr. Dixon Seeto, President; Deputy and other executive members of the FHTA.
3. Fiji Employers Federation (FEF): Mr. Digby Bossley, President; and other executive members.
4. Ministry of Labour, Industrial Relations and Employment: Mr. Taito Waqa, Permanent Secretary.
5. Ministry of Public Enterprise, Tourism and Communications: Ms Taina Tagicakibau and senior staff.
6. Ministry of Planning: Mr. Peter Wise, Permanent Secretary; and other senior economists.
7. Ministry for Local Government, Urban Development, Housing and Environment: Ms Maraia Ubitau, Permanent Secretary; and other senior staff.
8. Fiji Energy and Electrification Department: Mr. Paula, Senior Energy Specialist.

Solomon Islands

The Solomon Island country consultation was held over a three day period, from the 12-15 January 2010. A total of 12 key stakeholders were considered for consultations. These include: the Civil Society Umbrella Organisation—Development Service Exchange (DSE), the Solomon Islands College of Higher Education (SICHE), the Ministry of Development Planning and AID coordination, the National Council for Women, the Culture and Tourism Ministry, the Ministry of Education, the Ministry of Labour, the Chamber of Commerce and Industry, the Solomon Islands Congress of Trade Unions, the Ministry of Fisheries and Marine Resources, NGO based DSE Affiliates, and the Ministry of Environment, Conservation and Meteorology. These 12 institutions were identified as broadly representing labour market issues emanating from the effects of climate change on the adaptation and mitigation capacity of the Solomon Islands.

List of people consulted:

1. DSE: Mr Collin B. Ruqebatu, the General Secretary, DSE
2. Solomon Islands College of Higher Education [SICHE]: Mr. Dick Ha'amori, Director of SICHE
3. Ministry of Development Planning and AID Coordination: Mr. Daniel B. Rove, Director, **Social** Sector Division; Ms Siona Koti, Head of Aid Coordination Unit; Nr Nelson Ari, Head of Strategic Planning Unit; and Mr. Darling Ramu, Head of Social services and Education
4. **Solomon Islands National Council for Women** : Sarah Dyer ,executive member, Lanieta Leo General secretary, Ms Lily –executive member +
5. **Ministry of Tourism** : Mr Luke Eta -Permanent Secretary
6. Education Ministry: Mr. Timothy Ngele, Undersecretary ; and Ms. Christina Bakolo, the PRIDE project
7. Ministry of Labour: Mr. Cain Kaieti, Deputy Commissioner, Mr. Brown, Head of Industrial relations; Mr. Selson Fafale, Head of Labor and Prosecution; Mr. Daniel Bula, Head of OHS; Mr. Robinson Gegu, Head of Employment, Expatriate affairs and work permits; Mr. Martin Hoari, Chief Industrial Officer, Industrial Development Division and Head of Training and Testing and Apprentice.
8. Solomon Islands Chamber of Commerce and Industry (SICCI) and the Solomon Islands Manufacturers Association (SIMA): Mr Calvin Ziru; Mr. Henry Kapu, SICCI, Origin Energy, Mr. Peter Tam, SIMA; Mr. Bruce Saunders, SICCI, BJS Group of Companies; Ms Lily Lomulo, SICCI; Ms Julie Haro, SICCI, Premiere Real Estate; and Mr Bryan Kennie, SICCI.
9. Ministry of Fisheries and Marine Resources: Dr. Chris Ramofafia, Permanent Secretary; and Mr. Simon Tiller, Technical Advisor.
10. Solomon Islands Congress of Trade Union : Mr Alfred Legua -President, Mr. Tony Kagovai-National Secretary,, Mr Barry Sampson- executive member, Captain Duddly Hsala –executive member.

11. Ministry of Fisheries: Dr Chris Ramofafia- Permanent Secretary, Mr Simon Tiller: Technical Advisor under NZAID
12. Solomon Islands Community Based Organizations :
- SIIPHRA- Mr Moses Ramo - Solomon Islands Indigenous People's Human Rights Association
 - SIDTP - Mr Lionel Dau- Solomon Islands Development and Training Programme
 - Solomon Islands Development Services Exchange [SIDSE] – Mr Collin B. Ruqebatu, General Secretary
 - APHEDA -Mr Grayham Bercy Tahu- Australian People's Health Education Development abroad
 - BAHAI FAITH- Mr Timothy Lafuia
 - Coalition of Education[COESI] – Mr Sampson Maeniwar
 - WORLD VISION- Mr Andrew Catford
 - Literacy Association of Solomon Islands [LASI] -critical Literac programme- Ms Sherilyn Fa'abasua
 - SOL Is Development and Exchange [SIDE] agency
 - Sol Is Christian Association [SICA Commission] – Mr Paul Fia
 - World Wide Fund for Nature Int'l, Local Management and Development Agency- Mr Tristan Armstrong
 - Save the Children- Ms Georgia Noy, Ms Stephanie Walters , Ms Niamh Murnaghan
 - Live and Learn - Ms Ella Kaukue
 - Custom Garden – Mr Andrew Nanau
13. Ministry of Environment, Conservation and Meteorology [MECM]- Minister for Environment, Mr Gordon Darcy Lilo , Mr Rence Sore -Permanent Secretary.



International
Labour
Organization

**ILO Office for Pacific
Island Countries**

FNPF Place, 8th Floor
Victoria Parade
P.O. Box 14500
t: +679 331 3866
f: +679 330 6248
e: suva@ilo.org
Suva, Fiji