Fiji's Intended Nationally Determined Contribution

1.0 National Circumstances

Physical characteristics[1]

Fiji lies between 177° E and 178° W Longitude and 12° to 22° S Latitude with a land area of 18,333 km2 and an exclusive economic zone of 1.3 million square kilometers. This includes 332 islands of which about a third are inhabited. The majority of the land is on continental-like volcanic islands that rise to well over 1,000 meters in elevation. Over 87% of the land is concentrated in the islands of Viti Levu and Vanua Levu. Fiji's climate is tropical, averaging 26°C with annual rainfall ranging from 1800 to 2600 mm. It is considerably richer in natural resources than its Polynesian and Micronesian neighbors with extensive timber, rich soils, mineral deposits and fish. The country is subject to earthquakes, landslides, cyclones, flooding, and storm surges.

Population

The latest census was undertaken in 2007 and shows a population of 837,217 (2007) and an annual population growth of 0.8%. During the last two decades, the national population growth rate has remained relatively low by Pacific Island standards. Given the continuation of the present growth rates for the different ethnic groups, it is estimated that the population for Fiji will reach the one million mark in 2030 and that by 2030, 61% of the population will be urban.

The Economy

The World Bank classifies Fiji as a lower middle-income economy[2] with a per capita GDP in 2011 reported to be US$ 4,397. Fiji's growth has been extremely volatile as a result of a series of external and internal shocks. These include a series of natural disasters (cyclones in 1985, 1992, 1993, 2009, and 2010); two global oil shocks (in 1979 and in 1981–1982); the Asian financial crisis (1997); spikes in food and fuel prices (2008); the global economic crisis (2009 and 2010); and, more recently, severe flooding in the Western and Northern Divisions of the country (January 2012 and late March 2012) followed by Tropical Cyclone Evan in December 2012.[3]

Fiji, as a small island developing state and because of its location is more vulnerable and is at the forefront of being impacted by climate change. Despite contributing a mere 0.04% of greenhouse gas emission to the atmosphere compared to the global average, Fijian communities are experiencing climate change impacts such as eroding shorelines and riverbanks, shortage of water, depleted fisheries stock, reduced food production, large-scale flooding, increase in outbreaks of vector borne diseases and sea level rise. The Fijian government therefore recognizes the importance of adapting to climate change and coordinating climate change related adaptation policies, strategies, plans, and activities to reduce the vulnerability and enhance the resilience of Fiji's communities to the impacts of climate change and disasters.

[1] Sustainable Energy for All (SE4All): Rapid Assessment and Gap Analysis
[2] http://data.worldbank.org/country/fiji
[3] Fiji 2012: Revitalizing the Fiji economy, Mandaluyong City, Philippines

The climate of Fiji is generally categorized as an oceanic tropical marine climate and varies over different timescales. The major features that drive Fiji's climate are: the El Nino Southern Oscillation (ENSO) phenomenon that occurs every four years on average, the South Pacific Convergence Zone and the Trade Winds.

Fiji signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and ratified it in 1993. Fiji's commitments to this Convention are outlined in the National Climate Change Policy of 2012. The Mauritius Strategy 2005-2015 and the Barbados Plan of Action 1994, which attempt to address the problems of small island developing states (SIDS) have climate change as a significant issue. Fiji will continue to contribute to the implementation of the Post 2015 SAMOA Pathway (through the implementation of the National Climate change Policy.
Also at the regional level, the Pacific Island Framework for Action on Climate Change 2006-2015 is focused on building the resilience of communities to combat the impact of climate change. A successor regional framework that incorporates elements of Disaster Risk Management is being negotiated.

Fiji is currently undergoing essential sectoral policy and institutional reform that involves the review and update of existing legislation and policies. The focus of the reform is to ensure sustainable economic and social development and thereby improve the livelihoods of all communities in Fiji.

Policies have been developed in the areas of agriculture, land use, forestry, fisheries and water. They focus on the sustainable management of Fiji's natural resources and the establishment of appropriate institutional arrangements for effective implementation and monitoring. A major component is the incorporation of environmental management in order to address issues that emanate from natural hazards and unsustainable resource management and utilization. These policies play an important role in supporting efforts to reduce adverse impacts of climate change on Fiji's economic and social development.

Climate change constitutes one of the greatest barriers to sustainable development. It puts Fiji's biodiversity and ecosystems, particularly marine and coastal, at risk. This has severe implications for Fiji's economic growth, as the country relies heavily on its natural resources for economic development; fisheries, forestry and agriculture are its primary industries. The effects of climate change are widespread and cross-sectoral. Effective co-ordination of a multi-disciplinary approach and a well-established government position on issues and policies will need to be strengthened to effectively address the impacts of climate change.

2.0 Fiji's Intended Nationally Determined Contribution

In accordance with the relevant paragraphs of Decisions 1/CP.19 and 1/CP.20, Fiji hereby communicates its Intended Nationally Determined Contribution (INDC) towards achieving the ultimate objective of the Convention, and provides up-front information in tabular format to facilitate the clarity, transparency and understanding of the INDC. Fiji is also pleased to provide additional accompanying information, including information relating to mitigation and adaptation planning.

The achievement of the emission reduction target specified above will be through both unconditional and conditional means based on available and additional external financing being made available to Fiji. From the 30% emission reduction target, 10% will be achieved through the implementation of the Green Growth Framework, utilizing resources available in country (unconditional) whereas the remaining target can only be met with the availability of external funding amounting to US$500 million (conditional).

Whilst Fiji's iNDC is specific to the energy sector, further accounting will need to take place to incorporate the mitigation potential of Fiji's Forestry sector via the REDD+ programme, and other critical sectors.

INFORMATION ON INTENDED NATIONALLY DETERMINED CONTRIBUTIONS OF FIJI			
PARTY: Fiji		**DATE: 20 October, 2015**	
Parameter		**Information**	
Period for defining actions		Start year: 2020	End year: 2030
Type and level of Commitment		Sector specific reduction focusing on a renewable energy target for electricity generation. In addition a general emissions reduction by improvements in energy efficiency economy wide. The target is for the renewable energy share in electricity generation to approach 100% by 2030 from around 60% in 2013. In addition an indicative reduction of 10% CO_2 emissions for energy efficiency improvements economy wide will be sought. These measures will reduce CO_2 emissions in the energy sector by around 30% from BAU by 2030.	
Reference year or period		2013	
Estimated, quantified emissions impact		A business as usual (BAU) scenario for total fossil fuel increases for energy production for extrapolated population and economic growth would give total CO_2 emissions in 2030 from the energy sector of around 2500 Gg with an electricity sector CO_2 emission level of around 500 Gg. With the energy sector reductions the emissions in 2030 would thus be around 1800 Gg A close to 100% renewable target would thus reduce BAU emissions by 20%. The additional sector wide energy efficiency reduction of 250Gg or 10% of 2030 emissions would give a total reduction of 30% over BAU for 2030.	
Baseline		The electricity sector CO_2 emissions in 2013 were 340 Gg. The 2013 baseline total energy sector CO_2 emissions were close to 1500Gg.	
Coverage	% National emissions (as at 2013)	1.5 million tonnes of CO_2 from the Energy sector	
	Sectors	Energy target as above	

INFORMATION ON INTENDED NATIONALLY DETERMINED CONTRIBUTIONS OF FIJI		
PARTY: Fiji		**DATE: 20 October, 2015**
Parameter		**Information**
	Gases	CO_2
	Geographical boundaries	Nation-wide
Further information, relevant to commitment type, required for the purpose of providing Clarity, Transparency and Understanding		Fiji's target is consistent with that laid out in the Green Growth Framework and is also aligned with the Sustainable Energy for All (SE4ALL) initiative of the United Nations. Fiji's target is based on modelling future energy balances and based on best available historical data for both supply and demand side of the national energy balance. The Government policy favours a diversified renewable energy portfolio including hydro, geothermal, biomass and grid connected solar and wind but further feasibility studies need completing before the final mix is determined. **Conditionality:** The achievement of the emission reduction target specified above will be through both unconditional and conditional means based on available and additional external financing being made available to Fiji. From the 30% emission reduction target, 10% will be achieved through the implementation of the Green Growth Framework, utilizing resources available in country (unconditional) whereas the remaining target can only be met with the availability of external funding amounting to US$500 million (conditional).
Intention to use market based mechanisms to meet commitments		In order to achieve rapid and cost efficient mitigation, a combination of robust global market based mechanisms and direct aid transfers will be essential. Achieving our conditional goal will require substantial funding including fully functional bilateral, regional and international market mechanisms such as the Clean Development Mechanism (CDM)
Land sector accounting		N/A

INFORMATION ON INTENDED NATIONALLY DETERMINED CONTRIBUTIONS OF FIJI	
PARTY: Fiji	**DATE: 20 October, 2015**
Parameter	**Information**
approach	
Estimated macro-economic impact and marginal cost of abatement	A reduction in the cost of imported fuels equivalent to around 200 million litres of diesel and or heavy fuel oil by the year 2030 over BAU imports. Improved energy security and reduction on the dependence on imported fuel as a source of energy for electricity generation.
Narrative supporting the fair-share assessment of the contribution	Fiji's per capita 2013 CO_2 emissions are estimated to be around 1.5 tonnes compared to the world average of 5.6 tonnes. Fiji is a developing country and has historically not been responsible for the emissions of the developed world. Fiji will do the best to mitigate but not at the expense of raising the standard of living for the poor of the country. As such Fiji's INDC commitment must be contingent on obtaining international funding to proceed with mitigation options.
Description of key domestic policies and measures giving effect to commitment	Green Growth Framework 2014 Draft Energy Policy 2013 Draft Energy Strategic Action Plan 2013 Sustainable Energy for All (SE4All) global report Fiji Electricity Authority draft Power Development Plan Electricity Act (Cap.180) Clean Development Mechanism Policy Guideline 2010
Key assumptions on Mitigation	The key assumption is that finance can be obtained for mitigation in the power sector and assistance with energy efficiency improvements economy wide.

3.0 Key challenges and Proposed Way Forward, Action and Time bound Indicators to achieve Fiji's Emission Reduction Target

Key Challenges	Proposed Way Forward, Actions and Time bound Indicators
There is a need to reduce dependence on imported fossil fuel as a source of energy for electricity generation.	**Short Term (up to 2 years)** • Investment into more renewable energy projects which are feasible in Fiji such as solar (stand alone, solar farm, photovoltaic grid connected), biofuel, wind, micro hydro projects and biogas power generation (agricultural wastes). • Continued research and development in the area of new renewable energy technologies, including further exploration of ocean energy, geothermal energy, wave energy and generation of energy from waste. • Explore whether use of renewable energy could be considered a part of the approval process for new investments. **Medium Term (3 to 5 years)** • Promote and improve guidelines and technical standards for renewable energy technologies **Long Term (over 5 years)** • Continue research and development for energy from possible hydro carbon resources and hydrogen fuel cells. • Renewable energy share in electricity to be around 99% by 2030 from the 61% in 2013.

4.0 Mitigation

Energy in Fiji is supplied in three main forms: i) biomass/wood for cooking in rural areas and to a lesser extent for power co-generation in the wood and sugar industries; ii) as imported fossil fuels and iii) as electricity, of which a significant share is generated from hydropower with much smaller contributions from wind and solar energy.

4.1 Electricity

Fiji has many opportunities that have been identified for transferring most, if not all, of its electricity generation to renewable options. In this regard the relatively high installed capacity of hydro of around 120MW presents itself as a large scale storage facility for intermittent renewable inputs to be fed to the main grid. Wind has been trialled at the Butoni site in Sigatoka with mixed results. Large-scale biomass production is also an important option that is part of the mix from the Fiji Sugar Corporation (FSC) and timber producers. In addition small scale biomass is a distinct possibility. Geothermal has been identified as early as the 1960s but due to the relatively small nominal capacity of individual sites this technology has not progressed to large scale implementation maybe incompatible with the timescale presented by climate change. In addition, other sources such as wave and ocean energy and geothermal energy have also been investigated over the past decades but are not close to implementation.

It is clear that large-scale hydro in Fiji has been very successful and that the technology has been transferred relatively easily and implemented with considerable competence by the Fiji Electricity Authority (FEA). In recent years, the Monasavu system has been added to with another relatively large system at Nadarivatu. Unfortunately solar PV does not have as good capacity factor as hydro and so for a comparable kwh output around 5 times the installed capacity needs to be put in place. Nevertheless, solar PV is now becoming cheaper, almost by the month, and large-scale systems are now economically viable in most locations in the world with good solar regimes. In addition, such systems work best in conjunction with a fast switching stored generation option such as hydro schemes.

4.2 Energy efficiency

Energy efficiency has also been identified as a relatively low cost easily implemented option however, one that has not been seriously implemented in the country for various reasons including financial constraints. Energy efficiency will become more important as higher cost renewable resources are employed but, the law of physics always limits improvements, if they are unlikely to give the reductions needed for complete decarbonisation.

4.3 Transport

The addiction of modern society to individual transport options is common to Fiji and the country has been increasing its number of motor vehicles at around 5% pa from at least the 1970s. In addition, the engine size distribution is moving in the wrong direction for energy and emissions savings. Finally it is likely that the infrastructure that has been needed to accommodate such an increase in vehicle numbers has been a drain on national resources that is now locking in development to this transport mode. This path makes mitigation in this area difficult and more or less constrained to fuel switching (either biofuels or electricity) rather than mode changing for instance to improved public transport systems.

5.0 Adaptation

Fiji is in the front line of climate change. Increased droughts, floods and extreme events such as cyclones affect every sector of Fiji's economy and impact employment levels, the availability of natural resources and resilience. The goal of the objective of Adaptation of Fiji's National Climate Change Policy is to reduce the vulnerability and enhance the resilience of Fiji's communities to the impacts of climate change and disasters and as such, Fiji is proactively creating and refining policies, institutions and budgetary systems that can mobilize resources toward climate change and disaster risk management activities.

Some progress has already been made towards building resilience Government has commenced with the conducting of Vulnerability and Adaptation assessments for the whole of Fiji, invested in improving early warning systems, dredging of river mouths, construction of inland retention dams and the construction of cyclone proof homes in the most affected areas. Rehabilitation plans are focused on the principle of "building back better" especially for rural housing and infrastructure such as roads, water and energy. In the agriculture and forestry sector, the planting of traditional tree and root crops is being undertaken to minimize soil erosion and land degradation and desertification. The planting of mangroves, construction of seawalls and the relocation of communities to higher grounds are part of ongoing adaptation initiatives.

5.1 Key challenges and Proposed Way Forward, Action and Time bound Indicators for Adaptation[4]

Key Challenges	Proposed Way Forward, Actions and Time bound Indicators
There is a need to develop an integrated approach and policy and operational level to effectively address climate change.	**Short Term (up to 2 years)** • Establish a National Platform for Climate Change and Disaster Risk Management by 2015. • Develop a National Strategic Plan for Climate Change and Disaster Resilience by 2015. • Review the Fiji National Disaster Management Arrangements to include Climate Change by 2016.
There is a need to ensure that buildings constructed in urban and rural areas are cyclone resistant.	**Short Term (up to 2 years)** • Review the National Building Code by end of 2016. **Medium Term (3 to 5 years)** • Provide incentives to support compliance with new building standards by 2017.
There is a need to strengthen the role of local governments in building resilience.	**Short Term (up to 2 years)** • Development of a Local Government Self-Assessment Tool for Climate Change Resilience by 2016. • Review the town plan regulations to facilitate the enforcement of zoning and buffer zones for coastal areas, rivers banks, high risk areas and mangrove areas. Review to be completed by 2016.
There is a need for greater understanding of the impacts of climate change in order to better plan for long term development.	**Short Term (up to 2 years)** • Develop a comprehensive assessment framework, including adoption of the damage and loss assessment methodology by 2015. **Medium Term (3 to 5 years)** • Institutionalise a mechanism to collect and analyse hazard, vulnerability and exposure data by 2017. • Mainstream cost-benefit analysis into decision making process in mitigation and preparedness measures by 2017. • Encourage collaboration with development partners and tertiary institutions in conducting research on priority areas with climate change and disaster risk reduction by 2017. **Long Term (over 5 years)** • Develop hazard maps and models for all potential hazards (including sea level rise, storm surge, flood and tsunami) by 2020.
There is a need to ensure climate change mitigation and adaptation become a part of the national and sub national development planning and budgetary process.	**Short Term (up to 2 years)** • Integrate the climate change and disaster risk reduction into the National Development Plan by 2015. • Revise capital budget appraisal guidelines to incorporate comprehensive hazard and risk management (CHARM) and vulnerability and adaptation (VA) assessments by 2015.
There is a need to increase the resourcing of adaptation and	**Short Term (up to 2 years)** • Explore climate change financing modalities by 2015.

[4] A Green Growth Framework for Fiji

mitigation measures.	**Medium Term (3 to 5 years)** • Improve access to global financing facilities such as the Global Green Fund.
There is a need to strengthen partnerships at all levels for building resilience for climate change.	**Short Term (up to 2 years)** • Partner with civil society in undertaking capacity building at divisional and community level on building resilience, including through incentivising performers/performance. **Medium Term (3 to 5 years)** • Undertake vulnerability assessment for all communities by 2019. • Develop climate and disaster resilience plans for urban and rural communities (prioritising squatter settlements and other vulnerable communities) by 2019. **Long Term (over 5 years)** • Capacity building provided to communities for which vulnerability assessments have indicated that relocation is the long term adaptation strategy to minimise risks due to anticipated impacts of climate change.