

# CLIMATE HEALTH – A WEALTH OPPORTUNITY FOR SAMOA

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A wealth of climate health research opportunities, an apparent wealth of global funding for this research, and a renewed level of interest in renewable energy technologies are providing a wealth of health opportunities for Samoa. This presents the potential for increasing food and energy security whilst reducing greenhouse gas (GHG) emissions for a small Pacific Island Country (PIC) plagued by deleterious health impacts from human-induced global climate changes.

Samoa's National Adaptation Plan of Action for Climate Change (NAPA, 2004) and Samoa's Climate Risk Profile (CRP, 2007) are just two documents that the Government of Samoa has based its recent National Energy Policy (2008) and the National Greenhouse Gas Abatement Strategy (2008) on, clearly indicating its commitment to addressing climate change and climate health impacts nationally, regionally and globally.

The Government of Samoa is now interested in addressing global GHG emissions with innovative corporate partners, who are providing philanthropic opportunities designed to displace expensive diesel imports within some of the most vulnerable countries in the world. Samoa has been selected by the Carbon War Room as the first PIC to pilot this approach, becoming 100% renewable in the foreseeable future. The outcome would be to reduce its GHG emissions from about 400,000 tonnes CO<sub>2</sub> equivalent annually to less than 200,000 tonnes. The introduction of such mitigation (renewable energy) technologies into remote villages in Samoa may pave the way for adaptation strategies offering benefits to Samoa's health sector as well as other key sectors such as agriculture, forestry, water, land, power, transport and tourism.

Whilst the socio-economic gains from this proposed venture over the next decade in Samoa will most likely be made easily, the savings to an ailing health system in Samoa are likely to be even more unprecedented. An array of climate change research funding is being directed to help formulate one of the most innovative nationwide responses to help address climate health impacts

anywhere in the Pacific.

Elsewhere, developed world nations are failing to transfer vital technologies to the developing world, and this ambitious medical research approach to climate health impacts in Samoa will raise the awareness benchmarks amongst clinicians and politicians, as well as Pacific Islanders that are losing not only their native lands, but their cultures as well.

The underlying message here is that both off-shore private investors and local rural dwellers will prosper from an ongoing reduction of imported fossil fuels in addition to medical research in climate related disease (CRD) being conducted at the Oceania University of Medicine (OUM). Samoa is now being selected as a showcase pilot site for climate change and health research, but this will require broad and sophisticated research programming.

Small Island Developing States (SIDS) within the Pacific Region, like Samoa, are some of the most vulnerable countries in the world to the escalating impacts of climate change. Extreme weather events, flood induced typhoid outbreaks, drought-induced crop failures and bush fire risks are all increasing and hence placing unnecessary strains on an already burdened health system.

Globally speaking, CRDs were reported to cause about 130,000 deaths in 2009 according to the World Health Organization (WHO), and climate-based epidemiological research will assist Samoa's health sector to cope with the expected additional burden of climate-induced impacts.

Samoa's potential carbon credit gains have, inadvertently, attracted renewed interest from the global corporate world, especially in light of emerging Emission Trading Schemes. Opportunities are now expanding in Samoa to help replant our threatened and degraded watersheds, improve our food productivity and reduce our national GHG emissions across all sectors by capitalizing on Clean Development Mechanisms (CDMs), Reduced Emissions from Deforestation and Forest Degradation (REDD), Land Use and Land Use Change in Forestry (LULUCF) and Payment for Ecological Services (PES) benefits to customary landowners. But it may require a unique partnership within the tourism sector, including the airlines, to capitalize on such valuable carbon credits destined for the voluntary carbon (corporate) market. The benefits to Samoa's health sector are still grossly underestimated and poorly understood, but the tourism sector already realizes the benefits from being marketed as a low carbon holiday destination.

To help combat climate change impacts, Samoa's

development partners are currently engaged in increasing its energy and food security and, fortunately, the United Nations Food and Agriculture Organization (FAO) has an innovative Integrated Food and Energy System (IFES) that is allowing for the growing of biomass energy tree crops whilst simultaneously boosting food production (i.e. by selecting nitrogen-fixing species of energy tree crops which help fertilize nearby food crops, etc.). The ideal mitigation technology in this case is a biomass gasifier, capable of producing power for hospitals and other infrastructures that may find themselves without a reliable and sustainable source of power.

As high level negotiations at the United Nations Framework Convention for Climate Change (UNFCCC) level are proving to be almost fruitless, an excitingly new approach is being launched globally, this time at the private sector level, and Samoa is proud to be one such pilot nation, selected because its Government has taken every possible step to mainstream climate change issues into its national policies, legislations, development strategies and Climate Risk Profile (CRP, 2007).

Most governments worldwide have been unable to successfully reverse their rising national GHG emissions, despite the global health status being jeopardized by rapidly changing CRD epidemiologies. The Pacific Region now needs its own CRD Research Laboratory. Fortunately, CRD research has already commenced in Samoa thanks to funding from the Global Environment Facility (GEF) and Least Developed Country Fund for Climate Change Adaptation. Also, OUM now intends to take this initiative to another level by emphasizing CRD research as a major focus of its medical teaching and research programs.

Samoa's NAPA (2004) and Climate Risk Profile (2007) clearly described an already burdened society, with climate impacts on Samoa's natural resources so severe that they can only exacerbate a further downturn in health responses. What is now required in Samoa is an entirely different response to primary health: more preliminary clinical CRD research is urgently needed, more research tools are needed such as Climate Early Warning System (CLEWS) reporting to Samoa's health sector. Thanks to National Institute of Water and Atmospheric Research (NIWA, NZ), this CLEWS is now fully operational in Samoa and is possibly a world first, and is on the verge of being replicated across the Pacific as other PICs also respond to climate health issues.

Of note to medical research worldwide is the fact that funds are now being mobilized to develop adaptation strategies to the rapidly rising impacts of climate change to all sectors. Whilst some have

described climate change as a (health) risk multiplier, it is also a (health) solutions multiplier. Samoa will soon be able to confidently rely on a detailed National Climate Related Disease Baseline (2010-2012), covering all 330 villages on all 4 inhabited islands, designed and conducted in such a sophisticated manner that 'telemedicine', 'distance diagnosis', 'health adaptation strategies' and 'climate related diseases' all take on a new meaning within Samoa's health system. However, the costs of doing this research are high.

Fortunately, there is now an emerging funding opportunity of immense proportions, as yet unrecognized, untapped and poorly exploited from within Samoa's health sector. Climate change funding is now being directed worldwide at the health sector, and Samoa could tap into such funding to help deliver health outcomes that have been aspired to but never realized. Justifications are now emerging for this baseline data to be compiled as diseases, such as malaria, are spreading across the world, as yet to reach Samoa, but already present within the nearby Western Pacific.

Climate related medical research opportunities have, therefore, suddenly emerged in Samoa because the climate datasets are now digitized and can easily be analyzed and reported to each sector. Well, that's the intent, but Samoa's health sector still lacks a sophisticated National CRD Baseline Database. With this aforementioned expected high level of climate change funding emerging, suddenly these medical research solutions become available. Clinicians in Samoa may soon be able to monitor 'real time' GIS-based epidemiological disease maps, with climate data overlays. This type of medical research has never been attempted before within the Pacific, but Samoa is now well enabled to allow such sophisticated medical research to take place.

## Conclusion

Whilst there may be this wealth of medical funding emerging globally, described as climate change adaptation funding, there is also a wealth of new knowledge emerging in terms of climate-related public health safety. A National CRD Baseline Database in Samoa will allow clinicians to not only monitor the expected impacts of climate change on the already challenged health sector, but, for the first time, allow epidemiologists to better understand the impacts of climate change on vector-borne, food-borne and water-borne disease. However, the socio-economic and cultural implications of climate change are also having a deleterious impact on Samoa's health sector (i.e. with food crops failing, and with the greater reliance on processed imported foods, the prevalence of non-communicable diseases (NCDs) is escalating; rises in seawater temperature are causing local

coral bleachings with direct impacts on access to native marine sources of protein, etc.).

Consequently, Samoa's health sector has been forced to revitalize its training, research and delivery programs, as well as mainstream its public health policies with all matters pertaining to CRDs. Simultaneously, OUM is spearheading this initiative with a new medical teaching hospital planned, with a strong CRD research emphasis, as well as developing new curricula for relevant OUM courses. Postgraduate opportunities are also emerging in CRD research in Samoa, but this requires an ongoing all-of-government partnership with OUM.

The greatest contribution that OUM can make to medical science is, therefore, the completion of a National CRD Baseline Database which has already commenced with the Rotary 5000 Project data, but this Project needs to now be expanded to include all villages, all villagers, as well as all visitors where possible. The time frame for completion of this Database is 2012, giving our clinicians, researchers and medical educators a wealth of information on which to design life-saving and cost-saving national CRD policies and strategies. OUM, in collaboration with all stake-

holders within the health sector, would support the replication of this information across the developing world with the assistance of WHO, Tropical Disease Research Program and other CRD stakeholders such as UNDP, UNFPA, UNESCAP, FAO and others.

With an average 3% rise annually in global atmospheric greenhouse gases over the past 20 years or more, the impacts on Samoa's health system are only just now being realized. Further climate health research in PICs is being strongly advocated by the OUM. With support from WHO's TDR Program, Samoa is expected to become part of a network of globally recognized climate health professionals who will help address emerging climate related health issues, sharing these lessons learnt with its key stakeholders.

Ongoing climate health medical research will help reveal these costly climate related travesties, and their impacts on humanity, for many generations to come. OUM is prepared to provide research facilities and maintain this emphasis on combating CRDs in Samoa and elsewhere provided generous research funding is forthcoming and ongoing.