

FOOD SECURITY IN PACIFIC ISLAND COUNTRIES

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This paper considers the advantages, disadvantages, and challenges confronting the use of intellectual property regimes in the context of food security. While there has been some shift in agricultural practices, subsistence cultivation remains an important aspect of the daily lives of many Pacific Islanders and reflects traditions that for centuries have preserved biodiversity and provided a buffer against crops failures and food loss caused by natural disasters. Climate change, population growth, the cost of imported foods, and loss of traditional knowledge mean that many of these aspects of food security are under pressure. Intellectual property regimes which result in disease-resistant crops, higher yielding cultivars, and climate adapted livestock may provide a solution, but are often out of reach for Pacific Islanders. At the same time, traditional agricultural practices, cultivation knowledge, and a biodiversity of resources may be vulnerable to unprotected exploitation either by other Pacific Islanders or by outsiders.

WHILE MANY READERS will be familiar with the Pacific region, its geography, and its people, nevertheless just to give my paper some contemporary context I propose to draw attention to certain statistics that are relevant to the question of food security. What is understood by food security also needs to be clarified, as well as its particular significance to people of the region. The link between food security and intellectual property and innovation may not at first seem obvious, and indeed food security cannot or should not be seen as an isolated concern, but as integral to various other contemporary issues concerning Pacific Island countries (PICs), especially trade and development, climate change, and the movement of people.

Once these issues are understood, then it is possible to look critically at the relationship between present and proposed intellectual property regimes and present and future food security. It is here that quite crucial questions arise about the dynamics of legal development and the power of various influences and players. It is only once these are recognized that proposals might be mooted that seek to balance pragmatism with idealism and suggest a way forward for Pacific Island nations on this area of national and international concern.

Some Statistical Context

Most of the countries in the Pacific islands region are among the least developed in the world according to the United Nations (UN) Human Development Index (HDI).¹ To give examples, out of 187 listed countries, the rankings of Pacific Island countries are indicated in Table 1.

The HDI report, "measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living." The purpose of the data is to "highlight the very large gaps in well-being and life chances that continue to divide our interconnected world." In this context it should be noted that Australia is ranked second in the world and New Zealand fifth, illustrating the gaps referred to.²

Some Pacific Island countries, notably Samoa, Solomon Islands, Tuvalu, and Vanuatu, are also ranked among the world's forty-eight least developed countries (LDCs). That is, they are included among the world's poorest countries, which means that they are characterized by

weak human and institutional capacities, low and unequally distributed income and scarcity of domestic financial resources. They often suffer from governance crisis, political instability and, in some cases, internal and external conflicts. Their largely agrarian economies are affected by a vicious cycle of low productivity and low investment. They rely on the export of few primary commodities as major source of export and fiscal earnings, which makes them highly vulnerable to external terms-of-trade shocks. . . . These constraints are responsible for insufficient domestic resource mobilization, low economic management capacity, weaknesses in programme design and implementation, chronic external deficits, high debt burdens and heavy dependence on external financing that have kept LDCs in a poverty trap.³

TABLE 1. The Ranking of Pacific Island Countries out of 187 Listed Countries According to the United Nations Human Development Index (HDI).

Country	UN HDI Ranking
Fiji	100
Vanuatu	125
Kiribati	122
Papua New Guinea	153
Solomon Islands	142
Federated States of Micronesia	116
Tonga	90
Samoa	99

Marshall Islands, Nauru, and Tuvalu not ranked in HDI.

Almost all Pacific Island countries are included in the UN's list of thirty-eight Small Island Developing States (SIDS).⁴ Table 2 compares SIDS rankings with HDI rankings.

As pointed out by the UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and the Small Island Developing States (OHRLLS),

SIDS tend to confront similar constraints in their sustainable development efforts, such as a narrow resource base depriving them of the benefits of economies of scale; small domestic markets

TABLE 2. A Comparison of the UN SIDS Ranking with the HDI Rankings of Pacific Island Countries.

Country	Rank among SIDS	UN HDI Rank out of 187 Countries
Tonga	17	90
Samoa	20	99
Fiji	21	100
Federated States of Micronesia	24	116
Kiribati	26	122
Vanuatu	27	125
Solomon Islands	29	142
Papua New Guinea	32	153

Marshall Islands, Nauru, and Tuvalu not ranked in HDI.

Table adapted from <http://www.unohrrls.org/UserFiles/SIDS%20HDI%20RANKING.pdf>.

and heavy dependence on a few external and remote markets; high costs for energy, infrastructure, transportation, communication and servicing; long distances from export markets and import resources; low and irregular international traffic volumes; little resilience to natural disasters; growing populations; high volatility of economic growth; limited opportunities for the private sector and a proportionately large reliance of their economies on their public sector; and fragile natural environments.⁵

The above statistics underpin many of the issues that inform the aid/trade and development debate in the region, but for the purposes of this paper two further dimensions need to be factored in: poverty and climate change.

Traditionally it has been thought that the informal subsistence economies of the Pacific Islands have kept poverty at bay.⁶ However, this is no longer the case,⁷ and while some areas of countries may be better off than others, or some countries may be better off than others, poverty is on the increase. While it has been recognized that "Poverty in the Pacific may not be as visible or as extreme as in some of the harshest parts of the world"⁸ and that some caution may need to be exercised when applying poverty calculi to the Pacific,⁹ it is recognized that people in the region suffer from poverty measured by access to basic necessities, poverty of opportunity,¹⁰ and what has been termed vulnerability poverty (see below).

Although only Vanuatu has been assessed according to the UN Development Programme (UNDP) Multidimensional Poverty Index (MPI), with research in 2007 indicating that around 30.1 percent of the population were in poverty,¹¹ in the Summit Report on Food Security in the Pacific, it was estimated that 2.7 million (out of an approximate 10 million people in the Pacific) were in poverty.¹² Increased prices of imported foodstuffs and fuel—affecting cooking and transport of foodstuffs—has a proportionately higher impact on these countries than on more affluent ones.¹³ Moreover, higher food prices have cascading effects on development across the board, leading to regressions in standards of education and health.¹⁴

Other evidence of growing food poverty is the fact that it is now considered unlikely that many Pacific Island countries will meet Millennium Development poverty alleviation goals (MDGs). The Pacific Forum has noted that "the Pacific faces the highest levels of vulnerability, with very low coping capacity and resilience to the endogenous and exogenous shocks that has adversely impacted Pacific communities in recent years. As a result, the Pacific region runs the very high risk of not achieving the MDGs."¹⁵

Similarly the Asian Development Bank's 2011 report found that "The Pacific region as a whole is unlikely to achieve the target of halving the proportion of people living in extreme poverty (Millennium Development Goal 1, Target 1a) by 2015."¹⁶

Indeed it has been pointed out by organizations such as Oxfam (New Zealand) that World Trade Organization (WTO) accession is likely to aggravate poverty in the region, because of the inequality of bargaining power that PICs face and the consequential loss of ability to promote local business opportunities for local people, loss of ability to protect local economies from foreign exchange crises, pressures for privatization and deregulation of services, the expense of meeting WTO commitments and concurrent loss of revenue to governments, the high probability of privatization of public services, and loss of sovereignty over trade-related matters.¹⁷ Oxfam makes a clear connection between growing poverty and WTO, stating:

Many Pacific Island countries are being pressured by rich countries through the World Trade Organisation to make commitments to further open their economies to foreign goods and services. This will mean Pacific governments will lose much-needed revenue to invest in basic services. They will also lose control over trade policies that will help them develop their economies and end poverty.¹⁸

In assessing population percentages living below the National Basic Needs Poverty Line,¹⁹ Oxfam statistics indicate that this is 25 percent in Fiji, 20 percent in Samoa, 38 percent in Papua New Guinea, and 40 percent in Vanuatu.

Even in those countries that are not signed up to the WTO, there are food shortages, either because people cannot afford food or because they cannot grow it. This links to another form of poverty (mentioned above): vulnerability poverty, which means that Pacific Island countries and their people are

vulnerable to circumstances such as natural disasters, national and international economic downturns, fluctuations in remittances and tourism, civil conflict and changes in international aid distribution. This kind of vulnerability highlights how poverty is not an absolute state but one that is related to circumstances.²⁰

Crucial to these circumstances is climate change.

Climate Change

It has been pointed out by the UN Food and Agriculture Organization (FAO) in a briefing paper on Climate Change and Food Security in the Pacific (2009) that “Despite the fact that PICTs make negligible contributions to global greenhouse gas emissions rates (0.03 per cent), they find themselves—unfairly—facing the frontline of climate change impacts. Climate change seriously threatens ongoing regional development and the very existence of some low-lying atoll nations in the Pacific.”²¹

Although not all Pacific islands are low-lying coral atolls, they are all subject to the effects of climate change, either because of salt-water inundation or because of the more frequent incidence of cyclones, irregular rainfall patterns, and changing temperatures.²² They are also subject to natural hazards such as earthquakes, tsunamis, and volcanic eruptions.

The FAO has explicitly stated that

Careful consideration must be given to the impact of climate change on food security, and building the resilience of the agriculture, fisheries and forestry sectors to safeguard food security in a time of multiple crises and risks.²³

Climate change, in combination with other factors, is likely to have a significant adverse effect upon food security in the future, requiring changes in agricultural technology, such as the introduction of new species resilient to salinity, drought, and flood, and new techniques for food preservation to help populations through periods of natural disaster.²⁴ In 2009 the FAO held a Climate Change and Food Security in the Pacific meeting in Copenhagen to

raise awareness of the imminent impacts of climate change on food security in Pacific island countries and territories and to urge participants to consider the importance of mainstreaming food security in climate-related policies, strategies and programmes.²⁵

At national and regional levels there have been a number of initiatives to focus on climate change. For example, the Pacific Islands Framework for Action on Climate 2006–2015 established six basic principles.²⁶ Although there is reference in the framework to agriculture, there is no specific link made between climate change, food security, biodiversity, and intellectual property. Similarly, the Pacific Adaptation Climate Change Program, implemented by the Secretariat for the Pacific Regional Environment Program

(SPREP),²⁷ which includes among its three main programs food production and food security, makes no specific link between the regulatory environment and building capacity for adaptability to climate change, even though reference is made in national reports to the importance of maintaining biodiversity.²⁸

The Meaning and Significance of Food Security in the Pacific

In defining food security, the World Health Organization (WHO) quotes the World Food Summit of 1996:

“when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life.” Commonly, the concept of food security is defined as including both physical and economic access to food that meets people’s dietary needs as well as their food preferences.²⁹

The Inter-American Institute for Cooperation on Agriculture (IICA) define it as

the existence of the necessary conditions for human beings to have physical and economic access, in socially acceptable ways, to food that is safe, nutritious and in keeping with their cultural preferences, so as to meet their dietary needs and live productive and healthy lives.³⁰

and the FAO defines food security as existing when

all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.³¹

The WHO state that food security is based on three pillars: availability—sufficient quantities of food available on a consistent basis; access—having sufficient resources to obtain appropriate foods for a nutritious diet; and use—appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation. The WHO also draws a direct correlation between sustainable economic development issues and ill health due to malnutrition, environment, and trade.

The negative consequences of WTO accession, increasing urbanization and demographic changes, and climate change are therefore all factors that

influence actual or potential poverty in the region, but most fundamentally, as suggested by the UN Economic and Social Commission for Asia and the Pacific (ESCAP), “the most broadly used standard for measuring poverty in practice is likely to continue to be the adequate consumption of food and other essentials.”³² Food security is therefore crucial to the futures of Pacific Island people, and its importance is at last beginning to be realized in the region and highlighted in a number of initiatives.

The Pacific Islands Forum (PIF), the regional body representing all the island states, started to focus attention on food security in 2008, and in 2009 Ministers of Trade, Agriculture and Health endorsed the concept of a Pacific Food Summit. A Framework for Action on Food Security was developed and drafted between 2008 and 2010, and at the Inaugural Pacific Food Summit, held in 2010 in Vanuatu, it was recognized and agreed that

In the Pacific ... food security is being threatened by declines in traditional crop production, increased dependence on imported foods, growing vulnerability to climate change, overfishing and illegal fishing, volatility in international commodity prices, and failure to enact and enforce food safety and quality standards. Collectively, these and other threats hinder productivity, trade and development and contribute to greater risk of chronic diseases (such as type 2 diabetes and hypertension), vitamin and mineral deficiencies, child malnutrition and food-related diseases.³³

It was recognized that one of the keys to food security was to promote, facilitate, and preserve the growing of indigenous food crops and to encourage the cultivation of varieties that would withstand climate change, pests, and disease while also offering a balanced diet. Biodiversity was seen as essential to food security in the region.

The Relationship between Present and Proposed Intellectual Property Regimes and Present and Future Food Security

While food security has made it on to the local agenda, as have concerns about traditional knowledge and indigenous intellectual property, there has been rather less connectivity made between trade, intellectual property, and food security. Indeed it seems to be generally ignored that the law (apart from legislation relating to food standards)³⁴ may be one of the “multiple” barriers to food security, or indeed one of the enabling factors.³⁵ This is partly because of the disjunction at government level between

different ministries and departments—for example, different ministries deal with agriculture and trade—and partly because of the failure to recognize that obligations incurred under trade treaties or international membership of WTO could have direct consequences on the future food security of the region.

A mixed intellectual property regime will affect all food security in PICs, especially patents and plant breeders' rights, but copyright, trademarks, and geographical indicator regulations may also be relevant to agricultural trade activities vital for earning the foreign income needed to meet demands on national budgets.

However, it is those countries that are members of the WTO that are most adversely affected because WTO membership requires trade-related aspects of intellectual property rights (TRIPS) compliant legislation, which encompasses (among other things) genetic resources and plant varieties. Member states may include plants and genetic resources within patent law or can exclude plants from patentability and put in place their own *sui generis* law or a combination of measures.³⁶ There is pressure, however, to sign up to the Union Internationale pour la Protection des Obtentions Végétales (UPOV).³⁷ UPOV protects the rights of plant breeders provided they develop plant varieties that are new, distinct, uniform, and stable (Article 5 (1)). Commercial plant breeders are likely to favor and support UPOV because its requirements are much easier to comply with than those of patent law, making it easier for commercial plant breeders to secure monopolies. By contrast, it is more difficult for farmers to bring their own plant varieties under UPOV protection because the UPOV requirements of demonstrating stability and uniformity present obstacles to varieties developed by farmers, since these tend to be variable and lacking uniformity.

The UPOV model is particularly unsuitable for the Pacific region. Not only are many food crops grown not from seed but from plant-stock propagation, but the possible exemptions are of little relevance. For example, the "farmers' rights" exception under Article 15 of the 1991 version of the UPOV convention, which permits states to restrict breeders' rights "in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting . . . the protected variety," does not extend to the sharing or exchange of propagating material; while the "research exemptions" that allow national legislation to make exceptions for "acts done privately and for non-commercial purposes [and] for experimental purposes" (Article 15(1)(i) and (ii)) are of little relevance to countries with minimal research and development capacity. The only exemption that could be of use is the public interest exemption.³⁸ However, resistance on the grounds of public interest based

on the need to protect farmers' rights, indigenous cultural practices, and respect for traditional knowledge, as well as to safeguard biodiversity and promote food security, needs strong political will and national and international support.

Although the UN Special Rapporteur on The Right to Food has observed that "No State should be forced to establish a regime for the protection of intellectual property rights which goes beyond the minimum requirements of the TRIPS Agreement" and has expressed the view that "free trade agreements obliging countries to join the 1991 UPOV Convention or to adopt UPOV-compliant legislation, therefore, are questionable,"³⁰ the reality is that without sufficient resources, or political power, PICs seeking membership of the WTO are likely to give in under pressure. Even where PICs are not seeking WTO membership, it is likely that within regional trade negotiations (for example, PACER Plus) those countries that are constrained by TRIPS and TRIPS Plus agreements will be likely to seek to extract the same commitment from trading partners, and further afield (for example, under European Union–Africa Caribbean Pacific agreements) it is likely that uneven playing fields and imbalances of negotiating power will result in UPOV or UPOV-type plant regimes, or the use of patent law.

Balancing Pragmatism and Idealism: A Way Forward for Pacific Island Nations

The use of nontraditional intellectual property regulations has two potentially negative consequences for food security in Pacific Island countries: the first is that these regulations effectively exclude Pacific Islands (along with other developing countries) from access to essential resources due to their protective and prohibitive features. The second is that traditional knowledge used to promote food security does not fall within the scope of these laws, with the consequence that either the food products of that knowledge are traded without appropriate acknowledgment going to those whose knowledge made their production possible or traditional knowledge is constrained within an unsuitable regulatory framework that undermines the value of such knowledge (for example, the principles of sharing; communal and intergenerational knowledge transfer rather than individual ownership; timelessness rather than fixed points in time for origin and expiry; and exchange instead of financial return). At the same time it has to be recognized that some traditional knowledge is being lost, just as biodiversity is being lost. Changing lifestyles, urbanization, and different forms of knowledge transmission all contribute to future food crises.

It seems clear however, that TRIPS Plus regulatory regimes do little to enhance food security in the region and, if complied with, seem likely to aggravate poverty rates. Unless Pacific Islanders can stand firm and negotiate alternative regimes, then it may be better to avoid legislation altogether. This would not necessarily mean that there is a food security vacuum. Not only are there traditional practices of encouraging biodiversity and the exchange of plant material, but there are also a number of national and regional initiatives that, if left unconstrained by western-style intellectual property laws, could ensure a brighter future for food security in the region. Among these are initiatives to secure germplasm or plant samples in “banks,” and projects being developed by the Centre for Pacific Crops and Trees (CePACT) Programme to develop new plant species that are more resistant to climate change and to other problems affecting and depleting other food crops.⁴⁰ There are also national programs that could be adapted elsewhere, for example, the *Kastom* Gaden Association in Solomon Islands,⁴¹ the Island Food Community of Pohnpei,⁴² and renewed focus on *kastom* economy and island food in Vanuatu.⁴³ These projects have mixed aims and agendas but share an interest in promoting local foods through cultivation and use, and identify the need to conserve crop varieties and improve access to plant resources.⁴⁴ They also raise awareness about the loss of traditional knowledge and promote better diets.

The above initiatives are not always problem free, however. For example, the issue arises with gene banks as to who will control the release of “banked” material back into the community and how this will be regulated. Similarly, where private collections are developed for archival or research purposes, then it is unlikely that there will be free access to genetic stocks (an example is the national stock of breadfruit trees in Hawai'i's Botanical Gardens). Similarly, where new strains are developed as a result of research they are invariably not only located outside PICs but also funded by organizations that may expect to see a return on their investment and may not be able or willing to act purely altruistically toward PICs, for example the Centre for Legumes (CLIMA) at the University of Western Australia and the Australian Centre for International Agricultural Research at Australian National University.

It might also be possible for those PICs not yet yoked to UPOV or TRIPS Plus intellectual regimes to develop Pacific focused *sui generis* legislation looking at comparative models developed elsewhere in the developing world such as India and Africa,⁴⁵ or through giving greater attention to the interests of farmers and the national need for taking measures to ensure food security when interpreting the “public interest” exception under UPOV or similar trade-linked agreements that affect plant varieties and genetic resources.

Conclusion

The current intellectual property regimes that directly affect food security are shaped by and protect agricultural corporations in the developed world, notably those corporations that develop genetically modified crops, seeds, pesticides, and fertilizers. In particular the current regime divorces seed and plant development from farming or food growing. The funding mechanisms for research into climate change resistant food crops ignores the argument that the food resources of the world should belong to the global commons.⁴⁶ The focus on trade rather than welfare within the rhetoric of economic development has resulted in the uncoordinated development of national policies while the ongoing dependency on aid for most PICs has severely undermined autonomy in international interactions. There is, moreover, a danger that the rationale that informs western models of intellectual property will begin to shape the thinking of Pacific Island governments and individuals, so that excluding rather than sharing becomes the norm; claiming ownership and property rights over the outcomes of years of skill, knowledge, and labor may become more prevalent rather than the acknowledgment of communal and transgenerational contribution to present knowledge and biodiversity, and this is particularly likely to occur once financial incentives enter the picture.

The future of food security in the region is influenced by a number of factors operating together. Until this interconnectedness is recognized there is a danger that the combined risks to food security will not be adequately addressed. As a start, it is essential that this multidimensionality is acknowledged. Then more needs to be done to ascertain and publicize good practice in local initiatives so that others can see what could be done, if only at a local or microeconomic level. Governments considering trade treaties should consider the likely food security threats implicit in such agreements and take advice from agencies that have expertise in identifying likely adverse consequences such as WHO, Oxfam, and the UN Children's Fund (UNICEF). At a regional level, open access has to be negotiated and put in place, if necessary by ring-fencing certain food crop varieties, and aid donors should be encouraged to continue to support regional research initiatives offering free distribution of disease-resistant and pest-resistant crops. At an international level, there is scope for constructive dialogue with other developing countries facing similar dilemmas. Above all, perhaps, the words of the Special Rapporteur on Food Security should be borne in mind:

The expansion of intellectual property rights can constitute an obstacle to the adoption of policies that encourage the maintenance of agrobiodiversity and reliance on farmers' varieties. Intellectual property rights reward and encourage standardization and homogeneity, when what should be rewarded is agrobiodiversity, particularly in the face of the emerging threat of climate change.¹⁷

NOTES

1. For the 2011 UN HDI rankings, see United Nations Development Programme (UNDP), *Human Development Reports*, accessed February 20, 2013, <http://hdr.undp.org/en/statistics/>; also see, the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (UN-OHRLLS), "Least Developed Countries: About LDCs," accessed February 20, 2013, <http://www.unohrrls.org/en/ldc/25/>, and UN-OHRLLS, "Small Island Developing States: Country Profiles," accessed February 20, 2013, <http://www.unohrrls.org/en/sids/44/>.

2. UNDP, "Human Development Report 2011: Sustainability and Equity: A Better Future for All," accessed February 20, 2013, <http://hdr.undp.org/en/reports/global/hdr2011/>.

3. UN-OHRLLS, "Least Developed Countries: About LDCs."

4. Small Island Developing States (SIDS) were recognized as a distinct group of developing countries facing specific social, economic, and environmental vulnerabilities at the Rio Earth Summit in 1992. UN-OHRLLS, "Small Island Developing States: About SIDS," accessed February 20, 2013, <http://www.unohrrls.org/en/sids/43/>. They and other non-UN member states (for example Cook Islands and Niue) are members of the Alliance of Small Island States (AOSIS).

5. UN-OHRLLS, "Small Island Developing States: About SIDS."

6. D. Abbott and S. Pollard, *Hardship and Poverty in the Pacific: A Summary* (Manila: Asian Development Bank, 2004).

7. In fact, poverty in the Pacific was identified some twelve years ago. In 2000 the Asian Development Bank (ADB) created a Poverty Reduction programme. Steve Pollard, "Poverty in the Pacific—A Forgotten Priority," Development Policy Blog, April 16, 2012, <http://devpolicy.org/poverty-in-the-pacific-a-forgotten-priority/>. See also ADB, *Hardship and Poverty in the Pacific*, and Marin Yari, "Beyond 'Subsistence Affluence': Poverty in Pacific Island Countries," *Bulletin on Asia-Pacific Perspectives 2003/04*, 41, accessed February 20, 2013, http://www.unescap.org/pdd/publications/bulletin03-04/bulletin03-04_ch3.pdf.

8. Lesley Russell, "Poverty, Climate Change and Health in Pacific Island Countries" (working paper, Menzies Centre for Health Policy, University of Sydney/ANU, 2009).

13, accessed February 20, 2013, http://usce.edu.au/s/media/docs/publications/0904_pacificislandspaper_russell.pdf.

9. See Matthew Morris, "Measuring Poverty in the Pacific" (Development Policy Centre Discussion Paper No. 9, ANU, 2011), accessed February 20, 2013, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2041821.

10. "Poverty of opportunity is evident in many ways, including rapid emigration from some countries, high but often hidden unemployment, and the emergence of a culture of youth crime and high youth suicide rates." Russell, "Poverty, Climate Change and Health in Pacific Island Countries," 13.

11. S. Alkire, J. Roche, M. Santos, and S. Seth, "Vanuatu Country Briefing" (Oxford Poverty and Human Development Initiative [OPHI] Multidimensional Poverty Index Country Briefing Series, 2011), accessed February 20, 2013, <http://www.ophi.org.uk/policy/multidimensional-poverty-index/upi-country-briefings/>.

12. FAO/WHO/UNICEF/PIFS, "Towards a Food Secure Pacific: Framework for Action on Food Security in the Pacific," http://foodsecurepacific.org/wp-content/uploads/2013/01/FINAL-TOWARDS-A-FOOD-SECURE-PACIFIC_June1.pdf. See also, WHO Pacific, "Pacific Food Summit Report" (Manila: WHO, December 2010), accessed June 5, 2013, <http://www.wpro.who.int/nutrition/documents/docs/PacificFoodSummitReport.pdf>.

13. UNICEF, *Situation Reporting: Food Price Increases/Nutrition Security in the Pacific Islands* (Report No. 1) (Suva: UNICEF, 2008). See also Australian Government Treasury, "The Second International Food and Fuel Price Shock and Forum Island Economies," *Economic Roundup* 3 (2011), accessed February 20, 2013, <http://www.treasury.gov.au/PublicationsAndMedia/Publications/2011/Economic-Roundup-Issue-3/Report/The-second-international-food-and-fuel-price-shock-and-Forum-island-economies>.

14. UNICEF, "Situation Monitoring: Food Price Increases in the Pacific Islands" (working paper, UNICEF Pacific, 2011), http://www.unicef.org/pacificislands/FINAL_SITUATION_REPORTING2.pdf. See, generally, Oxfam New Zealand, "Poverty in the Pacific," accessed February 20, 2013, <http://www.oxfam.org.nz/what-we-do/where-we-work/poverty-in-the-pacific>.

15. Pacific Islands Forum Secretariat, "2010 Pacific Regional MDGs Tracking Report," accessed February 20, 2013, http://www.forumsec.org.fj/resources/uploads/attachments/documents/PIFS_MDG_TR_20101.pdf.

16. Abbott and Pollard, *Hardship and Poverty in the Pacific*, vi.

17. Oxfam New Zealand, "Proposed WTO Accession: Key Issues for Tonga" (Oxfam New Zealand Discussion Paper, 2005), amended November 7, 2005, <http://www.oxfam.org.nz/sites/default/files/reports/WTO%20Key%20issues%20for%20Tonga.pdf>. The WTO claims to recognize the dilemmas of small island developing states; see C. Chakriya Bowman, "Managing the Challenges of WTO Participation: Case Study 33: The Pacific Island Nations, Towards Shared Representation," accessed February 20, 2013, http://www.wto.org/english/res_e/booksp_e/casestudies_e/case33_e.htm.

18. Oxfam New Zealand, "Poverty in the Pacific," accessed February 20, 2013, <http://www.oxfam.org.nz/what-we-do/where-we-work/poverty-in-the-pacific>.
19. Oxfam explains that the "National Basic Needs Poverty Line is a measure of the minimum income needed to buy sufficient food and meet basic requirements such as housing, clothing, transport, school fees etc. Statistics are taken from the Asian Development Bank report 'Hardship and Poverty in the Pacific' (December 2004) and the UNDP Human Development Report statistics."
20. L. Good, "Poverty in the Pacific—An Analysis" (Pacific Issues Paper No 6, Directorate General for Development, European Commission, April 2003).
21. FAO/SPREP/USP, "Climate Change and Food Security in the Pacific" (policy brief, November 2009), 5, accessed February 23, 2013, <ftp://ftp.fao.org/docrep/fao/012/i1262e/i1262e00.pdf>.
22. See Commonwealth Scientific and Industrial Research Organisation (Australia) (CSIRO), "New Insight into Climate Change in the Pacific," accessed February 20, 2013, <http://www.csiro.au/Portals/Media/New-insight-into-climate-change-in-the-Pacific.aspx>.
23. FAO/SPREP/USP, "Climate Change and Food Security in the Pacific."
24. An Asian Development Bank (ADB) report recognizes the threat of climate change to the attainment of MDGs and the need of PICs to address issues triggered by climate change with partners if "they are to continue to . . . maintain biodiversity and culture." ADB, "The Millennium Development Goals in Pacific Island Countries: Taking Stock, Emerging Issues, and the Way Forward" (Manila: ADB, 2011), 32, accessed February 20, 2013, <http://www.adb.org/publications/workshop-report-millennium-development-goals-pacific-island-countries-taking-stock-emer>. See also the establishment of the Global Environmental Facility's Least Developed Country Fund in November 2002, from which money has been allocated to five LDCs in the region (Kiribati, Samoa, Solomon Islands, Tuvalu, and Vanuatu) to aid in the preparation of National Adaptation Programmes of Action plans.
25. ReliefWeb, "Climate Change and Food Security in the Pacific," published November 26, 2009, last accessed September 2, 2012, <http://reliefweb.int/node/334893>. For the full briefing note see W. Morrell and N. El-Hage Sciadabb, "Climate Change and Food Security in the Pacific" (policy brief, FAO/SPREP/SPC/USP, 2009), accessed February 20, 2013, http://www.sprep.org/att/irc/ecopies/pacific_region/493.pdf.
26. These are as follows: implementing adaptation measures; governance and decision making; improving understanding of climate change; education, training, and awareness; contributing to global greenhouse gas reduction; and building partnerships and cooperation.
27. The project, which was scheduled to run from 2008 to 2012 over thirteen Pacific Island countries, was implemented by UNDP in partnership with SPREP and funded by the Global Environment Fund and the Australian Agency for International Development with support from the United Nations Institute for Training and Research

and the Capacity Development for Adaptation to Climate Change (UNITAR C3D+) Programme.

28. See, e.g., SPREP, "Pacific Adaptation to Climate Change: Fiji Islands," paragraphs 44–45, accessed February 20, 2013, http://www.sprep.org/att/publication/000668_Fiji_Report_NationalPACCReport_Final.pdf.

29. World Health Organization, "Food Security," accessed February 20, 2013, <http://www.who.int/trade/glossary/story028/en/>.

30. IICA, "IICA's Definition of Food Security," accessed June 5, 2013, http://www.iica.int/esp/programas/SeguridadAlimentaria/Documents/SeguridadAlimentarias_Quees_Eng.pdf.

31. World Food Summit, "Plan of Action Article 1" (1996), http://www.fao.org/wfs/index_en.htm.

32. UNESCAP, "Beyond 'Subsistence Affluence.'"

33. WHO, *Meeting Report of the Pacific Food Summit* (WPDHP1002530-E Report Series Number: RS/2010/GE/22(VAN)), 1, accessed February 20, 2013, <http://www.wpro.who.int/nutrition/documents/docs/PacificFoodSummitReport.pdf>.

34. For example, there is a Pacific Food Safety Quality Legislation Expert (PFSQLE) Group.

35. For example, land energy and transport were added to the framework for food security following the Food Summit meeting in Port Vila in 2010.

36. Article 27 (3)(b) TRIPS.

37. Although a *sui generis* framework itself, UPOV is a TRIPS Plus requirement, but may be mandated by WTO accession negotiations, as happened in the case of Vanuatu.

38. In India, this has been relied on to afford greater protection farmers' rights and to try and ensure food security in the Plant Varieties and Farmers Rights Act 2011.

39. Olivier De Schutter, "Seed Policies and the Right to Food: Enhancing Agrobiodiversity, Encouraging Innovation" (presentation by the Special Rapporteur on the Right to Food to the 64th session of the UN General Assembly, October 2009, A/64/170), 15.

40. Located at the Secretariat of the Pacific community in Noumea, New Caledonia. SPC Land Resources Division, "The Center for Pacific Crops and Trees (CePaCT)," accessed February 20, 2013, http://www.spc.int/lrd/index.php?option=com_content&view=article&id=649&Itemid=107.

41. The customary gardening association was formed in 2001 and operates locally and through a Melanesian network of farmers. One of its key aspects is the Plant Material Network, which provides members with improved seed and rootstock varieties. It is currently funded by an Australian government grant of AU\$2.53 million. Kastom Garden Association, "About KGA," <http://kastomgaden.org/about/>.

42. Initially a two year project running from 2005 to 2007, this community-based project is still going strong and has developed to include projects to document pandanus and banana varieties in order to build a data base of plant resources in order to protect their gene bank. Its current work is funded by the US Forestry, Australian Government, and Secretariat of the Pacific Community.
43. For example, 2007 and 2008 were declared years of the Kastom economy in Vanuatu. See R. Regenvanu, "The Traditional Economy as Source of Resilience in Vanuatu," accessed June 5, 2013, <http://www.aidwatch.org.au/sites/aidwatch.org.au/files/Ralph%20Regenvanu.pdf>.
44. See, e.g., Island Food Community of Pohnpei, "Report on the Strategic Planning Retreat, April 24, 2004," <http://www.islandfood.org/publications/strategy.pdf>; L. Kaufert, L. Englberger, R. Cue, A. Lorens, K. Albert, P. Pedrus, and H. V. Kuhnlein, "Evaluation of a 'Traditional Food for Health' Intervention in Pohnpei, Federated States of Micronesia" *Pacific Health Dialog* 16, no.1 (April 2010), 61; and T. Jansen and M. Q. Sirikolo, eds., "Petanigaki ta Siniqu ni Lauru" or "The Forest Foods of Lauru" (Kyogle, N.S.W, Australia: Kastom Gaden Association (KGA) and Terra Circle Inc., of Australia, 2011).
45. See, for example, the African Model Legislation for the Protection of the Rights of Local Communities, Farmers, and Breeders, and for the Regulation of Access to Biological Resources and in India the Protection of Plant Varieties and Farmers Rights Act.
46. As might be advocated under the International Treaty on Plant Genetic Resources for Food and Agriculture.
47. De Schutter, "Seed Policies and the Right to Food," 14.