Chapter 7

The Political Economy of Transitioning to a Green Economy in Nauru

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7.1 Introduction

Ideally a 'green economy' in the 'blue world' of Nauru's surrounding ocean would be one that delivers equitable improvement in living standards without eroding environmental assets. Since Nauru's land assets have already largely been eroded, its future depends on re-establishing a basic environment through a rehabilitation-focused 'greening' of the land coupled with a careful management of its marine resources.

7.2 Small island developing state

7.2.1 Nauru as a mountain

Forty-two kilometres south of the Equator, Nauru is the emergent tip of a basalt seamount rising over 4,300 metres from the ocean floor. This seamount was at one time topped by a 500-metre-thick coral formation that has since been raised through tectonic activity to its present elevation.

The island is 6 km in length and 4 km across with a circumference of 18 km, and is surrounded by a shallow, intertidal fringing reef between 100 and 300 metres wide. From a narrow coastal belt of between 200 and 500 metres width, the terrain rises to an interior plateau averaging 25–50 metres elevation. This plateau is a sparsely vegetated landscape dominated by the pits and pinnacles remaining from opencast phosphate mining.

Nauru's size and location – a tiny island embedded within an Exclusive Economic Zone (EEZ) of 32,000 square km – is suggestive of a 'blue economy'. While there are high hopes that seabed mineral exploitation may in future become an economic mainstay, in reality Nauru has a land-focused economy with a degraded land base itself in need of 'greening'.

As climate change takes hold and sea levels rise (UNDP–Global Environment Facility–Secretariat of the Pacific Regional Environment Programme [GEF-SPREP] 2011), the narrow coastal belt on which most people live is being reduced by wave action. There is a need to find alternative locations for housing, infrastructure and agriculture and to establish a secure supply of water uncontaminated by sewage wastes and seawater. Nauru's future lies in its mined, yet-to-be-rehabilitated interior.

Nauru is a small island developing state (SIDS). With most of its natural capital having been depleted prior to independence, being so isolated and with such a small population and persistent diseconomies of scale, Nauru's viability as an independent state has always been a challenge. The difficulty of 'greening' the economy of Nauru is clearly evident in its overall Environmental Vulnerability Index (EVI),[1] which is reported as being at the end of the scale, 7 – 'extremely vulnerable'. Of 235 countries for which an EVI has been calculated, Nauru is listed as the fifth most vulnerable (UNEP-Pacific Islands Applied GeoScience Commission [SOPAC] 2005). Not only are there natural environmental factors of isolation and climate to overcome, but also those that arise from the way in which its environment has been exploited, combined with a continuing heavy dependence on the outside world for everything from energy to food.

7.2.2 Nauru's economy

The Government of Nauru is candid about its situation. Its Aid Management Policy (Government of Nauru n.d.), in describing the development challenge the nation faces, refers to 'an enormous debt burden' and, apart from residual phosphate mining, lists the only significant other sources of national income as distant water fishing licence fees from non-Nauruan vessels and donor budget support.

The Republic of Nauru was for a time relatively self-sufficient, with little or no reliance on external assistance. This was made possible through revenue received from the mining of rock phosphate, which since the early 1900s was the single key activity driving the economy of Nauru. In fact in the 1970s and 1980s, Nauru had the highest per capita income – making it the richest country in the Asia Pacific region.

However from 1990 onwards, with a decrease in phosphate mining, Nauru started to face serious financial and economic problems. High government expenditure financed by offshore borrowings, coupled with poor investment decisions and corrupt practices, resulted in widening fiscal deficits and led to unsustainable levels of public debt. Weak economic and financial management changed Nauru from being a wealthy nation to one that is heavily indebted and for some years was, in the words of Nauru's Aid Management Policy, 'on the verge of collapse'. With phosphate mining minimised and a weak business sector, the government had limited options to generate economic activity.

Beginning with the 2004/05 and 2005/06 budgets, the government announced a range of economic and financial reforms to restructure the economy and reverse the current situation. With limited recovery options, external assistance continues to be a critical source to help rejuvenate and eventually 'green' the Nauruan economy.

The 2009/10 budget was the first for many years that was balanced, with a projected income of 57.8 million Australian dollars (AUD/A$ – the currency of Nauru) matched by expenditure of A$57.75 million. This balance was achievable only because development partners were prepared to inject A$30 million into the budget (Government of Nauru 2011). The Nauru government has assessed Nauru's total debt

at A$869 million, or 20 times the current GDP (Australian Department of Foreign Affairs and Trade 2012). This corresponds to a per capita national debt burden of approximately A$8,700.

7.2.3 Nauru's development background

With extremely high debt levels, and with domestic revenue making up only around 40 per cent of the national budget, Nauru relies heavily on donor contributions to fund basic services for the community. While Nauru has had some success in reducing its debt burden in recent years, revenue options remain limited to fisheries and phosphate mining. Both industries are vulnerable to external influences such as currency fluctuations, global economic trends, market variations and adverse weather conditions (ibid).

Nauru's population is of the order of 10,000, and it is said to be the third smallest of the world's states. It has been the subject of numerous studies and reports, most of which conclude that the development challenges are so demanding that the National Sustainable Development Strategy, a 20-year development initiative, will require substantial, concerted support from development partners and others in the international community for many years to come. Nauru has gone from being one of the wealthiest countries in the world per capita, to the point where its last remaining investment assets had to be placed into receivership or sold to pay creditors. Political instability has not helped. In the 44 years since independence, more than 20 governments have been elected.

Over the period 2001–2008, Nauru derived substantial additional income in a way that could never have been anticipated – by hosting 'boat refugees' intercepted in the Indian Ocean while seeking to illegally enter Australia. In August 2012, the Australian government announced a plan to reopen the Nauru facility to hold so-called 'boat people' while their claims for refugee status in Australia are processed. This will mean an unexpected boost for Nauru's economy, though not as before in specific upfront payments.[2] More likely will be a Nauruan contribution towards its partnership with Australia, coupled with a boost for the local economy through provision of services to the refugee-holding facility.

The partnership with Australia brings large and continuing benefits in development assistance. In 2012–13, Australia indicated it would provide approximately A$31.6 million in aid to Nauru, with the bilateral country programme accounting for about A$23.7 million of this (prior to the refugee announcement that assistance was projected for 2012–2013 to be about A$24 million; or A$2,400 per head of population, as compared with total assistance from all other development partners of about A$11 million (Australian Department of Foreign Affairs and Trade 2012).

7.2.4 Nauru as a small state

Nauru is built on a limited source of natural capital: phosphate deposits that are now almost exhausted. Nauru's future was compromised prior to independence by extraction of most of this resource during the colonial period. However, through

international legal action against the primary beneficiaries of the extracted phosphate, substantial financial compensation has been received – providing capital that could be used for rehabilitating mined lands and building the economy.

The challenge has been to convert the financial returns from phosphate into a viable future – not an easy matter for a very small island distant from the main cross-Pacific traffic and, having a very small population, beset by serious diseconomies of scale.

A Nauru Phosphate Royalties Trust was established as a sovereign wealth fund, invested largely in real estate in a number of countries with a view to providing a reliable national income (Le Borgne and Medas 2007). The fund was, for a time, successful, reaching a value of a billion Australian dollars at its peak. However, mismanagement led to its collapse, liquidation of its assets and the bankruptcy of the country. A similarly tiny Pacific island neighbour state, Tuvalu, had also established such a trust fund. In its case provision was made for management under a board of directors and an advisory board to which each donor to the fund appointed a member, professional fund management and international external auditors (ibid). Tuvalu's fund has continued to operate successfully for 25 years.

Yet Nauru scored a second chance. Australia, the main beneficiary of the phosphate taken earlier from the island, in 1993 settled a case that Nauru had taken to the International Court of Justice with a compensation fund that over a 20-year period would be invested in rehabilitation. This was to be a 'greening' of the mined area of the island's plateau – of the order of 80 per cent of the total land area of Nauru, an area that is referred to locally as 'Topside'. The Nauru Compact of Settlement (NACOS) ended litigation by Nauru against Australia. As part of the settlement, Australia paid Nauru A$57 million in cash and agreed to provide A$50 million over a period of 20 years (paid in annual instalments of A$2.5 million indexed at 1993 values, e.g. $3.9 million in 2011–12). The projects to be undertaken with this money are governed by a Rehabilitation and Development Cooperation Agreement (RADCA) (Australian Department of Foreign Affairs and Trade 2012). Payments by Australia into the rehabilitation fund were completed in 2013. The expectation is that the agreement will remain in force and that these funds will continue to be earmarked for rehabilitation (ibid.), though it is also possible that these funds might be diverted to budget support.

In 1994, a joint Nauru–Australia team studied options for rehabilitation and prepared a rehabilitation plan, now commonly referred to in Nauru as 'the land use plan'.[3] Rehabilitation is highlighted in Nauru's National Sustainable Development Strategy (NSDS) as one of five long-term goals (Government of Nauru 2009c). Yet this prominence is subsequently lost where it is not listed as one of the 'Major Priorities', but rather at a lower level of significance as part of the mining and quarrying sector.

7.2.5 Nauru's approach to 'greening'

Recent governments have expressed a determination to seize the chance to recover, rehabilitate and forge a path towards a sustainable future – a particularly difficult task

bearing in mind Nauru's total dependence on imported fuel, its high level of food imports, and a population suffering high levels of lifestyle disease, a legacy of the days of financial plenty when a steady stream of phosphate income led its people to cease cultivating and fishing (Rubinstein and Zimmet 1993).

Key actions needed to maximise use of renewable energy sources, grow more food and boost health through improved nutrition are now encompassed by government policies presented in the 20-year National Sustainable Development Strategy formulated in 2005, and substantially revised in 2009:

> The Nauru NSDS 2005–2025 represents a roadmap to the reforms and strategies to be implemented in order to achieve a future where individual, community, business and Government partnerships contribute to a sustainable quality of life for all Nauruans. This visionary 20-year development plan addresses the disadvantages of the Nauruan people, who are experiencing low income levels, insufficient subsistence food production, poor health and educational services, and other deprivations associated with life on a fragile, degraded atoll environment (Republic of Nauru-Secretariat of the Pacific Community [SPC] 2007).

The current international discourse on 'green growth' and the 'green economy' has paid little attention to the particular challenges faced by small states such as Nauru, where diseconomies of scale frustrate economic and social development, and in the case of this SIDS, much of the natural capital with which it was endowed was depleted prior to independence. Nauru nevertheless has now conceptualised a development pathway that, if followed, could take it towards a green economy.

Nauru's Sustainable Development Strategy encompasses five long-term goals:

a. stable, trustworthy, fiscally responsible government;

b. provision of enhanced social, infrastructure and utilities services;

c. development of an economy based on multiple sources of revenue;

d. rehabilitation of mined out lands for livelihood sustainability; and

e. development of domestic food production.

7.3 Keys to a green future

7.3.1 A more diversified economy

A more diverse range of business opportunities could obviously improve Nauru's economic resilience. Such diversification is, however, constrained by the extremely small local market and, for exports, by isolation and high transport costs.

Tourism has been proposed as one possibility. There is no question that Nauru has features of interest to tourists, and one NSDS goal is to 'promote development of small-scale sustainable ecotourism'. However, the miniscule number of visitors currently is made up of those who simply 'collect' countries or are seeking 'somewhere nobody

else has been' – an impression supported by internet blogs where the topic of Nauru tourism is sometimes raised.

Until Nauru has developed a capacity for handling tourists, and has eased its visa entry procedures, diversification of its economy would seem to rely on small enterprises – including those that might be labelled 'cottage industries' to produce products such as handicrafts for niche markets. The plant from which 'noni juice' is extracted grows wild in Pacific island countries and has been heavily promoted as an export opportunity. Since production of this crop was initiated a market has proved elusive and, in any case, other Pacific island countries are able to produce a cheaper product.

Labour is available for developing local enterprises. Estimates show that 22.7 per cent of the working age population in Nauru is unemployed (Nauru Bureau of Statistics 2007). Some of these, however, are not seeking work due to home duties, being in education, due to age or simply because they do not wish to work.

A local grouping of over 50 interested individuals has recently formed a Nauru Private Business Sector Organisation to lobby for assistance. Many of its members are women keen to establish small, home-based businesses. The organisation is frustrated by lack of formal recognition by government, which a spokesperson for the group described as 'not private sector-friendly'. He cited, among other things, a refusal to waive import duties on modest equipment needed for simple, small-scale business start-up. The spokesperson was also critical of donor efforts through government, such as a Commonwealth Secretariat initiative in 2008 to fund within government a Business Advisory Centre that:

> …did not come near us. What we need is microfinance. …We have ideas for small businesses and can make do with local materials, but we do need seed money to start. We go to Government and they say there's nothing for this.

7.3.2 A sound legal framework

It has long been recognised that Nauru's legal framework is inadequate to facilitate green economy activity, manage natural resources sustainably or regulate harmful forms of production and consumption. Several bills have been drafted in recent years with the intention of addressing this gap, but these are yet to gain parliamentary approval. Conspicuous among delayed legislation is a draft environmental management bill.

Living marine resources are managed under the Fisheries Act 1977, which is focused on oceanic tuna and foreign fishing. There is as yet no legislation to regulate inshore fisheries (except to licence fishing vessels). In this case, however, it appears the lack of legislation is not particularly troubling as officers of the Nauru Fisheries and Marine Resources Authority are working closely in support of developing community-based fisheries management groups, and are consciously accumulating experience and information that is to be used to inform the drafting of new fisheries legislation that directly targets Nauru's needs rather than introducing legislation modelled on other countries' circumstances (M Depaune, personal communication).

A major impediment to rational development in Nauru is the absence of legal authority under which the government could guide and regulate land use. This is considered further below.

7.3.3 A healthy and literate community

Incidence of diabetes that is amongst the highest in the world (more than 20 per cent of the adult population) means that the Nauruan life expectancy is one of the shortest in the region (49 years for males; 57 years for females) (Government of Nauru 2005, 69). Health is a major issue for Nauru. Causes include low nutrition standards due to a lack of locally produced fresh fruit and vegetables, low participation rates in sport and physical activity and high-risk lifestyle choices. Eighty per cent of females and 77 per cent of males in the 15–49 age group are overweight or obese (Nauru Bureau of Statistics 2007).

These chronic health problems not only compromise the capacity of the public to contribute to Nauru's development and the 'greening' of its economy, but also impose an otherwise avoidable extra cost on government to provide for health and medical services to treat the symptoms of lifestyle-related illnesses, including the high costs associated with the overseas treatment of some patients. The drain on the national budget is considerable, even allowing for the fact that development partners are contributing more than half the cost of the health and medical services budget.

Improved nutrition through the growth and consumption of locally grown food crops could do much to address this problem, but as indicated elsewhere in this case study (see 7.3.6) efforts to promote local cropping are being stymied by lack of water, highly contested land rights and, sadly, an apparent lack of interest.

Constraints on human capital for development arise from the fact that for such a small population, a full range of educational opportunities cannot be provided. An innovation that has served Nauru well for the past 40 years is its USP Centre (a satellite venue of the University of the South Pacific, based in Suva, Fiji). Here a limited range of tertiary-level courses is available through distance education, though relatively few Nauruans reach this level. Despite a high literacy figure of 95 per cent quoted for the general population in the NSDS, with only 68 per cent of those enrolled in schools regularly attending classes, literacy and numeracy outcomes are well below benchmarked standards. While literacy levels in schools are said to have improving marginally, numeracy levels remain a major challenge. Nonetheless, the donor-financed recent refurbishment of the secondary school is proving a boost to education, and this includes Nauru's first-ever trade training school.

7.3.4 A truly integrated approach to development

Nauru and other Pacific island small states have yet to achieve anything near integrated development and this may continue for some time to be a major constraint on achieving truly green development and an associated green economy. This quotation sums up the situation:

> Previous attempt to coordinate sector activities in Government agencies have experienced loss of initial enthusiasm, disputes over responsibilities, a traditional

> reluctance to share knowledge, and a lack of clear definitions of responsibilities and terms of reference. Instead, project-specific steering committees have been formed, but these lack continuity and strategic direction and are driven by the goals of the proponents (generally aid donors) rather than by national priorities. (Government of Nauru, 2007: 37).

Sectoral barriers to holistic development planning are as strong in a small state like Nauru as they are in large countries. It is to be hoped that this case study, by providing a 'big picture' view of Nauru's prospects for, and constraints on, an eventual 'greening' of its economy may help draw attention to the imperative of an integrated approach to development.

7.3.5 Water is crucial

The most vital of Nauru's ecosystem services is the water provided through rainfall that percolates into natural groundwater reservoirs. Since there is very little natural runoff from this porous island, there is a priority need to maintain the conditions that will maximise water retention in natural underground reservoirs. This is done by maximising the inflow of water to underground lenses, while also reducing evaporative loss at the surface. Unfortunately past mining has not helped in this regard, and recent mining extension down to the 20-metre contour is likely to have further compromised groundwater through destruction of much of the last fragment of natural forest cover that provides this valuable ecosystem service. Under depleted forest there will still be percolation of water, but its quality and its quantity will be reduced.

Nauru's restricted and unreliable water sources have been the subject of several donor-supported studies, coupled with training and provision of monitoring equipment. The problem is well known and means of addressing it are understood and have been worked out in detail (Government of Nauru 2007). Yet the problem persists. One reason is that it has not proved possible for the government to regulate extraction of groundwater through bores to minimise the risk of seawater contamination. This is because of the zealous determination of landholders to exert authority over resources that are traditionally and legally are theirs (Republic of Nauru Lands Act 1976). The quality of this groundwater is further compromised by contaminating effluent from sewage cesspits and septic tank overflow on private land (Thaman and Hassall 1996), over which there is no planning control.

The use of roofing for rainfall interception is constrained by a disinterest in keeping guttering in good condition to accommodate water flow into storage tanks. Though donors have been conspicuously involved in this area, there is as yet little indication that their examples through pilot projects are being followed.

7.3.6 Land secured and productive

All land in Nauru is registered and legally secure, based on a version of Nauruan customary tenure as interpreted by German colonists in the late-nineteenth century. Unlike the principles of English law used in most Pacific island nations, Prussian legal concepts applied at that time mean that resources within the land are deemed to be owned by those who own the surface (MacSporran 1995).

The land of individuals is certainly secure but, ironically, this begets a problem. Land tenure is a critical consideration in implementing the rehabilitation programme and for any development in the public interest. Nauru land is registered as some 630 irregular sized and shaped pieces of land, some less than a metre wide and only a few square metres in area. The land problem is further aggravated by a joint ownership system where many individuals hold 'a share' in a piece of land which may be, as in one case, as little as a 1/1,008 interest. A consensus has to be achieved among owners before any development of land can proceed (Food and Agriculture Organization [FAO] n.d.).

With a growing population and worsening fragmentation of land ownership as new generations emerge, attempts to use land for building or agriculture often result in disputes between owners of a land portion as to which member of a group owning a piece of land should have the use of it or derive rent from it. Similar issues arise in relation to water rights. Groundwater is owned by the owners of the land upon whose land the opening to a well is located. The water recovered from that well belongs to the landowner, who can allow others access to the well as thought fit. The fact that the water might percolate from below the land of another owner is not relevant, even if known. The main consideration is access. As a result, any attempt to manage and regulate the use of the underground water in order to ensure a reliable water supply is subject to apparently intractable disputes.

The area of land potentially available for agricultural purposes is small. Availability and sustainability are constrained by plot size, soil type, proximity to housing and other alternate uses. Any form of agriculture, even household food gardens, needs supplementary water during drought periods, so food cropping is further constrained as a result of the conflicts over water rights.

Land is often polluted; it is relatively infertile and has poor water holding capacity. Irrigation, if available, is rudimentary and relies on a potentially brackish underground water resource or a poorly maintained roof rainwater collection system. The use of fertilisers and composting is not common and soils are of high alkalinity, high phosphorus, low iron, potassium, manganese, copper, molybdenum and zinc. Given resources, there is no technical reason why these potential problems could not be rectified. However, there is insufficient land, even in the most optimistic scenario, to provide all but a supplement to Nauru's food requirements (FAO n.d.).

Even so, household food gardens could make a significant contribution to public health and, through improved health and import substitution, the economy. Yet sadly the current Nauruan lifestyle, developed over an extended period of wealth brought about by phosphate exports, is now largely divorced from the land. The will to till the soil and husband crops and animals has largely disappeared.[4] Various attempts at encouraging communities to establish fruit trees round their households have come to nothing. The difficulty and expense of finding water for fruit trees during drought is a disincentive, but Agriculture Department officers also report a reluctance to engage. 'We gave out free fruit trees for householders', reported a Nauruan agriculture officer, 'I noticed one enthusiastic woman took as many as she could carry. Passing by her house some months later, I saw that these trees were still in their polybags, dead at her doorstep'.

Land is secure, yes, but it cannot be said to be productive. A comprehensive review of the current land tenure system recently commissioned by government in search of practical recommendations on action to address the numerous problems has produced a report. The findings have not been released.

7.3.7 Mined 'Topside' liveable and productive

Rehabilitation of 'Topside', the mined plateau area of the island, is of central importance to Nauru's future, but is yet to be fully acknowledged in practice.

The basic concept for rehabilitation of the mined area is that the fossil coral pinnacles that remain after phosphate ore is removed from around them are first knocked over, some removed, some crushed into various grades of gravel, the land surface smoothed and topsoil that was stockpiled in the later years of mining spread, with compost and mulch added, to initiate a soil-forming process for 124 hectares selected for agriculture and agroforestry. A comprehensive Land Use Plan prepared in 1994 provides for the creation of this arable land and for levelled land for other uses including housing, an alternative airfield site, a surface water reservoir and conservation areas. Conservation measures are proposed to protect areas where rainwater percolates to groundwater lenses and also where the last fragments of Nauru's natural biodiversity remain.

The coral pinnacles removed in the course of rehabilitation do have some potential economic value. There have been exports of crushed pinnacle rock for use as aggregate in the neighbouring low-lying atoll SIDS, Marshall Islands. Trial sectioning of pinnacle rock has revealed an attractive natural pattern and finish that could perhaps service a niche market for decorative floor tiles, a prospect that is being explored.

A basic principle of the approach to rehabilitation is that it be carried out in parallel with residual mining; i.e. as coral pinnacles are removed, residual phosphate is recovered. So long as there is mining activity there is cash flow and the equipment and personnel required for rehabilitation are on-site. This approach also provides for a proportion of phosphate-export income to be made available to complement the otherwise limited funding for rehabilitation.

As of mid-2012 – 18 years after the rehabilitation plan was approved by the Government of Nauru – coral pinnacles had been removed in a few small areas and several hectares had been levelled, topsoil added to a 1-hectare portion and a range of crops and ornamentals planted to test the effectiveness of this approach to soil regeneration. From personal observations (July 2012) the result is not encouraging, which raises questions as to the extent to which research or guidance has been used to underpin this effort. The Secretariat of the Pacific Community (SPC), a major regional technical assistance organisation, has provided training and materials for a plant nursery. The plants are ready (in fact, over-mature), but the soil in which to plant them is not.

It could be that the simple approach outlined in the 1994 Land Use Plan – direct planting into an artificially created soil profile of gravel topped with topsoil and a sprinkling of compost – is not as effective as expected. Perhaps nature must be imitated through a plant community succession, involving a sequence of plantings

of species chosen with regard to their capacity to bring about a gradual increase in soil organic matter and nutrients before planting fruit and nut trees and other food crops.

In the course of interviews conducted in August 2012, Nauru Rehabilitation Corporation officers were insistent that a recent neglect of mined area rehabilitation was temporary and that primary phosphate mining in future would be slowed so that rehabilitation could be resumed. Days later it became apparent that this view was not universal, as revealed by this news item: 'The minister of the company responsible for phosphate exports in Nauru says … "there is still room for us to expand maybe even further and achieve higher results"'.[5]

7.3.8 Resources of the sea used sustainably

Nauru's marine resources can be categorised as the living marine resources of the island's fringing reef, associated inshore pelagics, oceanic tuna schools and the unknown prospect of seabed minerals. The ocean around Nauru is very deep, but there are points at which seamounts emerge from the seabed – though these do not come near to the sea surface. Six such underwater features have been detected within Nauru's EEZ. These have not yet been examined, but such oceanic features elsewhere are associated with concentrations of fish stocks. Experience elsewhere leads to the conclusion that seamounts are vulnerable ecosystems and need legal protection from potentially disruptive activities that could arise from commercial fisheries or mining interests. Though pelagic fish abound in Nauruan waters, Nauru has as yet been unable to establish a fishing industry of its own.

The narrow fringing coral reef of Nauru, some of which has been degraded by foreshore development, nutrient enrichment from sewage wastes and habitat destruction in pursuit of marine foods (Thaman and Hassall 1996), provides a limited base for local food supply, though any contribution is valuable. In recent years there has been a resurgence of activity among Nauruan fishers, and community-based fisheries management areas are now being established, long after the demise of traditional arrangements for management (M Depaune, personal communication). This is a positive trend that is contributing to the much-needed improvement in local diets, and with a measure of import-substitution benefit.

Improvements in fisheries management, and the capacity of Nauruan personnel to effect this, have been achieved with donor financial and technical support. Inshore, fisheries authorities have also established the beginnings of national infrastructure for food security, by installing fish aggregation devices (FADs) offshore of the fringing reef to help fishers target groupings of fish.

Beyond the reef and the pelagic resources available not too far offshore, there are tuna schools to which distant water fishing nations have access through a system of licensing co-ordinated through a Pacific islands regional body, the Forum Fisheries Agency (FFA). Fishing licenses issued to China, Japan, South Korea, Taiwan and the USA are an important source of revenue. The licence fees have recently been increased, and yet still it is perceived that these distant water fishing nations are not

making fair payments. Strong fishing lobbies in these countries have been effective in restraining their governments from paying more. The fact that illegal fishing is carried out by some vessels flagged in those countries heightens Nauruan concern that, again, they are being deprived of just returns for their exports.

There is no local processing of these tuna catches, as is it is not practicable for large purse seiner fishing vessels to offload or to tranship using the limited port facilities of an island that has only small boat harbours.

One Nauruan initiative to secure a marine resource base for potential future economic exploitation is of interest to other small states. Under the terms of the United Nations Convention on the Law of the Sea (UNCLOS), Nauru has applied to the International Seabed Authority for the right to explore an area of international seabed in the Pacific. It has, for this purpose, established a state-owned enterprise, Nauru Ocean Resources Incorporated (NORI), which has an agreement with a foreign company that has seabed mineral exploration expertise and experience. The results of exploration, yet to be commenced, are obviously awaited with keen interest as, if proved commercially viable, this is envisaged as the export income substitute for phosphate mining as it nears its end.

7.3.9 Maximum use of local energy sources

Nauru imports all its energy in the form of petroleum – a major expense and impediment to economic development in general, and a serious constraint on efforts to green the economy.

Nauru's per capita carbon dioxide emissions amount to an extremely high figure (for Pacific SIDS) of 14.2 tonnes per capita (UNDP 2011). This is partly due to the fact that kiln drying of phosphate ore prior to export requires high inputs of heating energy. Domestic energy use levels are also high (at 900 kWh per month, which is the highest of all Pacific island countries), and until recently little had been done to encourage conservative use of energy. 'Greening' the economy obviously requires marked improvements in energy efficiency and maximum use of renewable sources.

This is recognised in Nauru's National Energy Policy Framework (Government of Nauru 2009a), which sets an ambitious goal of 50 per cent energy from renewable sources by 2015. Electricity meters have been installed and prices increased, and usage is already reducing. Problems to be faced in implementing the energy policy are listed in the NEPF as: poor management and governance; inadequate allocation of human and material resources; and lack of an institutional regulatory framework for efficient management of the energy sector.

Development partners have been encouraging a switch to renewable sources of energy. A total of 770 kW of solar grid-connected power as a demonstration has been provided by one donor, while solar-powered pumps have been installed at some wells by another and solar powered streetlights by a third. Yet little of this demonstration technology is maintained (personal observation, July 2012).

7.3.10 Successful adaptation to climate change

Coping with climate change and the additional costs that this will incur adds to Nauru's challenges and further frustrates its progress towards a green economy. Over the course of the twenty-first century, surface and seawater temperatures around Nauru are projected to increase, as is the island's rainfall (UNDP–GEF–SPREP 2011). This increase in rainfall is good news, as is an expectation that the incidence of drought will decrease. Should these trends continue then this should ease the shortage of water for people and for crops, a major constraint to life and development on Nauru.

However, heat stress and its consequences for health services will worsen, and there is no comfort in the projection that sea levels will continue to rise at 5 mm a year (ibid). The rising sea level means that the current coastal erosion problem will worsen, and even more saltwater will penetrate the already brackish groundwater lenses that are so essential to life on the island. Also discouraging is a continuing trend towards greater ocean acidification, with an aragonite saturation state of 3.4–3.5 expected in less than 20 years. The significance of this figure lies in it being the cut-off threshold for active growth of corals and shells. The corals of Nauru's limited narrow fringing reef, already degraded, are the key to an ecological food web that sustains inshore fishing harvests that contribute significantly to local food security. The prospect of a reef without the living coral needed to sustain the fish, octopus and shellfish populations is very troubling.

Fortunately, a study that attempted to gauge the impact of seawater temperature increase on the presence of tuna in Nauruan waters has concluded that up to the year 2100, a moderate increase in tuna is likely. Only in the worst case scenario (of three) is a negative impact identified, and the prospect of this is rated as 'very low' (Bell et al. 2011).

As climate change takes hold and sea levels rise, the narrow coastal belt on which most people live is being reduced by erosive wave action. Alternative locations for housing, infrastructure and agriculture are needed, as well as a secure supply of water uncontaminated by wastes and seawater. This gives urgency to action to establish Nauru's future in its mined and yet-to-be-rehabilitated interior.

Nauru is kept informed of climate change trends and projections through an Australia-based scientific analysis and prediction programme for the whole Pacific island region. Nauruans are trained to monitor climate change and are developing skills to advise on climate change adaptation measures, with assistance through a donor-funded Pacific Adaptation to Climate Change Programme implemented through the Secretariat of the Pacific Regional Environment Programme (SPREP).

7.3.11 Regulation of land use

The fact that government has little control over the nature and scale of development on private land is evident in Nauru's sprawling and inefficient mix of residential and commercial activities and its infrastructure. Such unplanned development has added greatly to development costs in other countries, and has also worsened public health problems. Though Nauru has 146 separate legislative acts, a conspicuous absentee

from that listing is a planning control act that broadly defines development and considers its impacts on the 'total' environment: social, economic and biophysical.

The objectives of such an act would be to provide for the fair, orderly, economic and sustainable use, development and management of land, including the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity. While acknowledging land ownership and rights, such an act could be designed to enable land use and development planning and policy to be integrated with environmental, social, economic, conservation and resource management policies at the national, district and site-specific levels. Such an act would also provide for the protection of public utilities and other assets, and enable their orderly provision and co-ordination for the benefit of the community and to balance the present and future interests of all Nauruans. A planning control act could also accommodate appropriate references to climate change and climate change adaptation.

A key hindrance to effective implementation of such an item of legislation would be land tenure and the individualistic interpretation of its provisions by landholders.

7.3.12 Removing a burden of waste

Nauru has inherited a range of industrial and residential buildings constructed during the days of the British Phosphate Commission (BPC). This might once have been viewed as a bonus. The fact that these were built with asbestos roofing and, for some industrial applications, asbestos insulation was installed, means that they are now a health hazard – worsened by a general disinterest in maintenance of the integrity of that roofing. Broken asbestos sheeting is widespread in Nauru. Not only does it add to health hazards, but it also poses a costly problem of waste disposal that has the potential to further detract from Nauru's progress towards a green economy.

Asbestos is not the only poisonous legacy of phosphate mining; so too are cadmium-rich 'slimes' arising from phosphate ore processing. Additionally, there is a widespread problem on the coastal belt of human waste contamination of groundwater through improperly sited sewage cesspits and septic tanks – another legacy of the absence of land use regulation in the public interest.

7.3.13 Technology for 'greening'

Donors have provided appropriate technology, coupled with basic maintenance skills, but a fuller transfer of that technology has yet to take place. It is unlikely that an internal or external market of sufficient scale will materialise to make local manufacture of technology a practical option, but maintenance skills could be enhanced. An element of formal technical training has recently been added to the local education system. In addition, projects with an element of technology transfer could make provision for capacity building in this area.

In the matter of information and communications technology (ICT), Nauru may be among few nations to have completely discarded its landline communications system in favour of mobile phone technology. This brings savings in infrastructure

maintenance costs, while opening new opportunities for local and international dialogue and data exchange.

This also opens opportunities for video conferencing as a substitute for time- and cash-expensive carbon dioxide polluting regional travel, in which Nauruan government officers are also obliged to service the consultation and reporting needs of various regional organisations and their regional programmes.

There have been interesting moves to use modern technology to develop a more favourable business environment on Nauru, in the form of a Mobile Money Service designed for cashless transactions. There is a potential for the facility to be extended to businesses for offshore transactions and to government for transactions such as payroll.

The SPC is making available ICT support through its Pacific ICT Outreach Programme (PICTO).

7.4 Support through regional co-operation and development partners

Nauru receives considerable support from development partners and also benefits from Pacific regional organisations that operate under the umbrella of the Council of Regional Organisations in the Pacific (CROP), which serves 27 small island states and territories, mostly south of the Equator. These island countries have many problems in common, and exchange information and experiences through forums organised by regional bodies and programmes funded mostly by development partners. In addition, Nauru is one of seven countries eligible to access a Pacific Islands Forum Smaller Island States Development Fund, which supports short-term development initiatives.

Nauru is well serviced by regional organisations. As a member of these organisations, the island has a say in their leadership and the setting of their priorities. Action on matters such as climate change adaptation and disaster risk management has been introduced in this way, and shared regional management of deep sea tuna resources through the Forum Fisheries Agency stands out as an excellent example of how effective regional co-operation can be in overcoming the negotiating weakness of SIDS.

Nauru is one of 15 Pacific states of the African, Caribbean and Pacific Group of States (ACP) grouping of the European Union, from which it is in a position to draw support directly, or through EU-funded programmes implemented by the SPC. One relevant example is the Deep Sea Mining Project, which is to produce a regional legislative and regulatory framework for deep sea mineral exploration and exploitation that, since Nauru is pursuing the possibility of engaging in seabed mining, addresses one of its pressing needs.

There cannot be said to be a shortage of development partner assistance for Nauruan efforts to 'green' its economy. Yet there is a downside to all this opportunity. It is not easy for a small state to prioritise, absorb and monitor all that is on offer. These tasks are made more difficult by the fact that each development partner not only has its own criteria for project selection and design, but some also have a particular political agenda in mind.

Despite the ground-breaking Paris Declaration, on which the Pacific Aid Effectiveness Principles have been modelled (Secretariat of the Pacific Forum 2007), the effectiveness of aid remains such an issue as to warrant regional 'talkfests' of its own. These add even more to the time–cost burden that small states face in sending representatives to these meetings.

7.5 The Nauru experience – conclusion and recommendations

7.5.1 Nauru's situation in summary

Nauru's circumstances are a reflection of the planet at large – a battle against resource depletion, ecosystem breakdown and accelerating climate change. Despite this, Nauru's development strategy embraces, on paper, an approach that is consistent with the idea of an ultimate 'greening' of its economy. This is coupled with an ambitious plan to rehabilitate its mined lands for agriculture, infrastructure and housing. Yet increased coastal erosion from sea level rises is prompting attempts to fight it at high cost, with physical structures that provide short-term artificial protection for infrastructure on Nauru's narrow coastal belt. This 'buys time' and appears to delay the need to relocate inland, although the long-term cost can be expected to be much greater.

A short-term focus on maximising income from phosphate mining is understandable. However, a recent extension of mining has further degraded forests and biodiversity. This will have added to the complex uncertainties about the quality and permanence of the groundwater supplies so vital in this streamless island. The longer-term vision of a rehabilitated and resettled island interior safe from coastal erosion is the 'green' vision, but one that is increasingly difficult to achieve.

More encouraging are the efforts being put into tackling unsustainable energy use and introducing fiscal measures to engineer a shift from extravagant use of electricity by reducing subsidies on imported fossil fuels, metering electricity use and increasing its price.

Nauru has some of the policy and plan 'tools' for 'greening' its economy, and it has come a long way in addressing the dismal situation described in the Republic of Nauru – European Commission Joint Annual Report 2004–2005. Yet continued pressure to survive economically while also struggling to pay off a huge debt burden mean the greater long-term vision has been obscured.

These words eloquently express the situation:

> Sustainable development has undoubtedly suffered from a failure of political will. It is difficult to argue against the principle of sustainable development, but there are few incentives to put it into practice when our policies, politics and institutions disproportionately reward the short term. In other words, the policy dividend is long-term, often intergenerational, but the political challenge is often immediate (UN Secretary-General's High-level Panel on Global Sustainability 2012: 13).

7.5.2 Issues in the 'greening' of Nauru's economy

The government has made no secret that the failure of Nauru's sovereign wealth fund lay in maladministration (Government of Nauru n.d.). In the absence of such a fund, Nauru now struggles to face the many challenges to 'build self-sufficiency through local food production, water security and renewable energy' – as boldly expressed in section 5.1 of its *National Assessment Report on Implementation of the Mauritius Strategy* (Government of Nauru 2009b). It is a long way yet from a green economy.

One lesson to be learned is that even if perceived to be a slight on sovereignty and national pride, small states would best secure their futures and foster development partner confidence by emulating the example of another Commonwealth small state, Tuvalu, and place the administration of a *trust fund* in independent, reputable and professional hands.

One aspect of governance that hinders efforts towards a green economy is that, just as with large states, in Nauru the co-operative, shared approach needed for the truly *integrated development* that characterises a green economy is hindered by the sectoral segmentation on which its administration is based.

So long as there is a heavy dependence on imported energy, Nauru has limited options to reduce its greenhouse gas emissions. This is recognised and some moves to reduce this energy cost burden are underway. The proposed uptake of solar energy, if seriously pursued and sustained, could greatly ease the situation.

There are so many basic problems to be addressed in terms of water, sanitation and waste management, and the tapping of renewable energy sources that technological innovation and transfer stands out as an element of vital importance for 'greening'. Development partners have introduced new demonstration technology, though this effort has lacked focus, and there is limited technical capacity in Nauru that could benefit from further training.

There is an irony in respect of land management, in that Nauru is the one Pacific island small state that has a land registration system based on customary land tenure, and so has secured its indigenous people's traditional land rights. However, this has come at the cost of land-use planning regulation needed in the public interest. This lack of planning control stands out as a serious impediment to the 'greening' of Nauru's economy.

Public engagement in the 'greening' process is hindered by the absence of a well-organised and government-supported private sector that – if better organised and given consistent support by government – could engage primarily at the 'cottage industry' level, which seems suited to Nauru's circumstances.

Debt servicing, the necessity to operate its own international airline, and public service costs make for an unusually serious financial burden that will continue to be a brake on implementation of 'greening' measures. Since the government is the major employer, it is difficult to see how the cost of its public service can be reduced – another diseconomy of scale arising in a small economy where public administration requires the same range of sectors and specialties as does a large state.

Its development partners have provided Nauru with extensive advice, guidance and capacity building. This has done something to strengthen capacity, much to identify and rationalise needs, and to demonstrate technology appropriate to Nauru's circumstances. However, uptake of some of this assistance is slower than anticipated. There is an unrecognised downside to development partner support in that it is an enormous burden for the tiny public service of a small state such as Nauru to prepare reports for the multiplicity of conventions which large states have pressed it to join, while Nauruans are also required to report on projects and programmes to several development partners in differing formats. This is but one example of an opportunity for shared services, which regional organisations might provide and that would make it possible for government staff to concentrate on priorities at home and so improve prospects for Nauru and other Pacific SIDS to achieve the level of green development to which they aspire.[6]

Regional agency and development partner support also comes at a high cost of time that officials spend away from their tasks at home while attending meetings in other countries. The differing agendas of development partners and weaknesses in co-ordination and rationalisation of their efforts can also distract from rational progress towards 'greening'.

7.5.3 Prospects for a 'blue' future

Now that the concept of the green economy has gained traction, some island SIDS are beginning to view their futures in terms of a 'blue economy' – one in which marine resources figure prominently. From a blue economy perspective Nauru is no longer perceived simply as a rock isolated by ocean, but as one encompassed by an ocean that is an economic mainstay – currently in terms of tuna fishing licences, perhaps in future also including seabed mining.

There is growing support for this new attitude to the ocean and its resources. At the 2012 annual meeting of the Pacific Islands Forum a new regional programme was launched titled 'Large Ocean Island States: The Pacific Challenge'. This follows on from the Global Partnership for Oceans, and a programme focused on the health of the ocean: the Pacific Oceanscape Framework.

Notes

1 The EVI refers to the extent to which the natural environment is prone to damage and degradation. Values range from EVI = 1 (low) to EVI = 7 (extreme vulnerability) for any of the 54 indicators used to establish the overall EVI.
2 According to Nauru's Minister of Foreign Affairs, as reported in *The Australian*, 18 August 2012.
3 The author was a member of the rehabilitation study team.
4 There is, however, an encouraging trend in Nauruans resuming the fishing at which, in pre-mining days, they excelled.
5 Radio New Zealand online 2 August 2012, available at: www.rnzi.com/pages/news.php?op=read&id=70005 (accessed 18 February 2014).
6 An example suited to the Pacific island region would be for the Secretariat of the Pacific Environmental Programme to undertake some of the reporting to biodiversity and environmental convention secretariats on behalf of its small state members.

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