Future Challenges, Ancient Solutions in Land Use and Land Tenure

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Abstract

‘Ancient Solutions’ were always embedded in a total social, technical and economic complex that rarely exists today. Examples of ancient complex irrigated terrace systems of taro cultivation and of wet land ditching and mounding systems are described and the possibilities of using selected aspects of these old systems are considered. Ancient and current land tenure practices, which were not recognised when colonial governments codified ‘customary’ tenure systems, are described and the question of whether such practices should be recognised and legalised in future is considered. If these ancient systems of land use and tenure are to be available to meet future challenges, it is important to ensure that detailed knowledge and understanding of them is not lost as generations pass.
When one considers ‘Future Challenges, Ancient Solutions’, the messages may be both encouraging, and cautionary. To benefit from old knowledge of land use and tenure systems, and to avoid the pitfalls of applying something that is no longer economically or environmentally viable or socially appropriate, we must take account of both types of messages. A key requirement is to recognise that ‘Ancient Solutions’ were always embedded in a total social, environmental, technical and economic complex that rarely exists today.

**Land use**

One major trend in land use in the Pacific Islands over the last century has been dis-intensification. Some traditional crops are now rarely used; some varieties almost lost; introduced crops have replaced old, more labour-demanding crops. There is more monoculture. Larger areas of cultivated land per head are now often used. As cash cropping became part of village economies, less land could be classed as usable because steep slopes and land far from a road could not be used economically for cash crops. Yet, for over 75 years Pacific Island populations have been rising. In many other parts of the world the trend has been the opposite, with intensification of land use as populations have grown. Environmental, social, political, economic and technological factors were all behind this Pacific trend to dis-intensification. With rising populations, agriculture may have to be re-intensified to produce more food and cash crops. Could old intensive agricultural systems be applicable once again?

In the mid-nineteenth century a striking feature of agriculture in several Pacific Island countries was taro cultivation on flights of irrigated terraces on steep slopes. For example, on the eastern side of Fiji’s Sigatoka Valley flights of terraces, edged with earth and stone banks holding back irrigated taro beds, rose 100 or more metres high. Water was brought by bamboo pipes or channels from higher sources, and controlled as it fell to lower and lower terraces. With the digging in of weeds and other compost, and with the water bringing nutrients, the terraces allowed close to permanent cultivation. Fifty years ago, lower and wider terraces with simple irrigation were still in use in a few villages in Viti Levu and Vanua Levu. A few cases of taro pond cultivation remain today.

Why was such steep (and today inaccessible) land used for such intensive cultivation, and why did it virtually disappear? The answers are largely social, political and economic. In the past, inter-group rivalry was normal and hostilities between groups were common. Many villages were located on hilltops and ridge-lines, and protected by ditches and fences. The larger flights of terraces in the interior of the larger islands were associated with such nucleated, fortified villages. Defensive needs meant that such sites were preferred, rather than lower riverside sites where drinking water and more easily arable land would have been closer. Without means of carrying produce other than on people’s backs, gardens had to be sited relatively close to homes. Shifting cultivation, with long fallow periods, meant that within a few years gardens became scattered over wide areas, with working time lost in walking to and from gardens. The journey could become increasingly dangerous, and eventually villages would have to move. Permanent terracing close to the villages was the answer.

The organisation of everyday life within extended rather than individual families also favoured nucleated settlements, while dependence on stone tools meant that many time-constrained agricultural (and other) tasks had to be done cooperatively within short periods. Group labour was the norm, organised by kin group leaders. Dispersed residences were impractical in such social conditions, quite
apart from being in danger from enemies. Therefore very large amounts of labour were invested in construction and maintenance of terraces and irrigation systems close to the defended village sites.

When defensive imperatives were removed in the late nineteenth century, many hilltop villages moved to lower sites closer to good water sources and more easily used land. Sometimes colonial governments ordered the moves to bring people into more easily administered range. Steel tools made cooperative working less necessary, and the introduction of cash crops made better access to new markets more necessary. As the hilltops were abandoned, most of the labour-demanding terraces fell into disuse in Fiji, New Caledonia and smaller high islands such as Rarotonga. Less labour intensive forms of agriculture were used. Unpaid cooperative labour is no longer readily available in commercially oriented regions and the cash investment required to maintain high flights of terraces in now remote valleys would be totally out of scale compared with the returns.

Nevertheless, could the advantages of the near permanency and high productivity per hectare of irrigated taro beds be used on near-flat alluvial and colluvial land where the capital investment in terracing and water channels would be limited, and the reliable yields and regular harvesting of higher value taro crops for urban markets could be commercially successful? It would be tragic if the knowledge of the old irrigated terrace systems were to be lost and, as a minimum, it would be sound insurance to ensure that this knowledge is made secure by deliberately recording it from the few who still hold it. An NGO in Fiji, Vito ni Vuci – Friends of Sustainable Livelihoods and Environment, is now doing this and is encouraging irrigated pond cultivation of taro in the upper Sigatoka Valley (pers. comm., Trevor King, September 2010).

Another system of intensive cultivation was also found in many Pacific Islands. Indeed, as Jack Golson and his archaeological colleagues have shown, it has been used in swampland in the New Guinea highlands for over 6,000 years (Golson, 1977). In the southern Cook Islands, some taro is still grown on marshy land lying between the sandy beach ridges, or the raised coral of the *makatea*, and the slopes of the interior hills. The soil is heaped into beds separated by drainage ditches. Fertility is maintained by digging silt from the ditches up onto the beds, and mulching with palm fronds or other materials. In Fiji similar techniques were used on low-lying land in the lower Rewa delta. As elsewhere in Fiji, defence was a prime need for villagers and here the villages were often located within circular moats, mounded earth walls and defensive fences. Aerial photographs of the lower Rewa and Navua deltas show many such old circular village sites (Overton & Chung, 1988:76–93; Parry, 1977). Security still required gardens to cluster close to the villages with sophisticated forms of cultivation of taro and other crops. As in the southern Cook Islands, ditches were dug and the spoil heaped onto raised garden beds in the relatively marshy land. With composting and the transfer of silt from the drainage ditches to the garden beds, taro and *via* (*Cyrtosperma chamissonis*) could be grown on an almost permanent basis. But the labour requirements were heavy with the technology available. Again, group labour was the norm, reinforcing the customary social system and the associated nucleated villages. As in the case of the old steep-land terraces of the interior, present day social and technological practices have led to the breaking down of the old settlement patterns and decline in use of this gardening system.

But today, many Pacific Islands are faced with the threats of rising sea levels and more turbulent weather. In this context some of the intensive techniques once used in the lower Rewa delta may come into their own again. If sea level were to rise in this region by 80 centimetres, some 30
settlements, each of over 200 people, would be below sea level; if the rise were 1.2 metres the village number would be over 50 (Lata, 2010). Even with smaller rises, significant areas currently in use for dry-land agriculture may become marshy and suitable for use only with the old techniques of ditching and raised beds. The region has the advantage of location close to the country’s largest urban market so specialisation on market garden root crops would make sense. Again, it is important not to lose the old expertise of such specialist forms of agriculture, which might be applied in new and challenging contexts.

Another old form of intensive production is still found on atolls in the region, including those of Kiribati. The sandy soils are unsuitable for growing the more highly productive taro-like crops. However, pits dug in the sandy soils reach the top of the lens of fresh water that floats on the denser salt water permeating the coral base of the islets. Crops such as babai (*Cyrtosperma*) are grown in baskets of composted material in the bottom of the pits. This is a labour demanding, but productive and stable system. With rising sea levels threatening many atolls with higher water tables, and more frequent storms causing salt water invasion of the fresh water lenses, it is impractical to hope that there is much future for this particular ‘ancient solution’ as atoll people try to maintain their hold on their *motu* and homelands. But an ancient solution from British Guiana might be adapted. Here, composted beds were built on tables to grow vegetables (pers. comm., D.A.M. Lea, c.1969). Perhaps such beds at ground level might allow intensive cultivation to replace the babai pits.

These examples all refer to subsistence village agriculture. But there are cases where smallholder cash cropping was once very successful, but subsequently failed. Can we learn from these? The export banana industry of Samoa and Fiji was highly successful in the 1950s when bananas were grown in many villages and shipped to New Zealand.

Samoa began exporting bananas to New Zealand in 1928. Initially the fruit came from the region near the port of Apia where roads or coastal launches provided ready access. As the road network was extended in the early 1950s, the exporting area widened. Initially most export bananas were produced by expanding the pre-existing subsistence gardens with labour organised by the *matai* of each *aiga* (extended kin group) in the nucleated coastal villages. The new trade initially had limited social impact. Later, new roads and water reticulation along these roads reduced the constraints on residential location, allowing people to live further from their village centres and expand banana production on newly cleared forest land that hitherto had been too far from the coastal villages and water supplies to use. By clearing such land the new settlers could claim individual rights to continued use under usufruct conventions and thus became more independent of the economic and social authority of their *matai*. In this way, the export banana industry became a significant factor for social, economic and settlement changes (Ward, 1959).

The industry was crucially dependent on its off-farm components. These involved the provision of inputs such as fertiliser, insecticide and weedicide; oversight to ensure these were used appropriately; the scheduling of on-farm harvesting and roadside packing; the import and distribution of timber for the packing boxes; organisation of transport of fruit from packing ‘depots’ to the port at Apia; inspection of fruit for quality maintenance; and finally, shipment on the scheduled ships that lay off-shore in Apia harbour and were loaded from lighters. These Union Steamship Company vessels operated out of Auckland, and carried passengers and cargo, with cool space for the bananas. The regular schedule of one ship per fortnight fitted the speed of ripening of fruit. A longer interval
would mean too much fruit would ripen but could not be shipped. A shorter interval could mean insufficient mature fruit for a satisfactory cargo.

The complexity of these off-farm operations would have been impossible for individual smallholders to deal with in the absence of agricultural wholesale merchants and exporters. However, the ‘Banana Scheme’, an entity linked to the government’s Department of Agriculture, managed all these operations.

A very similar banana scheme, also serving the New Zealand market, operated in Fiji, mainly in the hinterland of the port of Suva. Some details differed from Samoa, with a commercial company, licensed buyers and a cooperative of growers, all working in the off-farm part of the trade (Ward, 1964:69). Nevertheless the essential centralised management organisation was similar. One transport difference was the quite widespread and spectacular practice of using bamboo rafts to carry heavy loads of bananas down rivers to the roads to the port of Suva, which the same ships visited on a similar fortnightly schedule as in Apia. In the main banana-producing tikina of southeast Viti Levu, bananas accounted for between 40 and 55 per cent of the total area under crops in 1957 (Ward, 1965:202).

So why did it all collapse? The prime cause was innovation in air transport! Until the late 1950s, air links to New Zealand were operated by flying boats from Auckland. Fares were high, relative to fares by ship. Most travellers went by sea. When flying boats were replaced by larger, faster, land-based aircraft, the relative cost of air fares fell, services became more frequent, and the number of ship passengers collapsed. The ‘liners’, the Tofua and the Matua, were no longer economic to run as passenger and cargo vessels on a fortnightly schedule. They were withdrawn from service. Bananas were obviously not of high enough value for weight for air freight. Cargo-only vessels could not maintain the frequency of service necessary for the banana export trade and the smallholder export banana industries collapsed.

The industry’s success had been based on the use of what was later termed the ‘plantation mode of management’ (Ward & Proctor (eds), 1980). Essentially, management of off-farm operations, which large plantations could internalise, was provided as externalities for smallholders by an outside agency. This was not a ‘plantation mode of production’ as found in the Pacific’s plantation sector, but some off-farm elements of the plantation sector were made available to smallholders and successful operation ensued. In Africa and the Caribbean the term ‘contract farming’ is used for similar ways of solving many of the problems experienced by smallholders, such as banana growers, in dealing with export markets (Grossman, 1998:4).

Other examples of successful smallholder cash crop operations in the Pacific have included the nucleus estate and smallholder production of oil palm in Papua New Guinea, and the Tongan export of squash to Japan through cooperatives. Both are examples of the ‘plantation mode of management’. But the most obvious, and the oldest, Pacific Island example is the sugar cane industry of Fiji. When the indentured labour system bringing Indian workers to Fiji to work under 10-year contracts on sugar cane estates was ending in the 1910s, the Colonial Sugar Refining Company experimented with several models of tenant farmers under contract to provide cane to the mills. This developed into the system that has remained the basis of the cane industry until today. The company operated the mills, employed officers in each sector to provide extension services for farmers, ensured inputs (such as fertiliser) were available, set the planting and harvest schedules, organised rail or road transport of cane from farms to mill, and generally oversaw operations.
The industry, now managed by the Fiji Sugar Corporation, has had financial and social difficulties for some years and, while loss of favourable prices under trade agreements with the United Kingdom and Europe has been a major factor, it seems that falling mill management standards and general weakening of centralised services for farmers have been major factors (Lal, 2008; Lal & Rita, 2008).

The lesson, if we are to learn from the past in the commercial smallholder sector in the Pacific, is that the ‘plantation mode of management’, or ‘contract farming’, needs to be strong and provide a well-integrated system of off-farm support covering extension services, transport, marketing and, where necessary, processing.

**Land tenure**

A number of the major issues in economic development in the Pacific in recent years have revolved around land tenure. Security of tenure and ways of providing credit for commercial farmers on customary land are frequently matters for consideration. Here the lessons to be learnt from the past are very complex, and often debated, and I run the risk of oversimplification.

In Pacific Islands countries, so-called customary or traditional forms of land tenure have been codified and changed in a variety of ways. Much depends on when codification took place and the views of the then (colonial) governments on what was desirable. In French Polynesia, the colonial government simply ignored customary practices and introduced French metropolitan land law, although subsequently the Polynesians tended to ignore this imposed law for many customary purposes. In Fiji, the colonial administration sought to protect Fijians from loss of their land. The lands were surveyed, and ownership groups recorded according to what was decided should be a common hierarchy of social groups of related people; from the *vanua*, the broadest group, through the descending hierarchy of *yavusa*, *mataqali* and lastly, the *i tokatoka*, or extended family. The *mataqali*, a group of related extended families, was chosen as the normal unit for registration of ownership. In fact the standardised hierarchy was not applied in all areas and some holdings in some regions were registered in the names of *i tokatoka*, or even individuals. For example, in the early 1900s the Native Land Commission, which surveyed and registered the land, found that in the lower Rewa delta each little plot edged by drains (see above) had an individual owner, who would normally be succeeded as owner by the eldest surviving son. In 1908 Thomson recorded gifts of land to individuals – for reasons such as dowries, friendship, rewards for service – and also forms of tenancy (*cokovaki*) in return for ‘rent’ in Rewa, Tailevu and Kadavu Provinces (Thomson, 1908:370–1). Similar examples of virtually individual holdings were found in other Pacific Islands countries.

Today, more and more people use customary land under something approaching long-term individual usufruct rights. We find people in rural and urban areas using land to which their own groups have neither traditional nor modern legal rights. Meanwhile so-called development experts call for new forms of individual tenure to be adopted. Two questions arise: why, when land tenure systems were codified by colonial governments, was the quite common individual access to, and secure use of, customary land usually ignored? Secondly, could we, and should we, look at the old practices of long-term individual rights and recognise their present use in some formal way to fit current needs, including the legal needs of many commercial land-using activities? If we do so, we must remember that the present-day codified system has come to be regarded as ‘traditional’, even if it was actually a construct of colonial administrations.
One might argue that those who codified the tenure systems, generally colonial administrators, came from societies where land tenure practices were long since codified into legal conventions that were clear and provided simple, secure and well-understood rights to land-users. But this was often not true, and still is not true, of the colonial home countries. In fact the principles that the codifiers followed were a simplified version of their home country practices, and ignored some common, useful, but less easily codified, practices. The same applied to the land tenure regulations introduced into former colonies, such as the United States, Australia or New Zealand.

Many home-country tenure customs that provided security of land occupation were not carried over into colonies. In England, the broad open fields of the feudal era, with tenants holding strip fields scattered across several broad ‘open fields’, were ‘enclosed’ into separate consolidated holdings owned individually by the former tenants. Thus the current freehold system with individually owned, inheritable and saleable holdings emerged. In one form or another, this was transferred to the ‘old’ colonies of the new world. But a number of residual features were not transferred. In England much land remained as common land. But people continued to encroach on the common land and after a period of undisputed occupation, such patches would come to be recognised as being ‘owned’ by the squatters (e.g. Pannett, Thomas & Ward, 1973). This still happens, even along the boundaries of urban suburbs, where gardens may encroach on adjacent fields and, after some years, if the farmer does not protest or charge rent, ‘squatters rights’ apply and the extensions become part of the suburban residents’ freehold.

A much publicised case occurred in London relatively recently after a homeless man had made a rough shelter on Hampstead Heath and lived there for years. When the authorities noticed, the squatter had been in uncontested occupation for more than the statutory period, so he now ‘owned’ the land. The authorities offered to buy it for a huge sum but the penniless man declined the offer, preferring to stay in his makeshift house and current lifestyle!

Customs of long-standing usufruct that occur within the legal systems of the old colonising countries were not transferred to the statutory land tenure systems of the Pacific, even though similar practices existed there in the pre-colonial period. Codification of land tenure usually ignored such practices, making them extra-legal, but in fact these customs have continued to operate satisfactorily for many purposes.

Another problem arose in New Zealand and the Cook Islands when recorders and codifiers omitted parts of old practice that allowed for people to lose rights due to out-migration, population change within groups, and the movement of individuals between groups. Consequently the new legal systems tended to become almost unworkable as all the descendants of the first recorded owners remain on the list of owners even if they, or their parents, have long since moved away. In New Zealand the average plot of Maori land now has 86 recorded owners (with an extreme case of 680 owners for one plot). A frequent result is that one co-owner, wishing to build a house on part of the plot, cannot do so because one, or more, of the other listed co-owners objects (pers. comm., Tanira Kingi, 22 October 2010). In Atiu, Cook Islands, in the early 1960s, 80 living owners were registered for the average block of 2.5 hectares, three-quarters of them being absentee owners, many in New Zealand (Crocombe, 1964:127–8).

Some flexible features of ancient land tenure practice in Fiji have continued in use despite the survey and registration of native land. One of the early Native Land Commissioners stated that ‘it is not too
much to say that no tribe now occupies the land held by its fathers two centuries ago’ (Thomson, 1908:355). In former centuries villages moved from time to time: sometimes because of inter-community strife; sometimes in response to too much of the nearby accessible land becoming fallow after shifting cultivation and the need to find forest land for new gardens. If no other community was using an area of suitable forest land, then people could move into it. A kinship group (or individual) could establish gardens on this unoccupied land. This ancient practice has continued despite land registration. In 1958, in Saliadrau village in interior Viti Levu, most of the land registered as being owned by the village mataqali lay more than two kilometres from the village site, too far to be easily cultivated by residents of the nucleated village without roads. However, there was unused land nearby, belonging to mataqali of another, rather distant, village. So, Saliadrau people made gardens on this land, accessible to them, but not to the land’s owners. In most cases, if the legal owners were not cultivating nearby, no permission would be sought. In 1958, 25 per cent of Saliadrau’s 115 gardens were on land legally belonging to mataqali of that other village. Of the gardens within the boundaries of Saliadrau’s own land, 69 per cent were cultivated by people who were not members of the mataqali registered as the owners of the particular plot (Ward, 1960:46–7). In total, 76 per cent of village gardens were not on land belonging to the planter’s mataqali. By 1983, 36 per cent of Saliadrau’s now 200 gardens were on land belonging to the neighbouring village. Of the gardens that were within Saliadrau’s own land, 46 per cent were on land not belonging to the planter’s mataqali. In total, 67 per cent of village gardens were on land not belonging to the planter’s mataqali (Ward, 1995:226–7). In Nabudrau, in the lower Rewa delta, 88 per cent of gardens were not on the planter’s own land in both 1959 and 1983 (Ward, 1995:227). Similar lack of conformity between land and garden ownership was found in other villages, although there was a tendency for the discrepancy to be reduced as commercialisation increased. The important point is that customs of usufruct without actual ownership gave, and still give, the necessary degree of security many farmers need. Similar conditions with regard to the ownership of gardens and land are found in Samoa (Ward, 2005) and other Pacific Islands countries.

‘Experts’ trying to foster economic development state that security of tenure, plus the right to use land as security for loans, are both essential for further agricultural development. The latter condition is not normally satisfied by the practices outlined above. But could we learn from the past and legally recognise the security of occupation that existed in the situations of long-term usufruct described above? This would require thorough study, negotiations and administration. But it would be accepting an ancient (and still extremely common) extra-legal practice. It would be similar to practice in many developed countries, and perhaps also follow the recommendation of Fijian chiefs participating in a Native Council, the forerunner of the Council of Chiefs, in 1878. They proposed that the mataqali should ‘give . . . to each male in the mataqali who is sixteen years of age a piece of land, . . . and then he shall be the absolute owner of such land, and his family or relations after him’ (Notes 1878:52). The colonial government did not take this advice, although in Tonga something similar did happen.

The consequent question is whether development banks can find alternative ways of securing loans to farmers. At different times, the development banks of Papua New Guinea, Fiji and Tonga have done this. The Grameen Bank of Bangladesh and the Kredit Umum Pedesaan in Indonesia also provide finance to small operators without using the security of land as guarantee.
There would be great advantages for future development in the Pacific Islands if serious efforts were made to learn from past, and present, land tenure practices, even if these are now officially extra-legal. We should identify their advantages, and devise ways of supporting their users in modern and commercial development, including the provision of development credit. But new proposals will need to be firmly based on the commonalities of ancient and current practices, and not only on the officially recognised ‘customary tenure’ that was codified decades ago, but was often a simplified version of the then reality and today is often bypassed in practice.

Conclusion

I have considered examples from two vital components of the rural economies of the Pacific Islands in which ‘ancient solutions’ might be applicable today. Two requirements are common in all cases. First, thorough knowledge of these ‘ancient’ solutions as used in the past is essential if they are to be used successfully in future. Such knowledge is in great danger of being lost as generations change. The need to save it, by thorough studies fostered by governments and communities, is urgent. Secondly, we need more understanding of the current use of old practices even though they may now be extra-legal. That status should not deter scholars and governments from investigating them without creating prejudicial consequences for the current practitioners. This is itself a challenge to the ways in which governments often operate, but it must be met successfully if ‘ancient solutions’ are to contribute effectively to solving ‘future challenges’ in agricultural land use, customary tenure practices and de jure land law.

References


