Digitalising Traditions: Custom, Land, Biodiversity and Resource Management in Vanuatu. (In Press-Oxford University; Technology and Governance Beyond the State)

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Introduction

Our research reports on some contradictory outcomes occurring in Vanuatu from centralised and digitalised approaches for natural resource management between scales from international, national and local levels of resource and land governance, despite similar aims for resource conservation. Highly accurate GPS digital land surveys are being used to take exact measures of areas to be recognised under state protection to be included in calculations for obligations under international laws like the Convention on Biological Diversity and its Aichi Targets. Here, this sees central government potentially intervene with and undermine traditional governance, community resilience and traditional resource management (TRM). Paradoxically, this is occurring at the same time as central government policies speak of decentralisation. Meanwhile, in order to continue customary land and resources management, community-level projects may require greater levels of digital intervention, surveying and registration with central government.

Our research sits at the interface between different scales of regulation and non-state governance, where international, state and customary laws interact. Central to our argument is the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (2010, in force 2014), with its emphasis on 'access and benefit-sharing' (ABS) for biological resource research and development, including 'fair and equitable benefit-sharing' provisions when it comes to accessing Indigenous or 'traditional' knowledge for biodiscovery/biotechnological purposes. The Convention on Biological Diversity (CBD, 1992) provided the earlier over-arching framework and focuses on conservation and sustainable use of biodiversity as well as ABS. A key impetus behind the Nagoya Protocol was rectifying past injustices associated with biopiracy and misappropriation of Indigenous knowledge, with state parties now required to 'take into consideration indigenous and local communities' customary laws, community protocols and procedures' (CBD, 2010). For example, kava (*Piper methysticum*) is a plant used for generations as a customary drink involved in ceremonies. The root is pulverised into a fine mash through which water is filtered, creating a bitter beverage with a relaxant effect. Vanuatu is a centre for diversity of kava which has more than 40 'noble' varieties of consumable/usable kava, and as such has become a trade hub for the plant, with the drink gaining regional and even international popularity. However, this has had impacts on the plant's sustainability and its affordability for locals, while foreign researchers have filed more than 200 patents on uses of kava (see Markham, 2022; Robinson et al., 2021). The Nagoya Protocol seeks to address 'biopiracy' and misappropriation concerns arising from this, but this requires linkages between action at different scales.

The Nagoya Protocol has resulted in community protocols being developed in Vanuatu, with information on biodiversity laws shared digitally in Bislama[1] through mediums such as Facebook. Furthermore, the CBD reiterates the need to respect customary use (article 10c) and Indigenous traditional knowledges (8j) (CBD, 1992), which are also implicit in the Constitution of Vanuatu. All this should, in theory, support sustainable resource use and the conservation of biological diversity.

While these international laws – and the conceptual ideologies underpinning them – aim at reaffirming customary law (see Robinson and Forsyth, 2016 on the Pacific), the ongoing environmental monitoring required involves interventions that are typically mediated through new technologies. Should they occur without free and prior informed consent (FPIC), these interventions may influence or impinge on traditional rights.

Another set of biocultural rights concerns who has access to the traditional knowledge associated with Vanuatu's rich biodiversity, and moreover how this knowledge is shared and distributed. These restrictions underpin what may be thought of as an indigenous *kastom* (traditions and customary law) copyright system, which has served to protect traditional knowledge for millennia. *Kastom* systems, coupled with high linguistic diversity and an oral tradition utilised as the medium of transmission, has meant access to this knowledge has thus far been carefully controlled. Moreover, there is no single corpus of protocols governing access to such knowledge among the estimated 138 cultural-linguistic groups found in Vanuatu: some more closely related groups may share similar sets of rules, while others have more differentiated systems reflective of their unique biocultural histories.

Utilising several examples in Vanuatu, we argue that digital technologies are shifting how biodiversity and land/sea tenure are recognised and governed, with significant impacts on customary practices and rules. In making this argument, we explore the tensions and interplay between biodiversity regulations; land and marine tenure and non-state governance in the context of *kastom*; and the technological changes occurring in land, sea and resource management. Here, the Ni-Vanuatu (Indigenous peoples of Vanuatu) have their own customary laws regarding accessing and managing biological resources; taboos on specific species and uses; seasonal, area and behavioural restrictions; secret/sacred knowledge; medicinal (often family-line) knowledge; totemic species rules; and rights over land and sea (tiered user rights) (see Hickey, 2006, 2007).

Against this backdrop, technology has increasingly imposed itself, distorting how customary law operates and is engaged with by government, consultant and 'project-related' actors.

Customary, Constitutional and Legislative Law in Vanuatu

The indigenous Ni-Vanuatu make up over 98% of the population of Vanuatu, an archipelago of over 80 islands in the Melanesian subregion of the Pacific. The islands, designated 'the New Hebrides' in 1774 by Captain James Cook, were visited by a series of European colonial powers over subsequent years. Both Britain and France claimed ownership in the 1880s, eventually leading to a 'condominium' division of control over the country between the two (Van Trease, 1987). This caused disruptions to *kastom* systems of governance and law, as well as land/sea tenure, throughout the colonial period. Finally, in 1980, Vanuatu achieved

[1] Bislama is the main language spoken in Vanuatu and is a form of Melanesian pidgin English, followed by English and French due to its mixed colonial history. Vanuatu has been described as the world's "densest linguistic landscape", with as many as 145 languages spoken by a population of fewer than 300,000 people (Barbour and Daly, 2020).

independence and its constitution has recognised *customary or traditional kastom* rules, rights and responsibilities of ni-Vanuatu people to land and natural resources associated with their customary land/sea space (Tonkinson, 1982).

The Vanuatu Constitution (1980, amended, 2006) and associated legislation recognizes customary law, land and marine tenure, as well as expressions of traditional resource management, knowledge and practice. Specifically, Chapter 12, Article 73 of the Constitution states: "All land in the Republic belongs to the indigenous custom owners and their descendants in perpetuity." Moreover, the 2013 Custom Land Management (CLM) Act – explored in further detail below – makes clear that "This Act extends to the waters within the outer edge of any reef adjacent to custom land including all fringing reefs, and the land below those waters to the extent that they are considered to belong to custom owners under the custom of that custom area." This forms the legal basis for customary marine tenure in Vanuatu. In fact, most cultural groups in Vanuatu state emphatically that their marine space includes all that they can see towards the horizon, as it is part of their daily world and includes the realm of the spirits found offshore (Francis Hickey, unpublished).

Additionally, Article 74 of the Constitution states, "The rules of custom shall form the basis of ownership and use of land in the Republic of Vanuatu", with this "use of land" taken to include its management. This is reinforced by Article 94 (3), which states "Customary law shall continue to have effect as part of the law of the Republic of Vanuatu." Customary law still plays an active role in regulating village affairs, including disputes over breaches of traditional taboos imposed on land or sea resources. Customary law is restorative in nature, avoiding the win/lose outcomes seen in Western courts systems (Forsyth, 2009). The customary dispute settlements that take place in *nakamals* (traditional meeting places), for example, involve negotiation between the chiefs/leaders of each community or family represented, followed by a kava ceremony to restore relationships (kava having a calming and sedative effect) (Robinson et al., 2021).

These various articles, together with the CLM Act, allow for the expression of customary law, traditional tenure systems, and use (including traditional management practices) of land, sea and reefs, encompassing the range of cultural expressions found amongst Vanuatu's diverse cultural-linguistic groups. Crucially, they also provide a legal basis for the Ni-Vanuatu to continue managing the resources under their tenure using traditional practices, as they have been doing for thousands of years.

The Custom Land Management Act of 2013

Despite these legal rights, several conflicts have arisen over land management in Vanuatu. Many of these tensions – discussed in more detail later in the chapter – have been heightened by foreign investment and land alienation. This has led to several revisions to the CLM Act. The land-lease laws in place prior to the CLM Act allowed for individual ownership/registration of customary land (which is primarily communally owned in Vanuatu), which could then be leased. This, however, led to considerable conflict within families, clans and villages, as well as between neighbouring villages (see Anderson and Lee, 2010; Daley, 2010; Simo, 2010, and McDonnell et al. 2017 for a discussion on land registration issues in Vanuatu and PNG). On Efate Island (the main island, where the capital Port Vila is sited) alone, 56.5 per cent of what was previously customary land along the coastline is now leased. This has had the effect of limiting Ni-Vanuatu access to both arable land and much of the coastal estate (McDonnell, 2017). Despite numerous revisions and amendments to the CLM Act, land tenure and lease issues remain contested.

The CLM Act formalises recognition of customary institutions, such as *nakamals* and 'custom area land tribunals', particularly in terms of resolving land disputes. Under section 1(2) of the CLM Act, 'final decisions reached by these customary institutions, when appropriately recorded, become recorded interests in land which are binding in law and are not subject to appeal, or judicial review, by, any Court of law'. Parts 4, 5 and 6 of the CLM Act set out dispute resolution provisions, established in part to deal with issues of land acquisition and foreign ownership (through leasehold), and clarify community involvement procedures in land leases (Robinson et al. 2020).

The CLM Act continues to undergo reform, and its future implementation is unlikely to be without issues. This is particularly the case where customary land boundaries remain unclear or are contested. Indeed, a pilot project has recently been undertaken – through a governance resolution made under the Malvatumauri National Council of Chiefs Roadmap – to identify customary boundaries, set up area councils and identify *tabu* places (sacred sites), with reports on these findings submitted to the Malvatumauri National Council of Chiefs (one of the key authorities empowered to determine land claims) (Malvatumauri Council of Chiefs, 2011). One participant described the pilot project as 'the only roadmap for chiefs to tackle land issues' and thus bring greater clarity to the determination of customary land rights in Vanuatu (Napwatt, 2017). At the time of writing, the project had already been piloted on four islands – Malo, Ambae, Efate and Tanna – and is still ongoing on Efate, thereby facilitating a more detailed assessment of the CLM Act's potential scope of operations going forward (Robinson et al. 2020).

Among other reinforcements of customary tenure, the CLM Act's land reforms have also removed ministerial powers to act unilaterally in leasing urban and customary land (which occurred in the past, especially on Efate) (McDonnell, 2017). Vanuatu's land reforms are thus designed to ensure state land transactions are in the public interest, and follow proper legal and administrative processes. Under the new arrangements, the Minister for Land and Natural Resources can only lease urban state land on the advice of a committee known as the Land Management and Planning Committee (LMPC) made up of government agency representatives under the authority of an independent chair (McDonnell, 2017).

The land judgements of the 'customary institutions, when appropriately recorded, become recorded interests in land which are binding in law' under the CLM Act. These Island Court and Supreme Court judgements are now held in digital form (or are in the process of being digitised), providing records of land tenure and customary land boundaries previously in dispute, and can mostly be found in the Pacific Islands Legal Information Institute (PACLII).[2] This digitisation of court judgements is likely to help fix in place temporally and spatially static versions of customary land tenure and management, which may have involved more fluid, dynamic processes in the past.

Notably, land disputes were headline news at the time of writing, with the *Vanuatu Daily Post* reporting that the Minister of Infrastructure and Public Utilities, Jay Ngwele, had called on the people of Pentecost to refrain from putting namele (*Cycad sp*.) leaves on development sites (Malapa, 2021; Roberts, 2021). Although namele leaves, represented on Vanuatu's national flag, represent a sign of peace, when placed on a new development they signal an ongoing dispute regarding traditional custodianship over the site (Roberts, 2021). The namele leaf is

[2] http://www.paclii.org/countries/vu.html

also commonly used/placed on a site in central Vanuatu when a natural resource tabu is placed for management purposes (Hickey 2006, 2007). In this case, The Minister argued it is "not the time for land disputes but time for development to improve the livelihoods of the people" (Malapa, 2021), observing that the road, being built by the China Civil Engineering Construction Corporation (CCECC), "is a project worth billions of vatu … and will provide many job opportunities for the people of Vanuatu especially the people of Pentecost where the project will take place" (Malapa, 2021). Here, the usual tropes about development, jobs and 'modernisation' are being asserted against local objections and uses of *kastom*. The placing of namele leaves has long been viewed as a customary right when it comes to expressing peaceful opposition to a development, creating space for further dialogue between parties to resolve matters amicably. In the face of this, however, political interests are pushing forward with the development, not only ignoring local opposition but undermining the customary approach of creating a 'peaceful space' for protest.

Protection of Traditional Knowledge and Expressions of Culture Act 2020

Under the Traditional Knowledge and Expressions of Culture Act (2019) (TK and EC Act), a Traditional Knowledge and Expressions of Culture Authority is to be established ensuring "there is a legislative framework in place to establish an Institution that will take charge in administering and regulating the identification, and proper use of traditional knowledge through prior informed consent of custom owners, as well as monitor the terms and conditions of an agreement to ensure that custom owners gain a fair share of the use of their traditional knowledge associated with genetic resources." (TK and EC Act, 2019). In cases where ownership of traditional knowledge and cultural expressions is disputed, arrangements will be made to "to appoint a board of arbitration to deal with the dispute." Given the potential overlap in ownership of traditional knowledge and cultural expression between individuals, families, clans and villages, as well as between different cultural linguistic groups over shared genetic resources, an effective dispute resolution mechanism will be critical.

Traditionally, ownership of traditional knowledge and cultural expressions has been safeguarded through oral histories and strict adherence to the *kastom* copyright rules of the cultural linguistic group involved (Forsyth, 2011). 'Ownership' rights may be held communally by an entire cultural linguistic group, or alternatively by individual clans, kinship groups, families or, in some cases, individuals. Through the newly established Authority, holders of traditional knowledge and/or cultural expressions will now be able to register these ownership rights on a government database. The digital registry of claims will then be used to help navigate negotiations with interested parties wishing to access this traditional knowledge for commercial purposes, including pharmaceutical companies or any other entity seeking to exploit botanicals or genetic materials. By clearly identifying "ownership", the registry will, it is hoped, pre-empt potential disruption to negotiations around access and benefit-sharing arrangements. Access rights to the database are not yet clear, as at the time of writing the Authority and registration process is still being established. Thus, it is not known whether specific details of traditional knowledge and cultural expressions will be visible to external parties, which would potentially be problematic in terms of 'biopiracy' or misappropriation of secret/sacred knowledge concerning, for example, traditional medicines. To avoid such problems, similar databases (e.g. the Traditional Knowledge Digital Library in India) have kept the details of traditional knowledge secret, available only to database administrators and the knowledge owners.

The formalization of legal ownership rights under the TK and EC Act marks a significant departure from the *kastom* system that traditionally protected these rights (Forsyth, 2011). Some of these rights may already be in the "public domain" locally, or communally held. For example, certain songs, or knowledge of certain traditional medicines, may be held by most – if not all – people within a specific cultural linguistic group, with neighbouring groups openly acknowledging such ownership (Forsyth, 2012). On the other hand, knowledge concerning a particular medicinal remedy or, say, a family's fishing technique, may be a closely guarded secret. Once this is registered and digitally stored, however, it is unclear what protocols will be followed to prevent this information being distributed (Forsyth, 2013). One important issue that became apparent during the land boom of the 2000s was that informally defined land boundaries rarely became an issue among villagers who benefited equally from the land. Rather, problems arose when individuals attempted to formally register and lease land for personal benefit. The forthcoming registration of informally defined ownership of traditional knowledge and cultural expressions means such sources of conflict might re-emerge.

It is also clear that, in the wake of registration, the way this traditional knowledge is valued is likely to change. Knowing a specific medicine passed down within your family but kept secret for the family's benefit provides significant survival benefits, along with social and cultural prestige. While the medicine may still be shared among other community members through informal barter arrangements, this does not necessarily include revealing the botanical species utilized or the preparation method. If, however, the rights to that medicine are sold to an international pharmaceutical company, then the prestige associated with it is removed from the socio-cultural context and placed in a commercialized economic domain. It is also worth noting that unequal distributions of wealth within the usually egalitarian context of Melanesian communities is often a source of division, tearing at the traditional fabric of Ni-Vanuatu society.

There is also the issue that under the Nagoya Protocol, benefit-sharing arising from utilization (meaning research and development) must be agreed with the provider of the resource/knowledge. Thus, agreements may be reached with particular individual(s) who document/record their traditional knowledge, potentially leading to others being excluded from the rewards on offer. Another challenge exists in terms of the protection of traditional knowledge once it has been transferred to a (usually) non-indigenous entity. As interest in bioprospecting in Vanuatu grows (there has been a marked increase in applications over recent years), such questions become ever more pressing. Although the Nagoya Protocol suggests detailed contracts to ensure the rights of local providers are asserted, the global system is still being established and is reliant on mutual recognition of laws and reciprocity in enforcement. The European Union, Japan and China, among others, have ratified and implemented corresponding regimes, but others – such as Australia, New Zealand and the United States – are yet to do so. This leaves substantial gaps in global implementation of the Nagoya Protocol, which risks continued appropriation and patenting of plant species such as kava. While attempts to formalise and digitise registration in Vanuatu may seem to offer a solution, it also centralises potentially sensitive traditional knowledge within a state entity, undermining local customary practices if not managed well. Moreover, given plants such as kava are exported, issues of appropriation issues often fall outside Vanuatu's national jurisdiction. This spotlights the importance of clearer export checks and procedures, and implies that trading partners such as Australia need to ratify the Nagoya Protocol in order to close the loop on 'biopiracy' (see Markham, 2022; Robinson and Forsyth, 2016; Robinson and von Braun, 2019; Robinson et al., 2021).

Digital Influences on Biodiversity, Land and Marine Rights

Calls for conservation and sustainable use of biodiversity have led to a number of digital technologies being employed in Vanuatu, which in turn have impacted traditional practices and customary rights relating to land and marine areas, as well as natural (including biological) resources. Technological changes to how land and sea areas are measured and governed not only affects the resources that can be accessed, but who has the right to grant access (which may impact traditional knowledge rights). On the one hand, technological monitoring – such as satellite imagery and GPS field devices – enhances the ability to gather accurate environmental data and monitor environmental change, potentially improving the capacity of national governments to make policy decisions. On the other hand, technological monitoring and mapping can interfere with resource management practices based on generations of *kastom* practice and underpinned by traditional knowledge.

Biological resources

New technologies are being used to quantify forest resources and then market them as carbon credits in overseas markets (thereby limiting Indigenous use of local forests). In the quest to access global financial resources under climate change-related programs such as REDD/REDD+, Vanuatu has recently undertaken an ambitious audit of national forestry resources – in order to eventually market them as carbon credits under the REDD+ program. This represents the first update to Vanuatu's forest resource records since 1991. Data will be uploaded to tablets in the field, then digitally analysed and stored with the Forestry Department, eventually to be converted to carbon credits and offered on global markets. At the same time, REDD+ project officers are approaching communities about the possibility of protecting a portion of their forest reserves as part of carbon credit schemes. As Lund (2006, pp. 692-3) explains, "development operators are in a particularly significant position to make 'strategic translations' of ideas about not only 'development', but public interest, authority and the state… [and] even when development interventions claim to be technical and discrete, they are often quite political and engender subtle or dramatic structural change."

Given that forests have not traditionally been viewed as carbon absorbers, the REDD+ initiative effectively presents the Ni-Vanuatu with an entirely new perspective on how forests should be valued, managed and utilized in a global context. In this regard, REDD+'s highly technical carbon-focused approach may not align well with *kastom* approaches to forest use and management, leading to REDD+ rules – buttressed by centrally held data obtained and stored by electronic means – eroding *kastom management strategies* over the long term.

The REDD+ roadmap is in its early stages although the forest inventory has been completed, but it remains to be seen what resources Ni-Vanuatu custodians will be able to access, if and when they sell their carbon credits. Creating an electronic registry of what resources can be accessed and used, and then monitoring it, will be quite a task, and may impinge on people's livelihoods, cultural practices and spiritual connections. The national forest audit is moving forward at a rapid pace, using digital technologies to hasten its progress. Despite this, it seems communities face a lengthy wait before they accrue any financial benefits from the scheme. This is a significant departure from earlier programs to promote sustainable use of Vanuatu's forests to control erosion, maintain both floral and faunal biodiversity as well as reserve useful trees and other resources such as famine foods and traditional medicines found in remote forests for future uses, including their spiritual qualities.

Land and Conservation Areas

There is a strong spiritual relationship between Ni-Vanuatu and their traditional lands, with various features of the landscape linked to oral history and cosmology (Ballard and Wilson, 2012, ICOMOS, 2007). In his ethnography of the Na'hai speakers of south Malakula in Vanuatu, Curtis explores how "Malakulans understand place to be a key component of a person's identity and the repository of communal knowledge and power … it continues today to be relevant in all aspects of peoples' lives, despite the radical social transformations that have occurred on Malakula during the last century" (Curtis, 2002[3]). This is why land is considered sacred, and why the sale/lease or loss of access to land to make way for buildings and roads can act to sever such connections. Loss of land equates to a part of peoples' oral history and living landscape – something that cannot be held on an online database – being extinguished forever.

Moreover, the land contains a community's buried ancestors, who continue to exist on the "other side" and remain in communication with the living. The 'dark bush' (remote forests) also contains numerous sacred sites ('*tabu* places') inhabited by island spirits. Normally these sites are avoided out of respect, and consequently left undisturbed; in other cases, people may pass through provided they follow local protocols of respect (which typically include remaining quiet and not disturbing/taking anything). This has the effect of helping to protect the environment and biodiversity. More generally, the dark bush has traditionally provided a range of natural materials for houses, canoes, fishing gear, fuelwood, carving and weaving materials, and dyes, as well as myriad fruits, nuts and medicinal remedies. They have also been a source of emergency famine foods, not normally eaten day-to-day, to be accessed after an environmental shock such as a cyclone, tsunami or volcanic ash fall. Thus, these remote forest areas act as de facto resource reserves, with minimal road access serving to limit exploitation. A fundamental difference between Western-style "protected areas" and these dark bush forest areas, however, is that while the former uses legislation, the latter relies on a spiritual connection with the land and culture: even if no one sees you, the spirits/ancestors are watching (see Flexner et al, 2019). These spirits may punish transgressors who do not respect local protocols, typically by making the transgressor, or a member of their family, fall ill or even die (Hickey 2006, 2007).

Formal land surveys using digital technologies are increasingly being undertaken in Vanuatu to map, regularize and standardize land. These surveys may utilise a theodolite (with the information downloaded to a laptop utilizing software that converts data into GPS points) or more modern equipment such as GPS survey equipment. Customary boundaries, by contrast, are traditionally marked by natural features such as rivers, creeks, banyan trees and mountain peaks, and are kept secret, except to those locally with traditional rights to know about them. The land surveys are a standard part of the process of assigning leasehold titles to customary land, which can then be bought, sold and traded like any other commodity. Once a lease is formally registered, members of the public can then – in exchange for a small fee paid to the Lands Department – obtain a copy of the lease and a site map of leasehold titles.

Moore (1978, p50) suggests regularization consists of 'processes which produce rules and organizations and customs and symbols and rituals and categories and seek to make them durable'. As she sees it, it is the outcome of people's efforts to fix social reality in place, thereby giving it form and predictability (Moore, as cited by Lund, 2006). While this aim may be

[3] See also Taylor, 2003, Ways of Place.

understandable from a bureaucratic perspective, in the context of customary land holdings and management in Vanuatu, it involves the formalisation of fluid *kastom* processes that have evolved over hundreds of years. New technologies have become key to speeding up these processes of change and solidifying land tenure (see also Benjaminsen et al., 2009, with examples in Africa).

Pressures arising from international legal obligations, coupled with ongoing GPS digital land surveys, have essentially led to centralised interventions in local *kastom* management of land. The Department of Environmental Protection and Conservation (DEPC) has recently begun promoting formal registration of Community Conservation Areas (CCAs) under the Environmental Management and Conservation Act (EMC Act). Driven in part by CBD/Aichi Targets regarding protected areas, it is also a response to a perceived erosion in traditional governance, resulting in declining compliance with traditional *tabu*. Registration of traditional *tabu* areas as CCAs places them in the formal arena of law – according to the CCA Booklet published by the DEPC, "Once a Community Conservation Area is officially registered by the DEPC, management rules/by-laws become legally binding and enforceable under the EMC Act." Penalties include fines of up to USD $500,000 and/or five years in prison. This is in stark contrast to traditional fines for breaching a *tabu*, which may consist of a pig, some kava, yams, taro and a mat, and perhaps USD $50.

The CCA Booklet also explains that communities, should they seek to modify the original management plan filed at the time of registration, must send a written request to the Director of the DEPC. This requirement appears to impinge on the custodianship and autonomy communities have had in the past, potentially reducing the ability of communities to respond in a timely manner to environmental shocks affecting their gardens and reefs. In such circumstances, communities may turn to the traditional famine foods found in dark bush forest reserves – if these areas are included in a CCA, however, they may be legally inaccessible unless permission from a civil servant in Port Vila is granted. Moreover, disasters such as cyclones often result in communications systems – including mobiles and the internet – being temporarily knocked out, leading to serious delays in obtaining a response from central authorities. On top of this, the CCA Booklet states that should the Director of the DEPC believe it is in the national (or international) interest, they can choose to reject a community's application to deregister a CCA and return to traditionally managing their land and reefs. This effectively places indigenous people's access to traditional resources under the purview of a government department for the unforeseeable future.

Also of note is the failure of the DEPC to seek official approval of the Malvatumauri Council of Chief's, as is required under law when passing any new legislation that may affect land rights.

On the other hand – and seemingly at odds with the centralization of access to natural resources through formally registered CCAs – decentralization in the form of Local Area Councils is also a priority for Vanuatu's national government. However, it has been observed that the newly established Local Area Councils now seemingly usurp the power formerly invested in the traditional Governance system overseen by the Chiefs to decide what sort of developments or changes will be allowed to occur on their traditional lands. And in fact, who may visit villages of a given island as visitors must explain to the Local Area Council upon arrival what their purpose is in visiting the area. In the past, it was the Chiefs who oversaw this gate keeping process.

Recently, Central Government authorities only contacted the Local Area Councils of TAFEA Province in the south of Vanuatu to inform them that a foreign research vessel would be in their waters for the month of September, 2023 in order to conduct reef surveys that would be digitized and analyzed by foreign scientists. However, marine tenure protocols require that the traditional Chiefs of this

area are consulted (not told) that reef surveys considered useful to assessing the reefs will be undertaken provided the Council of Chief's have no objection to this undertaking arranged by Central Government. Without consultation with the Chief's prior to these surveys, a number of complaints appeared on Facebook from TAFEA citizens' and Chiefs' demanding clarification why the Chiefs were never consulted regarding scientific data collection would be conducted on their reefs without the Chief's FPIC.

Working with communities to strengthen traditional governance systems and TRM would appear to be a more sustainable and cost-effective approach while also acknowledging traditional rights and promoting decentralization rather than trying to centralize traditional/community management by registering them as CCA's and having a government department remotely controlling their access to resources. In this vein, assisting indigenous communities to adapt to modern challenges – such as the impact of invasive species on the environment, the conservation of endemic species, or the commercialization of resources – may be achieved through cooperative management approaches, with scientific knowledge and digital assistance provided to communities as and when it is needed. Should the objectives promoted by government, international agencies and NGOs align with a community's own conservation aspirations, then the latter will likely embrace the proposed adaptations, as happened in Vanuatu with regard to marine resource management (Johannes and Hickey, 2004).

Nevertheless, in the interests of achieving the international conservation goals contained within the Aichi Targets, it appears the EMC Act may in fact be usurping the provisions of Vanuatu's Constitution ("All land in the Republic belongs to the indigenous custom owners and their descendants in perpetuity" and "The rules of custom shall form the basis of ownership and use of land"). As a consequence, the introduction of formal CCAs threatens to erode TRM, with state control supplanting traditional tenure. Thus, the seemingly benign process of using GPS digital land surveys to provide exact measurements of areas under formal protection, with such data feeding into the CBD's Aichi Targets, has morphed into a system with the potential – if it is not handled in a decentralised, devolved way – to undermine traditional governance and community resilience. In this context, it would be unfortunate if Vanuatu's traditional systems of governance and resource management, which for centuries have ensured the country's almost unparalleled biocultural diversity, were to be displaced by centralised, digitalised practices.

Marine Resources

From 2017, Vanuatu initiated a new Ocean Policy program under the Department of Foreign Affairs, aimed at achieving the Achi Target of protecting at least 10% of national coastal and marine areas by 2020. The program involved consultations with various government departments and NGOs working in the environmental sector, as well as community members and traditional leaders from various provinces. A key component of the consultations was the gathering of information on biodiversity hotspots, drawing on data compiled in reports (thereby excluding undocumented traditional knowledge). This included preparing a marine spatial plan using digital scientific data compiled as bioregions (spatial units that host similar biota) within the South-West Pacific. Here, it is interesting to note the remarks of the consultant tasked with presenting these bioregions at a national consultation: although the scientific approach to creating the bioregions was "world class", the data utilized was apparently not considered very accurate. Despite this, the data is to be utilized in designing a series of interconnected marine protected areas (MPAs), including representative areas from each of the defined bioregions. Given that this encompasses coastal areas where

marine tenure may apply, it is unclear how these MPAs will be managed in relation to the customary tenure rights of existing traditional custodians. In fact, the initial iterations of the Ocean Policy gave no acknowledgement of traditional tenure. Conversely, CCAs were widely promoted. Only through lobbying efforts from NGO's and the Vanuatu Cultural Centre did the Ocean Policy then start to include the traditional rights of Vanuatu's indigenous people including their traditional knowledge and tenure and resource management rights and responsibilities.

Footnote; However, in June 2024, the Second Edition of the Ocean Policy, and a First Edition of the Vanuatu Marine Spatial Plan (MSP) were released that included the 30/30 plan for complete protection of 30% of land and 30% of marine spaces under this CBD initiative. These documents provide overviews of the future plans and progress to date but are unclear as to the actual role of traditional marine custodians and the implementation of their traditional roles and rights under these two initiatives. The MSP states on page 15 that the "This traditional governance zone begins from the high-water mark to 100 meters beyond the reef edge." This is considerably less than most communities would acknowledge is part of their marine space that provides food and social security, traditional navigational routes as well as spiritual aspects to offshore areas.

Electronic tablets are also now used by island communities to upload data on nearshore fish catches to a central database in Port Vila, which can then be used for statistical and management purposes. This is a new and foreign development for local fishers, many of whom regard it as an intrusive means of giving top-down management power to a central government agency. Traditionally, nearshore reefs have fallen under the remit of traditional tenure (as supported by the Constitution), and as such regulated locally using traditional resource management systems localized to that area. Particularly important to communities, this local control by indigenous people ensures their food and social security needs are met. Against this context, the use of tablets and data collection arguably makes the process of marine resource custodianship feel more alien to the Ni-Vanuatu, shifting it into the realm of technical state control (Ruddle and Hickey, 2008). Recent research indicates "With rare exceptions, current biodiversity losses are caused not by human conversion or degradation of untouched ecosystems, but rather by the appropriation, colonization, and intensification of use in lands inhabited and used by prior societies." (Ellis et. al. 2021, p1). In light of this, numerous papers extol the virtues of empowering indigenous peoples to practice their TRM systems, while highlighting the habitat destruction wrought by industrial developments such as clear-cut logging, open pit mining and unsustainable agriculture (Ellis et. al., Ruddle and Hickey (2008). Thus, if the highly digitized and centralized monitoring of fish stocks and marine areas under traditional tenure is to continue, local communities should simultaneously be empowered as per their *kastom* rights. This would involve giving them access to the collected data as a means to self or at least co-manage their fish stocks.

Conclusion

As this chapter has demonstrated, there are emergent tensions between, on the one hand, multi-levelled legal processes that seek to 'protect' Indigenous knowledge and traditional practices, and, on the other hand, existing customary regulations and norms. These issues are further complicated by concerns around centralized, data-driven management approaches to land and the environment, often pursued in response to international laws and obligations, as well as the speed with which digital technologies can reinscribe new approaches, models and 'opportunities' like REDD+. It is not yet clear how Vanuatu's various island groups perceive these rapid changes to their customary

systems of regulating access to resources, nor how they view the potential consequences of Western-style, data-based resource management on traditional knowledge and practices. In many cases amongst remote villages, villagers likely know very little about the change's government is centrally implementing to manage resources. Nevertheless, in the absence of local custodians granting full consent, serious concerns exist about how digital technologies may be used to profit from, or redefine, traditional practices. Given this, it is incumbent on central government authorities to maintain a meaningful two-way dialogue with traditional and community leaders, and to respect customary systems of governance and associated rights including management of resources that they have been the custodians of for thousands of years which incorporates their localized traditional knowledge of their environment and resources that they remain dependant on for their very survival. Moreover, authorities must be mindful of the need for free and informed prior consent before rolling out centralized, digitally supported governance/management techniques, which in Vanuatu and elsewhere are being ushered into the cultural milieu of traditional societies as the new norm.

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