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Conclusion: The hydrosocial cycle revisited

In its specific ethnographic context much of this study has explicated the ways in which the domain of two intermarried ethno-linguistic groups, the Waima'a and the Makasae, have fashioned critical relationships between inland swidden farmers and coastal wet-rice cultivators. Whereas swidden farmers control the underground water, they themselves have limited access to it. Underpinned by a metaphysics of inclusive sociality and marriage exchange relations, a ritual relationship has emerged to ensure respect for each other's capabilities and shared resource base and to enable the exchange and circulation of fertility and well-being.

Below I explore the way that this exchange between the inland dry farming communities and coastal wet farming communities has traditionally been complemented by rainmaking rituals carried out at a sacred cave on the coastal fringe[1]. This site is intimately connected to the narrative of Joao Lere which we encountered in chapter five (see also dos Santos 1967: 133-135; Correia 1935: 108-110, 132-136) and is likewise embedded in regional socio-cosmic conceptualizations of the hydrosocial cycle. Its rituals and associated practices highlight both social heterogeneity and the ways that this sociality is unified by the circularity of water.

While in this book many of the water infused narratives of place making we have encountered cloud interpretations of where the preeminent political and ritual authority for particular springs emanates from, such opacity aligns with the circuitous nature of the water cycle. In the mountains, we encountered a water cycle which prioritizes the flow of water from the storage tanks of central ranges to the sea, from where it recirculates through the earth feeding the rain clouds (cf. Rodemeier 2009). While shared ancestral names, hydronyms and toponyms across the zone suggest a complicated history of population movements and relationships, as we have seen in chapter four, these human movements were enabled by water movements and aqueous ancestral connections. As such the regional opacity of political and spiritual ecology serves well the purpose of connectedness without overly dwelling on either ritual or political precedence. In

the existential realm, the realm of ultimate origin, there is through ritual a celebrated relationship between people, animals, the spirit world and sacred water sources. In the dynamic metaphysics underpinning socio-ecological relations, what are being celebrated are shared relationships which are circular not hierarchical (cf. Reuter 1996: 271).

Thus to conclude this account of a hydrosocial cycle thoroughly integrated with the notion of 'inclusive sociality' and associated spirit ecologies, I want to focus on an origin narrative linked to the sea and the generations of beings that emerged from it. First, however, I turn to the account in Correia (1935: 108-110, 132-136) of the sacred house at Baha Kai Lale built in honour of Joao Lere and the ongoing connection of the people of Wani Uma to this house and the nearby cave of Kai Hunu. According to Correia (1935) in the early twentieth century the house known as Oca Ba'i (W: 'sacred cave') was the most important ritual house in all of Baucau. The elders of Wani Uma explain that this house is the true custodian of Joao Lere's sacred possessions (referred to as his *bandira*=flag (W)) comprised of his cloth, seven gongs, plates, a bowl, a clam shell spoon and a seashell).[2]

The Kai Hunu cave associated with Joao Lere's house is located near Bundura (see Map 4.1). Sandwiched between the coast and the Caisidu plateau by seven marine terraces it is set amidst an immediate coastline of seven capes (see Figure 5.2). Above the cave of Kai Hunu on the seventh terrace is another cave known as Lie Gere (W: 'writing cave'). This is where Joao Lere wrote his knowledge (*matenek*) on the rock face in languages including Hindi, Arabic, Chinese, Malay and French. He also wrote a book in these various languages.

As we saw in chapter five, one of Joao Lere's most significant powers was his ability to control water. According to these various tellings of his story he could call the sea to rise up, the rain to fall, and the underground waters to flow and emerge in springs. The cave of Kai Hunu itself, accessed via a small opening just inland from the coast, is said to contain seven 'weeping' sources of freshwater in a chamber deep beneath the sea. In the past Kai Hunu was the focal point of a regional rainmaking pilgrimage and ceremony (Correia 1935). While the scope of the

pilgrimage significantly diminished after the upheaval of the Japanese occupation, other parts of the ceremony remained extant until the Indonesian occupation when the sacred house was destroyed[3]. As the house is yet to be rebuilt (see below), this rainmaking pilgrimage and its associated rituals have not been carried out for some time.

In April 2012, when I visited Kai Hunu in the company of the current Wani Uma ritual leader (W: *kii lia*) and other elders, as well as a large number of young men, our party was not 'allowed' access to the depths of the cave. The bats guarding it signaled that 'the door would not open' and the ritual leader aborted the descent. The subsequent discussion among senior elders determined that a ceremonial sacrifice to enter the cave was necessary after all. Yet the interrelationship between the cave, the ancestors and the house was such that this sacrifice could not take place until the rebuilding of the sacred house at Baha Kai Lale. This site for this house is located some distance above the cave in the north western edge of Baucau escarpment. The house's custodians, Wai Luo and Wai Hau, share the responsibility for the Kai Hunu cave with the Wani Uma houses of Watu Naru and Rikainena (as we saw in chapter four these clans are *woi-ba'a* or 'parent' houses for the Caisidu and Wani Uma area).

With the house not yet re-built, in 2012 our visit to the cave was carried out under the auspices of the senior Wani Uma ritual leader and custodian of the cave. Nevertheless it emerged later that there was a degree of suspicion expressed among a minority of community members about our intentions in visiting the remote Kai Hunu area. We heard that one young man later spread rumours that the *malae* (my husband and I) had been searching for gold. The cave itself is said by Wani Uma elders to contain many snakes (which, as we saw in chapter three, are sometimes manifest as gold):

> People who enter the cave must not wear clothes with pockets lest the snakes hide within them. If the cave door opens, the correct descent is to the north eventually reaching a freshwater source beneath the sea (not the other door to the west which leads to the other world beneath the sea (W: *rea selu*) to where you will be lost forever). Inside the cave

> voices and barking dogs can be heard. At the place where water is drawn, you can find pieces of betel chew and lime [whose juice is used to wash hair]. When water is drawn a voice is heard yelling out 'people have come to steal water'.

The process of descent which they described to me was also recounted in a similar fashion by Correia (1935). In his account, this descent is a central part of the rainmaking ritual and once drawn these sacred waters are carried out of the cave for a final ritual at Joao Lere's house in Baha Kai Lale. People from right across the Baucau sub-district (although Wani Uma elders report that pilgrims also came from as far away as Lautem and Viqueque) were said to participate in the pilgrimage which culminated in these rainmaking ceremonies. The pilgrims, who would bring with them offerings of various cereals (Correia 1935: 136), would wait at the house while the ritual leaders entered the cave, and would then also be blessed by the sacred waters of Kai Hunu. While these pilgrimages are presently dormant, the senior custodian of the cave from Wani Uma (and the present day custodian of Joao Lere's sacra) goes periodically to the cave entrance to pray for rain. The elders of Wani Uma are also rebuilding their sacred house complex (which is linked to Wai Luo and Wai Hau). In total there are seven sets of houses in this complex and it is not until the sixth set is built that work can start on the reconstruction of the final house of Joao Lere at Baha Kai Lale.

What this last example of the ritual ecology of water in the Baucau region draws our attention to is the complexity of local understandings of the water cycle. During rainmaking rituals at the Kai Hunu cave a key ancestral name called in prayer is Lu Leki, the controller of the sea and ruler of the ritual centre of Luca. As discussed in chapter five, Joao Lere was the son of a man who appeared from Luca. In death Joao Lere transformed into *talibere*, the great snake. The emergence and transformations of ancestral beings into the *talibere* is also the narrative at the heart of the regional hydrosocial cycle. While in chapter one, we traced the narrative pathway of this cycle beginning with the ancestor, Luka Bui, from Luca to the sea (*meti*), according to Major Ko'o Raku, this and the story of Joao Lere is connected as well to a much longer story. This latter story begins with the emergence of ancestral winds from across the sea[4]. While sometimes

the terminology 'across the sea' is linked explicitly to Larantuka in east Flores, it is also contemporaneous with the 'other world' often glossed simply as the sea. With the emergence of these ancestral winds the world came into being, transforming through six named cycles until emerging as the snake ancestor (*Loi Ofo*) who in this seventh and final cycle continued to transform as a snake, procreating to create human beings. Continuing to transform through time this snake ancestor, in its various names and guises, is known respectfully as *talibere*. Yet the story of Joao Lere (killed by the Portuguese) signaled an end point in the seamless transitions between people and *talibere*. After he was killed, Joao Lere returned to his family in the form of *talibere*, yet upon seeing a snake his wife called out in fear and *talibere* disappeared. Joao Lere's death, cotemporaneous with the expansion of the Portuguese presence across the east, signaled the emerging dominance of the era of light (M: *mu'a usa*, W: *namu rema*). While the power of 'nature' (*natureza* or W: *namu degu, namu rema, ria luli, M. mu'a gamu, mu'a usa, mu'a falun*) or the dark world of ancestral beings (*dai*) remained ever present, it was now only communicable through ritual.

In mid 2014 the 'barren' drylands of Caisidu and beyond were embroiled in simmering tensions over the proposed development of a cement factory. Announced in late 2013 the proposal included plans to mine the local karst for the next 100 years. Brokered by national level politicians and bureaucrats the Australian/Korean joint venture promised hundreds of local jobs and economic development. While the local village heads of Bucoli, Triloca, Tirilolo, Caibada, Bahu, Wailili and Gariuai were said to have given their support for the development, the proposal was only at the exploration stage. Yet even before the social, cultural and environmental assessments of the proposal had been carried out (apparently all to be done by different international consultancy firms), community relations were not proceeding well. The two clans with acknowledged traditional authority over the Caisidu region (Wai Luo and Wai Hau) had not been consulted in the initial consultations (which included a visit of village heads to an Australian mine). The relations of these clans with others in the community who supported the development were rapidly deteriorating. There was high sensitivity and threats of violence.

Others from outside of Caisidu, while welcoming the vision of regional economic development, were also concerned about the risks of the venture. It was said that the ritual leaders from all of the villages needed to be brought together to discuss the matter. Yet while they could '*koalia*' (ask for ancestral permission), there was no guarantee that they could ameliorate the consequences of digging up the karst. Major Ko'o Raku recalled a time in the 1960s when a small area of karst was quarried to build the Baucau airport and sea had began rising up through the soil (after which time the project was abandoned). Others too remarked on how the removal of rock from the coastal areas around Caisidu would result in the sea rising up to swallow all the agricultural land. Meanwhile others from the inland areas, feared that such quarrying would mean the underground waters connected to *talibere* (in this case the eels known as Marui Masara) would simply dry up (cf. Barber & Jackson 2012).

Bodily ontology

In many places in the world relations between so called nature and culture are socialised across space and time and mediated by elders through story and ritual. These vital forces which congeal and shape shift co-produce and participate in an 'aliveness' and such social phenomena manifest simultaneously as various types of permeable being (Lévy Bruhl 1910; Ingold 2011). These landscapes are 'full of danger and serendipity', inscribed 'with the laws of ritual engagement' activated through 'a discourse of power by a hierarchy of Elders' (Langton 2005: 300) This, writes Langton (2005: 300), is 'the mystery at the heart of property relations'. Physical 'beings', 'objects' and 'features' are all in some senses 'bodies' connected through names and storylines linking them together to different times, places and events. In these highly sensitive matters the proper names of sacred beings cannot be spoken, these ancestors, animals, things and places know their names, they hear and they communicate and this is why they have many names and 'circumlocations' (Ingold 2011: 174). These 'beings' are in addition ever sensitive and unpredictable (as they are fallible, getting things wrong and misinterpreting human actions). Constant care and vigilance is required to ensure that they are not advertently or inadvertently

angered or offended (cf. Gelles 2000: 83). In the case of springs, as we have seen, angered water 'bodies' might take the decision simply to relocate.

In a world where everything is particularized, concretized and separate, yet interconnected by a larger cosmic force, carefully tended social relations are necessary to activate, build and maintain generative links between invisible and visible forces (cf. Viveiros de Castro 2012). Everything does or can participate in everything else (Lévy Brul 1910). Yet, as noted above, even non-human beings which are simultaneously singular, plural and collective, are not infallible or all knowing. The inter-subjective relations between humans and these more-than-human others require particular skills, care and attention to multiple times and multiple presences. This is enabled through *lisan* (customary norms and practices) which both is and provides the framework for relationality. In this process 'the imagination is fastened firmly to the body' (Tsintjilonis 2004: 450), which 'more than manifesting life' crucially 'support and facilitate it' (Tsintjilonis 2004: 451). These bodies, as we have seen above, constitute both the 'homogeneity of life' and the 'heterogeneity of its various appearances or manifestations' (Tsintjilonis 2004: 449).

It is in the end the 'invisible internal world of beings' (Tsintjilonis 2004) and their capacity to 'exchange properties' (Latour 2004) and forms which enables life to be appropriately shaped, proportioned and shared (Nancy 2000 cited in Hill 2014). Exploring the renaissance in the post-independence ritual exchange of sacred objects in the kingdom of Babulu in Viqueque, Barnes draws on Mauss to argue that such sacra are in fact:

> inalienable because they are "endowed with a powerful personality… that clings to its owner and holds his soul" (1990: 44). Nevertheless, the contingencies of history are such that some of these things are inevitably drawn into networks of exchange. In fact, it is often in the strategic interests of the giver to do so in order to increase their own authority and esteem (2013: 6).

Barnes concludes by observing that '[u]nderpinning these exchanges lies an inherent tension between the need to control and the need to share (that arguably permeates all exchange relationships) characteristic of a political economy based on agriculture' (Barnes 2013: 6). I would also add that underpinning such exchange relationships is the need for the heterogeneity of 'bodily' ancestral signatures to be continually woven through life's processes (cf. Tsintjilonis 2004). While moral order (Rappaport 1999) and power relations (Bourdieu 1979) are critical aspects of ritual exchange and governance, the circulation of property conceived through the relational personhood of ancestral signatures gives a particular order and mutuality to all such relations.

In this vital materialist politics there is then a critical need for political sensitivity to diverse ontological politics, to their intermingling and their 'cleaving' (Lavau 2013) in particular assemblages. It is not only Western science which is averse to such considerations. Holding firm to a distinction between the human and non-humans as an ethical space of action (Plumwood 2002; cf. Lorimer 2012), newer forms of relational or vitalist theory also often have little to say about post-humanist sociality. For example modern environmental thought which seeks to recognize non-human *presences* in a universal nature (Plumwood 1998), relies for the most part on a continued de-localization of human and non-human relations. This is a conceptualization at odds with the particularized socio-cosmic configurations of 'nature' and property linked to a sense of spatialized self (Langton 2002; Palmer 2004). In the latter's politics of presence there is already a clearly defined ethical and spiritual pathway for communicating with non-human nature. Such pathways are based in localized customary laws, institutions, protocols and decision-making processes.

For the people of Wai Riu on Mundu Perdido, the body of the world (M: *mu'a tane*) is spatialised by the cardinal points of the male sea, the female sea, the head of the land and the feet of the land (M: *meti tufu*, *meti namu*, *mu'a gi-dae*, *mu'a gi-iti*). In this understanding of being, the head is Mount Matebian, the legs Mount Ramelau, the left arm Mount Boile, and the right

arm, Mount Ossuala (see Map 2.1). The heart or navel (M: *mu'a gi-illu*) of this body is Mundo Perdido (Wai Nete Watu Ba'i) distributing blood (water) throughout the body (in Makasae *wai* can mean both river and blood). In ritual ceremonies carried out at the centre, these cardinal points of the body and other significant sites and springs must all be called. Other ritual communities have their own spatialised notions of the land as being. For the kingdom of Luca, the land is the body of a buffalo with its head at Mundo Perdido, its horns reaching to the male and female sea, and its heart at Luca. This ritual heart connects the world (ET: *rai klaran*) with the wealth of underworld (or alternatively 'other world'=ET. *rai seluk*). In the narratives attached to many of Luca's powerful water sources, herds of buffalo emerge from the underground waters[5]. Perpetually connecting those living in the light to the darkness of the other world, water is the pathway to an original unity where the earth, sky and underworld were one (cf. Kehi & Palmer 2012). This is the 'original cosmic situation that eternally centers collective life' (Traube 1986: 243).

In a configuration of space and time based on a (shape shifting) bodily ontology, the spiritual ecology of water in the region is reproduced through the circular and inter-subjective intertwining of place, materiality and ritual practice. Ritual practice that traces the connections between the internal world of bodies and place is always framed in connection to other places. Meanwhile springs and their flows (of blood) are understood in connection to other springs and the sea across multiple time scales. The landscape embodied in this way 'draws together time-space notions into a responsive and sentient collective' (Wilcock *et al* 2013: 585).

While this ontology may seem far from the world conceptualised by natural science there are according to Wilcock *et al* (2013: 595) 'common threads of emergent and contingent perspectives of landscape and connection'. For example in both geomorphology and many indigenous ontologies '[t]alking about particular places—as sites with multiple times—reimagines the landscape and [water] bodies as mutually evolving and emergent entities [and is] an articulation of the contingent and mutually constituted relations occurring in connected sites' (Wilcock *et al* 2013: 582). Similarly in Baucau, Wallace *et al* (2012: 49) write that:

> The fissured aquifer of the Baucau area is composed of multiple generations of limestone that have risen out of the ocean over time. The complex interconnection of cave systems through the multiple limestone layers, combined with topography, result in the heterogeneous distribution of springs. Additionally, all aquifers appear to have prominent seasonal variations of groundwater levels associated with seasonal rainfall and strong groundwater-surface water relationships.[6]

Hence both the indigenous ontology of the Baucau Viqueque region and scientific hydrogeological understandings of it focus on the mutual constitution of landscapes across space-time wherein 'each physical site is spoken about in multiple times' (Wilcock et al 2013: 582). Yet in contrast to the largely technical concerns of the earth sciences, indigenous narratives about springs give greater context to these emergent relationships and weave them through the landscape (Wilcock *et al* 2013:582; cf. Ingold 2011). As Wilcock *et al* write:

> Tacit knowledge passed down through stories and narratives provides a sophisticated methodology that is itself emergent—it breaks down notions of linear time and human/nature binaries …teachings about relationality and thinking about the connectivity of time-space (2013: 594).

As Urich (1989) has argued about karst agricultural landscapes, we must be ever wary of the capacity of science to silo its thinking according to particular variables, despite the ever present possibilities of alternate readings. Moreover, for local peoples these readings may include the notion of a social catchment or social groundwater flow that transcends naturalized boundaries. These intensely socialised flows are directly linked to an individual and community's social, physical and psychological health, insight into which is always read according to the long term cumulative impacts of particular courses of action (cf. Barber & Jackson 2012). This raises important questions about the scale at which resources are governed and about what is

considered admissible (by whom) as governance regimes seek to emulate the ways in which people are connected to particular water territories. As Barber and Jackson write:

> [w]ater shapes and reflects boundaries between people…The separation, mixing and flow of waters reflect social groupings and relationships; people are related in particular ways because of water, and water in turn flows according to the relationships between people (2012: 40).

As with all other landscapes, the karst landscapes of the Baucau Viqueque zone are not passive physical spaces waiting to be inscribed with meaning, but agential and relational landscapes which connect people and place through multiple and context dependent time-space narratives. Transformations of ancestors into other agential forms (be they permanent landscape features or moving forms such as water) 'break down the binaries between living and non living natures of landscapes' (Wilcock *et al* 2013: 587). In this moral economy, water and landscapes have 'their own agency to change people, and themselves change in response to people' (Wilcock *et al*: 592). Across Timor Leste these notions of inclusive sociality and the *lulik* complex are mediated by *lisan* (customary norms and practices) and remain 'the preeminent philosophical, religious, moral and epistemic order guiding relations among the Timorese themselves' (McWillam *et al* 2014; Trinidade 2011). Sensing and appreciating the immanent force embedded in the continuous multiplicity of the regional hydrosocial cycle, the political and ethical challenge remains to pluralistically think through such alternative waterworlds and 'the ends that people seek in 'managing' them' (Gombay 2014: 1).

In a world of co-being and co-becoming, the cosmopolitics of *lulik* is enchanted, lively, intense and dangerous. Mediating the boundaries of the permissible and the forbidden is a high stakes politics which takes great skill and courage. In their negotiations ritual-political leaders are always guided by the heterogeneous *lisan* (customary norms and practices) and ancestral 'bodies' relevant to their particular houses. For those whom *lulik* is an everyday part of life, it is also an inter-subjective and intensely relational fact of life which must be constantly mediated. Yet if we accept that matter is political (Braun & Whatmore 2010) and that nothing exists

outsides it relations with others (Rose 2005, 2011; Ingold 2011; Bawaka Country *et al*. 2013), we can also recognise all human and non-human encounters as characterized by such relational politics. In this sense despite clinging to the (mythic) cosmology and modality of ahistorical global governance technology, even the ostensibly apolitical world of water resource governance is characterized by relational processes of continual 'co-becoming' (Jackson & Palmer 2014; cf. Erstson & Solison 2012). Recognising this across the Baucau Viqueque zone, ritual leaders insist that 'culture' or *lisan* must be a central component of the governance of the new nation. In the words of one *lia na'in*: 'We achieved independence, but we became stupid (*beik*), *lulik* is running wild'. Left untamed, it is unchecked and in such a world of co-being and co-becoming the fear is that it will wreck devastation on all. While customary practices are undergoing something of a renaissance in many areas, as we saw in chapter seven, also pervading these haltingly re-emergent relations and exchanges in the independence era is, in many cases, fear. The fear of local people themselves who are unsure about re-instigating communications with ancestors so long neglected (cf. Rodemeier 2009: 480).

Whatever the constraints, according to Wilcock *et al* (2013; cf. Iovina & Oppermann 2012) there is an urgent need to begin multiple place-based conversations about the overlapping materiality, agency and narrativity of particular landscapes as well as relations of power and dominance. In Timor Leste, the people of Mundo Perdido are already beginning this task. In 2012 they explained to me that scientists from Australia had recently been carrying out geological research on Mundo Perdido and had found fossils of sea fish in the rocky peaks: 'They told us that in the past this area was all sea'. After these scientists had spoken, the elders present confirmed this view: 'They [the elders] also said that there is a close connection between the land and sea, the rain, the wind, the sun, all are connected to each other'. Other scientists told them that Mundo Perdido has unique trees and birds and because of this the Secretariat of State for the Environment encouraged them to carry out a *tara bandu* to ritually regulate resource use and protect the area (see Figure 2.1). The community agreed that it was important to halt indiscriminate (*arbiru*) felling of timber, burning and hunting of animals. The State in contrast prioritized a ban on these activities in their entirety. Clearly while both agreed on the need for the *tara bandu*, in the first instance there is a local prioritization of respectful relations, in the latter

this relation is now illegitimate (cf. Gombay 2014). Hence while the latter seeks to protect what is there by a blanket ban on certain activities, in the former people and 'nature' are instead recalibrating relations. As a former Liurai from the region, Fransisco da Costa Guterres explained:

> *Lisan* (customary norms and practices) and the nation need to walk together. In the future custom needs to be stronger, we need to let our stories about nature flourish and teach them to our future generations. In Portuguese times we learnt other people's stories in school. Now those educated people have returned to the source and seek out the roots of the stories that we ourselves know to be important.

Just as these storied land and water scapes enable communication with the 'other world' of *natureza* (which as we have seen is constituted by the inter-relationships between particular spirit beings), they simultaneously cultivate an awareness of the ebb and flow of vibrant life forces inhabiting multiple times, forms and spaces. Yet as the natural sciences have 'come to think of—and not with—water in more channeled and specialized ways' (Strang 2013:192), this relational ethic has been displaced by one where human culture is 'somehow *separate from* the material world'(Strang 2013: 205). In a world where there is increased competition over resources, human agency is given primacy and time and space are fixed in a search for certainty (Strang 2013: 205). In contrast, in a world underscored by spiritual ecologies of inclusive sociality it is the nuances of subject-subject relations which define the inter-connections between the human and non-human, the living, the dead and the not yet born. The continuing import of these socio-cosmic underpinnings in the everyday practices and memoryscapes of this region's hydrosocial cycle suggests 'that other relationships to time, to the past, to water and to one another may be possible' (McCleod 2013: 57). We need to listen.

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[1] Small springs on the Baucau plateau are highly sensitive to changes in rainfall and show distinct seasonal variations, while there are more permanent (if variable) flows at the larger springs of the marine terrace zone (Wallace *et al* 2012: 58).

[2] At present these objects are being taken care of by another sacred house connected to the Wani Uma house complex.

[3] However, in the 1930s Correia (1935: 51) wrote that 'Indigenous people need transit licenses if they want to go anywhere'. This suggests that these pilgrimages may have been disrupted somewhat earlier than World War II (most probably after the era of the Manufahi rebellions circa 1912).

[4] This narrative was first relayed to me by Major Ko'o Raku interwoven with his more Catholic inflected telling of the earth's origin story involving birds, Christ, the first humans, the python and the *kuda resa* (see chapter two).

[5] Boelens (2013: 10) writes that in the Andes, underworld water is now associated with the bull rather than the snake (the Spanish bull as a symbol of wealth replacing in myth at some point the indigenous symbolism of a winged serpents and monsters (see Arguedas 1956)).

[6] All of which will be impacted by future climate change to rainfall patterns and (at lower topographies) sea level rise. Elsewhere Wallace *et al* note that the future of Timor's hydrogeology 'will be dependent on the interaction between geology and climate, both of which have been shown to be complex and variable (2012: 24).