
Cultural Landscape of Bali Province (Indonesia) No 1194rev

Official name as proposed by the State Party

The Cultural Landscape of Bali Province: the *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy

Location

Province of Bali
Indonesia

Brief description

Five sites of rice terraces and associated water temples on the island of Bali represent the *subak* system, a unique social and religious democratic institution of self-governing associations of farmers who share responsibility for the just and efficient use of irrigation water needed to cultivate terraced paddy rice fields.

The success of the thousand year old *subak* system, based on weirs to divert water from rivers flowing from volcanic lakes through irrigation tunnels onto rice terraces carved out of the flanks of mountains, has created a landscape perceived to be of great beauty and one that is ecologically sustainable.

The supreme *subak* temple Puru Ulun Danu Batur on the rim of a volcanic crater, Lake Batur within the crater, temples and *subaks* along the Tampaksiring valley, a sacred landscape of forests, lakes, temples and *subaks* around Mount Batukaru, and the Royal temple of Pura Taman Ayun are together seen as manifestations of the Balinese philosophical principle *Tri Hita Karana* (three causes of goodness), that promotes a harmonious relationship between the realms of the spirit, the human world and nature.

Category of property

In terms of categories of cultural property set out in Article I of the 1972 World Heritage Convention, this is a serial nomination of five *sites*.

In terms of the *Operational Guidelines for the Implementation of the World Heritage Convention* (2 February 2005) paragraph 47, this is a *cultural landscape*.

1 Basic data

Included in the Tentative List

18 January 2007

International Assistance from the World Heritage Fund for preparing the Nomination

30 June 2001

Date received by the World Heritage Centre

31 January 2007

28 January 2011

Background

This is a deferred nomination (32 COM, Quebec City, 2008).

The World Heritage Committee adopted the following decision (Decision 32 COM 8B.22):

The World Heritage Committee,

1. *Having examined Documents WHC-08/32.COM/8B and WHC-08/32.COM/INF.8B1,*

2. *Defers the examination of the nomination of the Cultural Landscape of Bali Province, Indonesia, to the World Heritage List in order to allow the State Party to:*

a) reconsider the choice of sites to allow a nomination on the cultural landscape of Bali that reflects the extent and scope of the subak system of water management and the profound effect it has had on the cultural landscape and political, social and agricultural systems of land management over at least a millennia;

b) consider re-nominating a site or sites that display the close link between rice terraces, water temples, villages and forest catchment areas and where the traditional subak system is still functioning in its entirety and managed by local communities;

c) put in place a management system that aims to sustain traditional practices and deflect inappropriate development or the impacts of development;

3. *Considers that any revised nomination with revised boundaries, would need to be considered by a mission to the site.*

On 28 January 2011 the State Party submitted a revised nomination.

Consultations

ICOMOS has consulted its International Scientific Committee on Cultural Landscapes and several independent experts.

For the first nomination, ICOMOS also consulted IUCN who provided comments on 13 December 2007.

IUCN also provided comments on the revised nomination on 1st February 2012. The information was carefully considered by ICOMOS in reaching the final decision and recommendation in March 2012, and IUCN has also reviewed the presentation of its comments as included in this report by ICOMOS.

Literature consulted (selection)

Lansing, J. Stephen, *Perfect Order: Recognizing Complexity in Bali*, Princeton University Press, 2006.

Scarborough, Vernon L., Schoenfelder, John W., and Lansing, J. Stephen, "Ancient Water Management & Landscape Transformation at Sebatu, Bali", in *Indo-Pacific Prehistory Association Bulletin* 20, 2000 (Melaka Papers vol 4).

Schoenfelder, John W., *New Dramas for the Theatre State: The shifting roles of ideological power sources in Balinese Politics*, *World Archaeology*, volume 36(3), 2004.

Technical Evaluation Mission

An ICOMOS technical evaluation mission visited the property from 12 to 19 October 2011.

Additional information requested and received from the State Party

On 9 December 2011, ICOMOS wrote to the State Party to request further information on the following: when the Governing Assembly will become fully operational, the responsibilities and resources of the Assembly and the time-frame for the first phase of the Management Plan Action Plan. The response from the State Party dated 27th February 2012 has been incorporated into this report.

Date of ICOMOS approval of this report

14 March 2012

2 The property

Description

Bali has a line of volcanoes running along an east-west axis from one end of the island to the other. The largest Mount Agung is in the east of the island. These dominate the landscape of Bali and have provided it with fertile soil which, combined with a wet tropical climate, make it an ideal place for crop cultivation. Water from the rivers that run all over the island has been channelled into canals to irrigate the land, allowing the cultivation of rice on both flat land and mountain terraces, with a traditional production of two crops each year.

Rice, the water that sustains it, and *subak*, the cooperative social system that controls the water, have together shaped the landscape over the past thousand years and are an integral part of religious life. Rice is seen as the gift of god, and the *subak* system is part of temple culture. Water from springs and canals flows through the temples and out onto the rice paddy fields.

The water temples are the focus of a cooperative management of water resource by a group of *subaks*. Since the 11th century the water temple networks have managed the ecology of rice terraces at the scale of whole watersheds. They provide a unique response to the challenge of supporting a dense population on a rugged volcanic island.

The *subak* system dates back to at least the 9th century AD. In total Bali has about 1,200 of these water collectives, which over many centuries have engineered the landscape of the island's rice terraces. Between 50

and 400 farmers manage the water supply from one source of water.

The water temples are at the centre of a delicately balanced system of cooperation between neighbouring farmers. Due to rigorous social coordination led by temple priests, pest levels are minimized and water sharing optimised in the rice paddies. The need for effective cooperation in water management links thousands of farmers together in hierarchies of productive relationships.

The overall *subak* system exemplifies the Balinese philosophical principle of *Tri Hita Karana* that draws together the realms of the spirit, the human world and nature. Water temple rituals promote a harmonious relationship between people and their environment through the active engagement of people with ritual concepts that emphasise dependence on the life-sustaining forces of the natural world.

The *Tri Hita Karana* philosophy is a reflection of cultural exchange between Bali and India over the past two millennia. In Bali people have been incorporated into the India cosmological dualism of the opposing powers of two immortal worlds of good and evil. The *Tri Hita Karana* philosophy is one of various views of the universe such as *Rwabhineda*, *Tri Samaya*, and *Tri Mandala* – see below.

Responding to the decision 32 COM 8B.22, item 2.a of the World Heritage Committee, each of the five sites chosen for the revised nomination fully includes all interconnected natural, religious, and cultural components that encompass the entire extent of the traditional *subak* system. *Subak* components are the terraced paddy landscape, rice fields connected by a system of canals, tunnels and weirs, villages, and temples of varying size and importance that mark either the source of water or its passage through the temple on its way downhill to irrigate *subak* land.

The sites chosen are those where the *subak* system is still fully functioning, where farmers still grow traditional Balinese rice without the aid of fertilisers or pesticides, and where the landscapes overall are seen to have sacred connotations. In all cases the sites have been selected after extensive consultations with farmers who saw inclusion on the World Heritage list as positive support.

The nominated property covers 19,519.90 hectares and the five buffer zones in total cover 1,454.80 hectares.

The nominated property consists of the following:

- The *Subak* system
- Supreme Water Temple of Pura Ulun Danu Batur
- Lake Batur
- *Subak* Landscape of the Pakerisan Watershed
- *Subak* Landscape of Catur Angga Batukaru
- The Royal Water temple of Pura Taman Ayun

These are considered separately:

The *Subak* system

Subak is a Balinese word that first appears in royal inscriptions in the 11th century. It refers to a religious and social institution of self-governing organisations of farmers who share responsibility for the just and efficient use of water needed to grow paddy rice. Most *subaks* have written legal codes that detail rights and responsibilities in the management of water that is seen as a gift from the Goddess of the Lake(s) Dewi Danu.

The boundary of a *subak* is defined as the limits of a collection of paddy fields that are irrigated by a shared irrigation structure. They vary in size from a few hectares in the uplands to several hundred thousand hectares at lower levels. Ultimately the upper and lower *subak* systems need to work together to ensure that enough of the water from the mountains reaches the lowest fields on the plains.

The landscape is criss-crossed with elaborate networks of weirs spaced a few kilometres apart that divert water from rivers flowing down from volcanic lakes, into irrigation tunnels, many over a kilometre in length that feed canals running round the rice terraces. This system allows the delivery of small quantities of water with remarkable accuracy.

The right of each *subak* to draw water is linked to rituals in the water temples that honour the Goddess of the Lake and other deities. The *subak* landscape thus includes, as well as engineered features, water temples and farmers' shrines that are the focus of an the annual calendar of rituals linked to the rice growing cycle of a complex system of Balinese time reckoning, and of the *Tri Hita Karana* philosophy that attaches meaning to landscape features in a sort of cosmological grid.

Supreme Water Temple of Pura Ulun Danu Batur

This supreme water temple is dramatically located on the rim of the volcanic crater Lake Batur. Because the crater lake is regarded as the ultimate origin of every spring and river, its congregation appropriately includes all *subaks*. The temple is managed by the people of Batur village, supported by contributions from more than 250 *subaks*.

Until 1926 the temple and Batur village were further down the slopes of the volcano. Both were destroyed in an eruption of 1926 and rebuilt higher on the rim of the caldera.

The temple consists of a collection of five courtyards enclosing tall, tiered shrines and pavilions dedicated to a pantheon of some 45 deities, foremost among them the Goddess of the Lake, who is said to make the rivers flow and bring prosperity to the land.

The buffer zone encloses the inhabited land belonging to the village of Batur.

Lake Batur

This crater lake is regarded as the abode of the Goddess of the Lake and as the ultimate source of water for the *subaks*. The deep lake has no overground outlets but feeds the underground water system that augments river flows.

- *Subak* Landscape of the Pakerisan Watershed

This site encompasses the oldest known irrigation system in Bali. It includes the lands and watercourses of three *subaks*, Pulagan and Upper and Lower Kulub, four water temples associated with major archaeological sites, a group of royal temples and monasteries, and three villages.

Tirtha Empul water temple was built in the 10th century. It surrounds one of Bali's most revered springs, the main sources of the Pakerisan River, which is used to irrigate the surrounding rice-fields and has done for more than a thousand years. This was one of the first canals in Bali. One of the earliest royal inscriptions, dated 962 AD, refers to a dam at this site. The temple has three yards, the outer one with a communal ablution area and garden, the inner yard containing a pool where visitors purify their souls and a large square, terraced altar in honour of Dewa Indira, the Hindu deity. All the shrines around the temple are arranged to face Mount Agung. The temple was partly reconstructed between 1970 and 1990.

Pura Mengening water temple is built around a sacred spring above a steeply sloping riverbank on a tributary of the Pakerisan river. The temple is dedicated to the Hindu trinity Shiva, Vishnu and Brahma and to the Buddha. The temple was partly reconstructed in the 1980s.

Pura Pegulingan is both a water temple and a community temple for the village. It was established in the 9th century. It has two yards and some 34 shrines. Originally a place of worship for Buddhist, it then later developed as a place of religion for Hindus. Its octagonal stupa, reconstructed in the late 1980s, has eight sides representing eight wind directions, and consists of three parts, the foot, body and top, representing the worlds of god, men and nature. Here the ancient royal inscription (see above) is kept.

Gunung Kawi Temple rock cut monuments and monasteries dating to the 11th century are set in a deep ravine overlooked by terraced rice-fields and coconut palms. They consist of a group of five temples on both sides of the Pakerisan River cut out of the breccia stone. Some of the structures are niches, others freestanding, cut from blocks. All the structures are associated with water channels carved into the river bank. These royal tombs and monasteries testify to the prosperity of early Balinese kingdoms.

Subak Landscape of Catur Angga Batukaru

The area encompasses the forests of Bali's second highest volcano, Mount Batukaru (2,276 m) as well as Lake Tamblingan in Buleleng Regency, which is considered to be the source of water for the many upland springs that feed Tabanan's "water mountains", or irrigated terraces.

The 11th century Pura Luhur Batukaru temple, in the forests above the rice terraces, sits at the apex of Batukaru's temple system.

This area contains terraces and temples mentioned in a 10th century inscription, making them amongst the oldest in Bali. This region is regarded as the *utama mandala* (highest mandala, or sacred landscape) in western Bali. Its boundaries and sacred topography are defined by five guardian temples, whose shrines, rites and attributes attach symbolic and spiritual meaning to landscape features.

The Batukaru site is a pilot area for the implementation of livelihood and ecosystem conservation initiatives proposed in the management plan.

The Royal Water temple of Pura Taman Ayun

While the Pakerisan and Catur Angga Batukaru sites are at a high elevation and reflect the formation of the *subak* system, this temple reflects the way that, as rice cultivation spread and new kingdoms appeared, more complex relationships were developed between *subaks*, temples and Balinese kings.

Built as a Royal temple in the early 18th century, the Pura Taman Ayun is the largest and most architecturally distinguished regional water temple on Bali, exemplifying the fullest expansion of the *subak* system under the largest Balinese kingdom of the 19th century.

The temple plays a major role in the collection and distribution of holy water from the mountain lakes to a large congregation of *subaks* downstream, part of a ritualised water control system that encompasses entire river systems. So successful is this system that farmers downstream may 'borrow' water from *subaks* far upstream and with the cooperation of thousands of farmers, weirs are managed to allow this flow of water.

Architecturally the temple is influenced by East Java or Majapahit and Chinese styles. The temple is surrounded by a water-filled moat, planted with a type of lotus, within which is a flat area of grass and fruit and flowering trees, giving the impression of a park. In its inner yard are 29 shrines or altars, some with tall multi-tiered roofs. The temple was restored in 1934.

The temple moat supplies water for the small *subak* of Batan Badung (not included in the nominated area).

History and development

Bali has been influenced by successive cultural waves from outside the area. In prehistoric time, its culture was part of the ancient Austronesian culture of Southeast Asian characterized by a simple agricultural tradition. Metal technology arrived around 500 BC from Dongson in the Southeast Asian mainland. A few centuries before the beginning of Christian Era, Hindu culture was introduced to Bali from India and the newly introduced philosophical and cosmological concepts merged with prehistoric Balinese philosophies to produce local philosophies that have persisted to the present day. Among the various Balinese views of the universe, the concepts of *Rwabhineda* (dualism of opposites), *Tri Samaya* (continuity of past, present and future), *Tri Mandala* (tri-partite spatial arrangements) and *Tri Hita Karana* are the most important, with the latter being the most influential.

Around the 9th century the *subak* system was introduced from Bali. This developed for around three centuries under a fairly centralised political system under which elaborate royal stone temples were built. Thereafter, for reasons that are still speculative, political control was decentralised into a plurality of smaller principalities that delegated power still further to *subaks* as they increased in power and influence. Water temples were built quite separately from the royal temples near water sources.

3 Outstanding Universal Value, integrity and authenticity

Comparative analysis

The comparative analysis considers first comparisons with sites located within Indonesia and other parts of the world that might have a similar combination of terraced landscape and communal water management system, linked to temples and a spiritual philosophy, and then considers sites within Bali to justify the choice of sites for the serial nomination.

Within Indonesia, although rice terraces exist in Java, Flores, Sumatra and Sulawesi, their organisation does not involve temples.

Outside Indonesia the site is compared to the Rice Terraces of the Philippine Cordilleras (1995, criteria (iii), (iv) and (v)). There are similarities in terms of the rice terraces being watered by an ancient irrigation system, supported by traditional organisation. However the underpinning rituals and belief system is quite different from Bali. Moreover while the Philippine terraces are a spectacular example of the development of terraced rice fields in a traditional rural society the Balinese terraces exemplify the role of irrigation in the formation of Balinese kingdoms, and their management by complex hierarchies of democratic *subak* assemblies, and include temples that incorporated architectural and ritual symbolism related to the life-giving properties of water.

Mention is made of some similarities with a no longer functioning belief system associated with rice fields near Angkor Wat. In the headwaters of the Russei river are carved reliefs of Hindu Gods over which the water flows and could have been to purify the water reaching the fields.

The conclusion is that within south and south east Asia nothing similar to Bali is known to exist.

Outside these areas, comparisons are made with the inscribed sites of Agave Landscape and Ancient Industrial Facilities of Tequila, Mexico (2006, criteria (ii), (iv), (v) and (vi)) and Chief Roi Mata's Domain, Vanuatu (2008, criteria (iii), (v) and (vi)). In neither case is the complex transformation of the natural environment seen to reflect the involvement of religious institutions nor do the buildings exhibit 'Classical' culture.

ICOMOS notes that what the analysis does not cover are Tentative List sites. Mention could have been made of the Hani Terraces, China. This extensive rice terrace system dates back to the Tang Dynasty and has been documented since the Ming Dynasty. Its management reflects traditional practices and also involves the planting of up to a thousand different types of rice. This manifestation of a traditional response to rice cultivation complements the system in the Philippines and also the *subak* system in Bali. They each reflect persistent and robust approaches to the management of water. What distinguishes the *subak* system of Bali is its integration of religious institutions and its complement of temples that reflect Balinese Classical culture.

Within Bali, comparisons are made with other terraced areas. The justification for the choice of sites is that they demonstrate unbroken traditions of *subak* and temple rites for more than millennia, the landscapes have sacred associations and their traditions are still continuing and the landscapes have not experienced environmental change.

Elsewhere in Bali there are terraced landscapes that have significant historical and cultural interest such as *subaks* associated with the Pura Masceti Pamos water temple, west of Pakerisan, and other sites in the former principdom of Sideman east of Pakerisan. However in both these cases, modern buildings have been built on terraced land and farmers no longer plant traditional varieties of rice without fertilisers and pesticides. Elsewhere in Bali other terraced sites suffer from one or more deficiencies such as environmental degradation or lack of historical or religious significance.

Nevertheless the nomination dossier states that in the future restoration work might allow consideration of an extension of the proposed five sites to include the *subak* landscape of Sideman and perhaps other sites on the basis of more research by the staff of the Governing Assembly. It is also stated that the fourth Crater Lake, Lake Beratan might also be considered.

ICOMOS considers that the comparative analysis justifies consideration of the five selected sites for nomination. It does also consider that in the future, on the basis of more research and conservation work, other sites might also be identified that could be considered as extensions to this present series, if they can demonstrate that they include attributes that contribute significantly to the proposed Outstanding Universal Value

ICOMOS considers that the comparative analysis justifies consideration of this property for the World Heritage List.

Justification of Outstanding Universal Value

The nominated property is considered by the State Party to be of Outstanding Universal Value as a cultural property for the following reasons:

- The *subaks* and water temples of Bali reflect the Balinese philosophical principle *Tri Hita Karana* (three causes of goodness) which promotes a harmonious relationship between the individual, the realms of the spirit, the human world and nature.
- The institution of *subaks*, ancient, democratic, self-governing farmers' associations, and water temples give spiritual meaning to the governance of the rice terraces.
- Over the centuries the physical landscape of Bali has been re-shaped by these philosophical ideas.
- Water temple networks have expanded to manage the ecology of rice terraces at the scale of whole watersheds, transforming the volcanic landscape into faceted terraces whose jewel-like perfection creates general prosperity.
- Water temples for over more than a thousand years have drawn inspiration from several religious traditions including Saivasiddhanta and Samkhyā Hinduism, Vajrayana Buddhism and Austronesian cosmology.
- The temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area, but one that is now under threat.

ICOMOS considers that this justification is appropriate for the selection of five sites that together represent the historic depth of the *subak* landscape, its geographical scope of volcanic craters, forests, mountainous terraces, and lower-lying terraced systems, its active governance by water temples and Royal temples of irrigation across whole watersheds, and significant examples of temple buildings reflecting the Classical architecture of Bali. The sites also exemplify the ecological balance that can be sustained by the *subak* system.

Integrity and authenticity

Integrity

The series of sites fully encompasses the key attributes of the *subak* system and the profound impact that it has

had on the landscape of Bali. The processes that shaped the landscape, in the form of irrigated, terraced agriculture organised by the *subak* system, are still vibrant and resilient. The agricultural areas are all still farmed in a sustainable way by local communities and their water supplies are democratically managed by the water temples.

None of the component parts is under threat but the terraced landscape is highly vulnerable to a range of social and economic changes such as changes in agricultural practices and increasing tourism pressures. The management system will need to provide support to sustain the traditional systems and to provide benefits that will allow farmers to stay on the land.

Furthermore the setting of the various sites is fragile and under pressure from development particularly associated with tourism. The visual setting for the five sites extends beyond the nominated boundaries and in many instances beyond the buffer zones. In a few cases some adverse development has already occurred. ICOMOS considers that it will be essential to protect the wider context of the nominated sites to avoid further loss of visual integrity.

As raised by IUCN, the management of water, and particularly its sources are also a critical element in maintaining the visual quality of the property.

Authenticity

The authenticity of the terraced landscapes, forests, water management structures, temples and shrines in terms of the way they convey Outstanding Universal Value and reflect the *subak* system is clear.

The overall interaction between people and the landscape is however highly vulnerable and, if the sites are still to reflect the harmonious relationship with the spiritual world and the ancient philosophical concept of *Tri Hita Karana*, it will be essential for the management system to offer positive support.

The village buildings have to a degree lost some of their authenticity in terms of materials and construction, although they are still functionally linked to the landscape.

ICOMOS considers that the conditions of integrity and authenticity have been met.

Criteria under which inscription is proposed

The property is nominated on the basis of cultural criteria (ii), (iii), (v) and (vi).

Criterion (ii): exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

This criterion is justified by the State Party on the grounds that the origins of the Balinese philosophical principle *Tri Hita Karana* can be traced to the oldest temples built by Javanese kings on the central volcanoes in the first millennium AD. Whereas their architecture reflects evidence of contact with South Asian religious and architectural traditions, the use of the temples reflects other older traditions of ancestor worship, as the buildings were not dedicated to the worship of Indian Gods or Bodhisattvas but rather the spirits of Javanese kings. From the 9th century onwards temples were associated with sacred springs and the holy water that flowed from it. Water temples associated with *subaks* started to be built from the 9th century onwards, to commemorate the sites where water originates. Thus the Royal temples do reflect an interchange of values over time in terms of a combination of architecture and ritual uses.

ICOMOS considers that the *subak* landscape of Bali is what is being nominated, with its intricate water engineering and complex system of water management, of which the temples and water temples are an important component. What has not been demonstrated is how this overall *subak* system could be said to reflect an interchange of ideas and indeed what is known of the history of the system tends to point towards its development within Bali from at least the 9th century AD, rather than reflecting the impact of cultural exchange from elsewhere.

ICOMOS considers that this criterion has not been justified.

Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;

This criterion is justified by the State Party on the grounds that the cultural tradition that shaped the landscape of Bali, since at least the 12th century, is the ancient philosophical concept of *Tri Hita Karana*. The congregations of the water temples that underpin the water management of the *subak* landscape, aim to sustain an harmonious relationship with nature and spiritual world, through an intricate series of rituals, offerings and artistic performances. Such a system is now only extant in Bali.

ICOMOS concurs with this justification.

ICOMOS considers that this criterion has been justified.

Criterion (v): be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;

This criterion is justified by the State Party on the grounds that Balinese water temple networks represent

an exceptional response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area with seasonal rains which can lead to water shortages. The water temple networks, based on terraces irrigated by an extensive system of canals and weirs under the control of the water temples, traditionally copes with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale. This system also controls pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a wider solution to water allocation emerges from the networks of individual temple, optimising irrigation flows for all.

This thousand-year-old system of democratic and egalitarian farming practices enabled the Balinese to become the most prolific rice growers in the archipelago. The system is now vulnerable to development pressures and to the use of fertilisers and pest control chemicals.

ICOMOS considers that the five nominated landscape areas within Bali shaped by the *subak* system for over at least a millennium is an exceptional testimony to what could be seen as a unique cultural system and one that deserves to be sustained.

ICOMOS considers that this criterion has been justified.

Criterion (vi): be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance;

This criterion is justified by the State Party on the grounds that Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions, including Saivasiddhanta and Samkhyā Hinduism, Vajrayana Buddhism and Austronesian cosmology. The ceremonies associated with the temples and their role in the practical management of water both crystallise the ideas of the *Tri Hita Karana* philosophy that promotes the harmonious relationship between the realms of the spirit, the human world and nature.

ICOMOS considers that this conjunction of ideas can be said to be of outstanding significance and directly manifest in the way the landscape has developed and is managed by local communities within the *subak* system.

ICOMOS considers that this criterion has been justified.

ICOMOS considers that the serial approach is justified and that the selection of sites is appropriate.

ICOMOS considers that the nominated property meets criteria (iii), (v) and (vi) and conditions of authenticity and integrity and that Outstanding Universal Value has been demonstrated.

Description of the attributes

The Outstanding Universal Value of the property is conveyed by the terraced landscape, its water supply system of weirs and tunnels combined with the sources of water supply in the lakes and rivers, the forests that help sustain the water supplies, its temples, water temples, shrines, and villages, together with the traditional processes of the *subak* system related to the philosophical principle *Tri Hita Karana* that deliver sustainable social and ecological responses.

4 Factors affecting the property

Development pressures

The first threat identified in the nomination dossier is the cumulative effect of the over-use of agrochemicals, leading to loss of soil fertility. The text summarises recent research into this issue that highlights the harm caused by chemicals leaching sea coral and the fact that volcanic ash and irrigation water provides adequate supplies of potassium and phosphate for the growing of rice, strengthening the case for traditional practice.

A related threat is the low price of hybrid 'Green Revolution' rice grown with chemical fertilizers. Organically grown native Balinese rice sells for a much higher price, but decades of support for chemical fertilizers have made it hard for farmers to return to organic production of Balinese rice. As long as farmers can only grow cheap hybrid rice, rising land prices and increasing living costs tempt them to sell their land and seek alternative professions. Thus land in the buffer zone or setting of the nominated sites can be vulnerable to development.

To address these pressures, the Management Plan specifies that stricter zoning will be applied to agriculture areas to control development.

Tourism pressures

A second threat identified in the nomination dossier is the uncontrolled expansion of tourism. At popular temple sites along the Pakerisan river, parking is difficult and interpretation at most sites is basic. Most congested is Pura Gunung Kawi whose traffic-congested approach is further encroached upon by rows of souvenir stalls and hawkers who crowd the entrance. Sight lines to the temple are blocked. Not as congested as, and subject to less pressure than Pura Gunung Kawi, is Pura Ulun Danu Batur that is well managed in keeping with traditional practices by its priests and local community. Pura Taman Ayun, although heavily visited by tourists, is ably managed by the Royal House of Mengwi.

Tourism can also leads to the sale and fragmentation of the rice terraces. In *subak* areas close to main roads, some rice terraces outside the nominated area have been sold and now contain buildings or houses for tourist use, seriously damaging the visual integrity of the landscape.

There is considerable pressure in the two nominated large *subak* areas, which are the most beautiful in Bali and attract large number of tourists, for land to be made available for the development of retail shops, hotels or villas.

Environmental pressures

A third threat identified in the nomination dossier is the loss of forest cover and consequent potential water shortage. As raised by IUCN, the protection of water quality, and the maintenance of water flows are especially critical considering growing development pressures, fragmentation of the landscape and pollution from agricultural chemicals.

ICOMOS notes that a threat not mentioned in the dossier is the loss of traditional materials and technique in villages. Modernisation has changed the appearance of villages in the outer, more organised and visually degraded edges of the *subak* landscape. However those located in the *subak* interior retain much of the original and traditional wood architecture, which consists of family houses formed out of a series of single story structures clustered around the family *lumbung* (granary), a steeply thatched roofed structure built on stilts. Traditional building materials, wood and thatch, are now scarce and building craftsmanship is vanishing; what little remains tends to go into building tourist bungalows and resorts rather than being used to rebuild village architecture. Authentic wooden structures, particularly the *lumbung* (granary) are conserved and still in use. The newer houses are mainly built of concrete, but do continue to follow traditional forms and massing, maintaining the same traditional village patterns.

Despite the popularity of traditional architecture for tourists, there is currently no concerted effort by authorities to encourage a return to traditional architecture and building techniques for the *subak* villages. However discussions are now on-going to develop ways of strengthening traditional practice – see below.

In conclusion the nomination dossier states that *'the Government of Indonesia is confident that the various threats to the conservation of these sites (...) can and will be successfully addressed'*. The mechanisms to achieve this are detailed under management below.

Natural disasters

ICOMOS notes that Bali is in an earthquake zone that requires an efficient disaster preparedness program that remains to be addressed thoroughly by the authorities.

Impact of climate change

ICOMOS considers that change that impacted on the amount of rainfall, either considerably more or considerably less, could have a highly negative impact on the viability of the terraced landscape.

ICOMOS considers that the main threats to the property are from changes to the rice growing system away from traditional rice and organic farming, and from tourism pressures upon farmers to sell land for villas and other tourism enterprises.

5 Protection, conservation and management

Boundaries of the nominated property and buffer zone

The boundaries have been developed through careful study and mapping and by extensive consultation workshops with local communities.

Each of the five nominated clusters contains all the attributes that convey Outstanding Universal Value, and their boundaries circumscribe pertinent areas protected by either government legislation or traditional practice or both.

The boundaries are thus satisfactory.

Buffer zones protect all nominated areas. The size of the buffer zones follows the prescribed distance specified by Indonesian law. Despite this concurrence with law, future study is needed to identify the precise relationship between the buffer zones and the landscape through GIS mapping. As raised by IUCN, this is particularly necessary for the watersheds that protect water flow. While effective watershed management is essential to the conservation of the *subaks*, the nomination dossier does not clearly identify the geographical extent of the upper watersheds that feed the *subaks*. The maps provided in the nomination documents make it difficult or impossible to work out the extent of the upper watersheds for each *subak*. Ideally, they should be clearly outlined on maps and included within the buffer zone of the property.

Until more detailed studies are made to tailor the buffer zones to actual site conditions, the preliminary buffer zone delineations are satisfactory. However for all sites there will remain a need to protect not just the immediate setting covered by buffer zones, but aspects of the wider setting that may be visually or functionally linked to the nominated areas.

ICOMOS considers that the boundaries of the nominated property and of its buffer zone are adequate, although further work is needed to adapt the buffer zone boundaries to landscape features.

Ownership

The majority of the nominated area is in customary ownership; the Royal Temple of Pura Taman Ayun is owned by the Royal Palace, while the temples along the Pakerisan River are owned by the Office for Archaeological Heritage in Gianyar.

Protection

Legal Protection

The broad legal framework for the protection of the property was established by Provincial Decree of 2008 for conservation and spatial planning for the proposed sites.

A specific legal framework for the nominated areas has been established by a Memorandum of Understanding between the Government of Bali and Regencies of Bali for the Establishment of the Strategic Area of Bali. This agreement legally codifies conservation and spatial planning for the five sites, including tangible and intangible heritage and agricultural and forest ecosystems within the site boundaries. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes.

Most *subaks* possess written legal codes, called *awig-awig*, which detail the rights and responsibilities of *subak* membership. *Awig-awig*, or traditional customary laws and regulations, including *subak* management and the traditional protection and conservation of cultural properties are covered by regulations of Bali Province Number 5 (2005) Section 19, that clarify zoning for protected sacred sites such as temples, based on local *awig-awig* (customary law).

Rice terraces within the nominated sites are also protected against large-scale tourism development by Tabanan Regency Decree No 9/2005.

The temples and archaeological sites are currently protected under National Law No.5/1992 concerning Items of Cultural Heritage.

A Governing Assembly for the Cultural Heritage of Bali (*Dewan Pengelola Warisan Budaya Bali*) was established by decree of the Governor of Bali in August 2010 (see below).

Traditional Protection

ICOMOS notes that traditional protection is at the heart of this nomination. All of the nominated properties and their component parts are living sites still in heavy and continuous use by the local community. These sites are communally maintained by the *subak* system in the traditional manner.

Temple maintenance is in the hands of the community who traditionally contribute funds and materials, and also volunteer labour for routine conservation measures that are carried out in cooperation with the local government and the Archaeological Office for Bali-NTB-NTT Province who provide the necessary expertise to control quality of conservation and who are fully aware of the maintenance requirements imposed by the damp tropical

environment of the temples and the need to respect the authenticity and integrity of their structures.

Effectiveness of protection measures

ICOMOS notes that a good deal of effort has been put into developing specific legal measure for the nominated sites. The legal protection in place is adequate and this combined with the strong traditional protection of the five sites provides an effective protective framework.

ICOMOS considers that the legal framework in place is adequate.

Conservation

Inventories, recording, research

Maps submitted with the nomination dossier show that documentation undertaken for the nomination provides excellent baseline data. Component parts for each of the nominated sites, especially temples, have been inventoried, described, and boundaries clearly marked. However, ICOMOS considers that additional GIS mapping should be carried out with local communities participating in the mapping exercises to increase the level of detail in the *subak* areas to show water channels, villages, location of different temple types, etc. ICOMOS notes that such a project was indicated by the Bali Provincial Culture Office.

Present state of conservation

The present state of conservation for all the sites is good – although they are for the most part living, working landscapes and their conservation is the outcome of traditional processes. For the temples, conservation is also the responsibility of the communities but with professional guidance.

Effectiveness of conservation measures

The traditional maintenance and conservation are effective when carried out within a supportive framework and with adequate professional advice. The one area where more attention needs to be given is to traditional building practices for village houses. ICOMOS notes that sustaining this traditional conservation is one of the key aims of the Management Plan.

As raised by IUCN, one area where more clarity is needed is on effective conservation measures for the watersheds. These should be put in place and be considered an integral part of the protection of the *subak* water management system and monitored on a regular basis.

The most notable example is Lake Bakur. While the lake itself is included within the boundaries of the nominated area, the watersheds that feed the lake are not. It is not clear from the nomination dossier how the quality, quantity, and flow rates of waters that feed Lake Bakur will be guaranteed.

ICOMOS considers that conservation is satisfactory but attentions need to be given to delineating the watersheds and ensuring their adequate protection.

Management

Management structures and processes, including traditional management processes

The need for new approaches to support the *subak* system has become a major topic in Bali's press; the development of the nomination has contributed to this rising awareness. The nomination dossier states that the key issue is how to adapt the existing framework of *subak* and governmental institutions to enable the *subaks* to flourish now as in the past. Importantly, this question extends beyond the ecological management of the rice paddies to include the preservation of the cultural values of *Tri Hita Karana*, in which the *subaks* play a vital role.

Up till today the local community has sustained the integrity of this landscape area in the nomination but local village leaders as well as staff of the Office for Heritage Conservation consider that the landscape is poised on the brink of irreversible changes, such as those which have occurred in the vicinity of Ubud.

Over the island of Bali as a whole, significant areas of agricultural land have already been lost. However the nominated areas still maintain their authenticity and authorities consider that World Heritage inscription is an incentive to work with farmers, who support inscription, to sustain the *subak* system within these areas.

There is support at the highest political level from the Governor of Bali to sustain a system that is now seen to be so closely linked to the identity of Bali.

The management system for the nominated sites needed to meet the challenges of managing extensive landscapes of rice terraces, monuments, villages, forests and lakes, together covering over 19,500 hectares, and, as requested by Decision 32 COM 8B.22, item 2.c of the World Heritage Committee, to sustain traditional practices and deflect inappropriate development.

In order to take forward the development of a suitable management system and a management plan, two measures were undertaken. First in 2008 the Coordinating Ministry for People's Welfare agreed to create an oversight committee within the Ministry of Culture and Tourism, called the National Focal Point for World Heritage.

The purpose of this committee is to provide integrated cross-sector advice and planning for the management of the nominated cultural landscapes across Indonesia. The head of the committee is the Minister for Culture and Tourism. Its membership consists of representatives from the following ministries and departments: the Ministry of Culture and Tourism, the Ministry of the

Environment, the Ministry of People's Welfare, and the Secretaries General of Forestry, Agriculture and Public Works.

Secondly, in 2008 the Governor of Bali created a new Planning Committee to take forward the nomination. This 27-member committee includes representatives of all relevant government departments at both the Provincial and Regency levels, including Agriculture, Forestry, Culture, History and Archaeology, Public Works, Legal Affairs and Planning. In addition the committee includes four academic experts. This Committee organised exhibitions and many meetings to discuss the way forward.

After lengthy discussions and consultations, the outcome is a Management Plan that has been adopted by the Provincial Government of Bali. This Plan sets out in details a management system that, as requested by the World Heritage Committee, aims to sustain traditional practices and deflect inappropriate development.

The Management Plan uses established management principles of '*adaptive co-management by diverse stakeholders*' and modifies these to suit the Balinese context.

This system of adaptive governance will connect individuals, organisations, agencies, and institutions at multiple organizational levels by means of a democratic Governing Assembly. Regulation of the Government of Bali No. 17, 2010 approved the creation of the Governing Assembly of Bali Cultural Heritage. This Decree sets out the composition of the Governing Assembly that includes representatives from different government departments and empowers *subak* community members to jointly undertake a major role in the management of the nominated sites. The Assembly will be the successor to the Planning Committee.

What this structure means is that the acknowledged threats can be addressed effectively by strengthening the control of the *subaks* over their local environments, and integrating them into regional and national policies and support.

The aim is also to try and encourage neighbouring communities in time to adopt similar programmes to spread the benefits.

To achieve the implementation of this system, further legal, institutional, and administrative structures will be put in place to coordinate the adaptive co-management among stakeholders.

Assessment and monitoring of the cultural, social and ecological components of the property will be carried out by the staff of the Governing Assembly, in collaboration with stakeholders and resource users.

Master plans, including land-use conservation strategies for each of the sites will be developed by the Governing Assembly.

The nominated sites are now designed as Strategic Areas, which may receive unusual levels of support from the Provincial Government. The goal of this support is to strengthen the *subaks* and water temples. Strategic priorities have been identified in the Management Plan and these will be supported by specific activities such as comprehensive support for a return to organic farming. The model for this phase of the project is the on-going successful return to organic farming in the *Somya Pertiwi* projects of the Catur Angga area.

The Governor's office has also opened discussion on proposals to actively strengthen the *subaks* in the nominated areas. These include a land tax subsidy for rice paddy land; support for health care services and for education for participating communities; assistance to communities that rely on and maintain forested areas, particularly for sustainable non-timber forest production; enforcement of restrictions on deep well construction; incentives to *subaks* and local communities to restore and maintain traditional architecture; and development of facilities and interpretation to enhance the experience of visitors to the *subaks* and water temples. These proposals are presently under review by the relevant government agencies, and will be submitted to the Governing Assembly.

In supplementary information provided by the State Party, it was confirmed that the Governing Assembly will provide *subak* assistance in the form of technical assistance and financial aid for the amount \$2,200 per *subak* to support *subak* transition to organic farming. This assistance will be given to 17 *subaks* within the proposed sites for a period of one year.

At a national level in order to provide links between the various Ministries that have an interest in the multi-faceted cultural landscape, and to support an interdisciplinary approach, two inter-Ministerial Committees have been put in place, under the Coordination of the Ministry for People's Welfare. Their membership consists of representatives from the Ministry of Culture and Tourism, the Ministry of the Environment, the Ministry of People's Welfare, and the Secretaries General of Forestry, Agriculture and Public Works.

On February 2012 the State Party provided supplementary information on the Governing Assembly.

The Assembly officially exists and will be given a mandate to facilitate protection and enhancement of the property through a Memorandum of Understanding (MoU) signed by the Ministry of Education and Culture; the Government of Bali Province; and Regency Governments of Bali (Regencies of Buleleng, Tabanan, Bangli, Badung, and Gianyar). This MOU will be followed by a Letter of Cooperation between the three parties that will further describe the shared roles and responsibilities

of the Governing Assembly in the management of the sites.

Regular meetings of the General Assembly are held once a month to clarify the rights and duties and to organize working group schedules. Through these meetings, the Assembly will ensure that financial support is available from government agencies, public sources, and the private sector.

The Assembly has officially appointed a Secretariat and Working Units. To support the work of the Governing Assembly, an office has been established and equipped in the Bali Provincial Cultural Office.

Policy framework: management plans and arrangements, including visitor management and presentation

A detailed Management Plan was submitted with the nomination dossier. Its aim is to effectively manage the five sites in order to promote the goals of sustainable livelihoods and sustainable ecosystems.

The Management Plan sets out the management system and also strategic priorities. These include:

- Preservation of Culture
- Preservation of Ecosystems and Environment
- Visitors and Education
- Farming Development
- Social and Infrastructure Development
- Legal Affairs and Governance

Six working groups reflect these subjects and *subak* representatives will sit on all of them.

The Management Plan will be implemented by the Governing Assembly. It has the appropriate staffing levels, expertise, and training components.

No Visitor Centres exist in the sites. ICOMOS notes that there is a need for more interpretation at each of the sites and for the overall property. There is also a need for interpretation to focus on the overall significance of the *subak* system not just on the temples that are currently the focus of many visitors.

A *Subak* Museum does however exist outside the sites and presents a good introduction to the *subak* system. The museum is centrally located in Tabanan and conveniently on the way from Denpasar or Ubud to the nominated sites. Although there are a number of community-managed tourism projects in the temples and *subaks*, they need to be increased as farmers benefit very little from tourism.

A main aim of the Management Plan is to address this issue and to improve public knowledge and appreciation of this dynamic cultural landscape. The Management Plan also aims to regulate the provision of tourism related structure in the overall landscape to protect the

buffer zone and settings of the nominated sites as well as the sites themselves.

Resources, including staffing levels, expertise and training

Overall operating funding for the Assembly is provided by the Provincial Assembly through the Department of Culture and Tourism.

The Head of the Governing Assembly is the Head of the Department of Culture and Tourism. The Head will appoint a Secretary to manage the three main units: Programme Group, Finance and Human Resources Group and Monitoring and Evaluation Group. Each of these groups has professional staff and part-time representatives from various departments. Clear budgetary and reporting lines are set out in the Management Plan.

The Management Plan acknowledges the '*critical priority*' that needs to be given to developing further knowledge, skills, and expertise to manage the property as a complex and dynamic cultural landscape. A programme of training has been developed with the Stockholm Resilience Centre and funding is currently being sought to implement this programme possibly in collaboration with ICCROM.

In supplementary information provided by the State Party it was indicated that the first phase of the Action Plan will be implemented in 2012. This will cover five strategic priorities:

1. Livelihood protection and enhancement for *subak* institutions and their members;
2. Conservation and promotion of ecosystem services to ensure sustainable use of natural resources;
3. Conservation of material culture;
4. Appropriate tourism development;
5. Infrastructure and facility development.

A detailed Work Plan for 2012 has been provided.

Effectiveness of current management

ICOMOS considers that the overall management system is admirable in providing a framework that links traditional practice with national priorities. As is acknowledged, the *subak* system highly vulnerable and reaching a critical stage beyond which it could be difficult to reverse trends. The Management Plan that has been put in place acknowledges this and is ambitious in trying through social and economic tools to strengthen the traditional systems.

The Management Plan if successful could be used as a model for other similarly complex cultural landscapes.

ICOMOS considers that the management system for the property as set out in the Management Plan is a very satisfactory response to the challenges of a complex

multi-disciplinary cultural landscape and the Management Plan address the key challenges through its strategic aims and action plans.

6 Monitoring

Monitoring is a key aim of the Management Plan related to the overall attributes that convey Outstanding Universal Value. Specific monitoring indicators still need to be developed for the various sites.

ICOMOS considers that monitoring indicators need to be developed in the first phase of the implementation of the Management Plan.

7 Conclusions

In responding to the requests to the World Heritage Committee, the serial nomination now fully encapsulates the significance of the *subak* system of water management and its profound impact on the landscape. Together the five sites cover an extensive landscape area of 19,519.9 ha of rice terraces, woodlands, lakes, villages and temples and are manifestations of the Balinese reverence for water in both practical and sacred contexts.

The landscapes that have been nominated still reflect the traditional *subak* system, their water supplies are still democratically managed by the water temples and overall they still can be seen as a manifestation of the *Tri Hita Karana* philosophy. As is acknowledged in the nomination dossier these *subak* landscapes are now highly vulnerable to pressure from new rice types and the use of chemical fertilisers and to pressures from tourism. They are almost reaching a critical point where change could be irreversible. This means that ways need to be found to provide more support to sustain the traditional systems and to provide benefits that will allow farmers to stay on the land.

These needs are fully recognised in the detailed, innovative and highly aspirational Management Plan. This aims to provide sustainable livelihoods and a sustainable environment. It is based on the idea of participation, linking the *subak* communities into the regional and national planning frameworks. It states that farmers must be involved in all programmes to manage and develop the nominated sites, and acknowledges that the heritage will be better preserved if local communities benefit directly from their heritage. To this end programmes have been developed and financial support envisaged for livelihood enhancement, including health and education, and to limit encroachment of tourism facilities into the landscapes.

Incentives and subsidies to support prosperous rural livelihoods and strong *subak* institutions will be coupled with statutory authority and enforcement of land use

regulations to prohibit inappropriate development within the proposed five nominated sites.

This ambitious Plan, which is a model of how the management of complex cultural landscapes can be approached, will be managed by a special Governing Assembly.

Recommendations with respect to inscription

ICOMOS recommends that the Cultural Landscape of Bali Province: the *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy, Indonesia, be inscribed on the World Heritage List as a cultural landscape on the basis of **criteria (iii), (v) and (vi)**.

Recommended Statement of Outstanding Universal Value

Brief synthesis

A line of volcanoes dominate the landscape of Bali and have provided it with fertile soil which, combined with a wet tropical climate, make it an ideal place for crop cultivation. Water from the rivers has been channelled into canals to irrigate the land, allowing the cultivation of rice on both flat land and mountain terraces.

Rice, the water that sustains it, and *subak*, the cooperative social system that controls the water, have together shaped the landscape over the past thousand years and are an integral part of religious life. Rice is seen as the gift of god, and the *subak* system is part of temple culture. Water from springs and canals flows through the temples and out onto the rice paddy fields. Water temples are the focus of a cooperative management of water resource by a group of *subaks*. Since the 11th century the water temple networks have managed the ecology of rice terraces at the scale of whole watersheds. They provide a unique response to the challenge of supporting a dense population on a rugged volcanic island.

The overall *subak* system exemplifies the Balinese philosophical principle of *Tri Hita Karana* that draws together the realms of the spirit, the human world and nature. Water temple rituals promote a harmonious relationship between people and their environment through the active engagement of people with ritual concepts that emphasise dependence on the life-sustaining forces of the natural world.

In total Bali has about 1,200 water collectives and between 50 and 400 farmers manage the water supply from one source of water. The property consists of five sites that exemplify the interconnected natural, religious, and cultural components of the traditional *subak* system, where the *subak* system is still fully functioning, where farmers still grow traditional Balinese rice without the aid of fertilisers or pesticides, and where the landscapes overall are seen to have sacred connotations.

The sites are the Supreme Water Temple of Pura Ulun Danu Batur on the edge of Lake Batur whose crater lake is regarded as the ultimate origin of every spring and river, the *Subak* Landscape of the Pakerisan Watershed the oldest known irrigation system in Bali, the *Subak* Landscape of Catur Angga Batukaru with terraces mentioned in a 10th century inscription making them amongst the oldest in Bali and prime examples of Classical Balinese temple architecture, and the Royal Water temple of Pura Taman Ayun, the largest and most architecturally distinguished regional water temple, exemplifying the fullest expansion of the *subak* system under the largest Balinese kingdom of the 19th century.

Subak components are the forests that protect the water supply, terraced paddy landscape, rice fields connected by a system of canals, tunnels and weirs, villages, and temples of varying size and importance that mark either the source of water or its passage through the temple on its way downhill to irrigate *subak* land.

Criterion (iii): The cultural tradition that shaped the landscape of Bali, since at least the 12th century, is the ancient philosophical concept of *Tri Hita Karana*. The congregations of water temples, that underpin the water management of the *subak* landscape, aim to sustain an harmonious relationship with natural and spiritual world, through an intricate series of rituals, offerings and artistic performances.

Criterion (v): The five landscapes within Bali are an exceptional testimony to the *subak* system, a democratic and egalitarian system focused on water temples and the control of irrigation that has shaped the landscape over the past thousand years. Since the 11th century the water temple networks have managed the ecology of rice terraces at the scale of whole watersheds. They provide a unique response to the challenge of supporting a dense population on a rugged volcanic island that is only extant in Bali.

Criterion (vi): Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions, including Saivasiddhanta and Samkhyā Hinduism, Vajrayana Buddhism and Austronesian cosmology. The ceremonies associated with the temples and their role in the practical management of water together crystallise the ideas of the *Tri Hita Karana* philosophy that promotes the harmonious relationship between the realms of the spirit, the human world and nature. This conjunction of ideas can be said to be of outstanding significance and directly manifest in the way the landscape has developed and is managed by local communities within the *subak* system.

Integrity

The property fully encompasses the key attributes of the *subak* system and the profound impact that it has had on the landscape of Bali. The processes that shaped the landscape, in the form of irrigated, terraced agriculture

organised by the *subak* system, are still vibrant and resilient. The agricultural areas are all still farmed in a sustainable way by local communities and their water supplies are democratically managed by the water temples.

None of the component parts is under threat but the terraced landscape is highly vulnerable to a range of social and economic changes, such as changes in agricultural practices and increasing tourism pressures. The management system will need to provide support to sustain the traditional systems and to provide benefits that will allow farmers to stay on the land.

Furthermore the setting of the various sites is fragile and under pressure from development particularly associated with tourism. The visual setting for the five sites extends beyond the nominated boundaries and in many instances beyond the buffer zones. In a few cases some adverse development has already occurred. It will be essential to protect the wider context of the nominated sites to avoid further loss of visual integrity. The management of water is also a critical element in maintaining the visual quality of the property.

Authenticity

The authenticity of the terraced landscapes, forests, water management structures, temples and shrines in terms of the way they convey Outstanding Universal Value and reflect the *subak* system is clear.

The overall interaction between people and the landscape is however highly vulnerable and, if the sites are still to reflect the harmonious relationship with the spiritual world and the ancient philosophical concept of *Tri Hita Karana*, it will be essential for the management system to offer positive support.

The village buildings have to a degree lost some of their authenticity in terms of materials and construction, although they are still functionally linked to the landscape.

Management and protection requirements

The broad legal framework for the protection of the property was established by Provincial Decree of 2008 for conservation and spatial planning for the proposed sites. A specific legal framework for the nominated areas has been established by a Memorandum of Understanding between the Government of Bali and Regencies of Bali for the Establishment of the Strategic Area of Bali. This agreement legally codifies conservation and spatial planning for the five sites, including tangible and intangible heritage and agricultural and forest ecosystems within the site boundaries. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes.

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Rice terraces within the nominated sites are also protected against large-scale tourism development by Tabanan Regency Decree No 9/2005.

The temples and archaeological sites are currently protected under National Law No.5/1992 concerning Items of Cultural Heritage.

The component sites are designed as Strategic Areas which may receive unusual levels of support from the Provincial Government.

A Management Plan has been adopted by the Provincial Government of Bali. This Plan puts in place a management system that aims to sustain traditional practices and deflect inappropriate development. The uses established management principles of 'adaptive co-management by diverse stakeholders' and modifies these to suit the Balinese context. It connects individuals, organisations, agencies, and institutions at multiple organizational levels by means of a democratic Governing Assembly.

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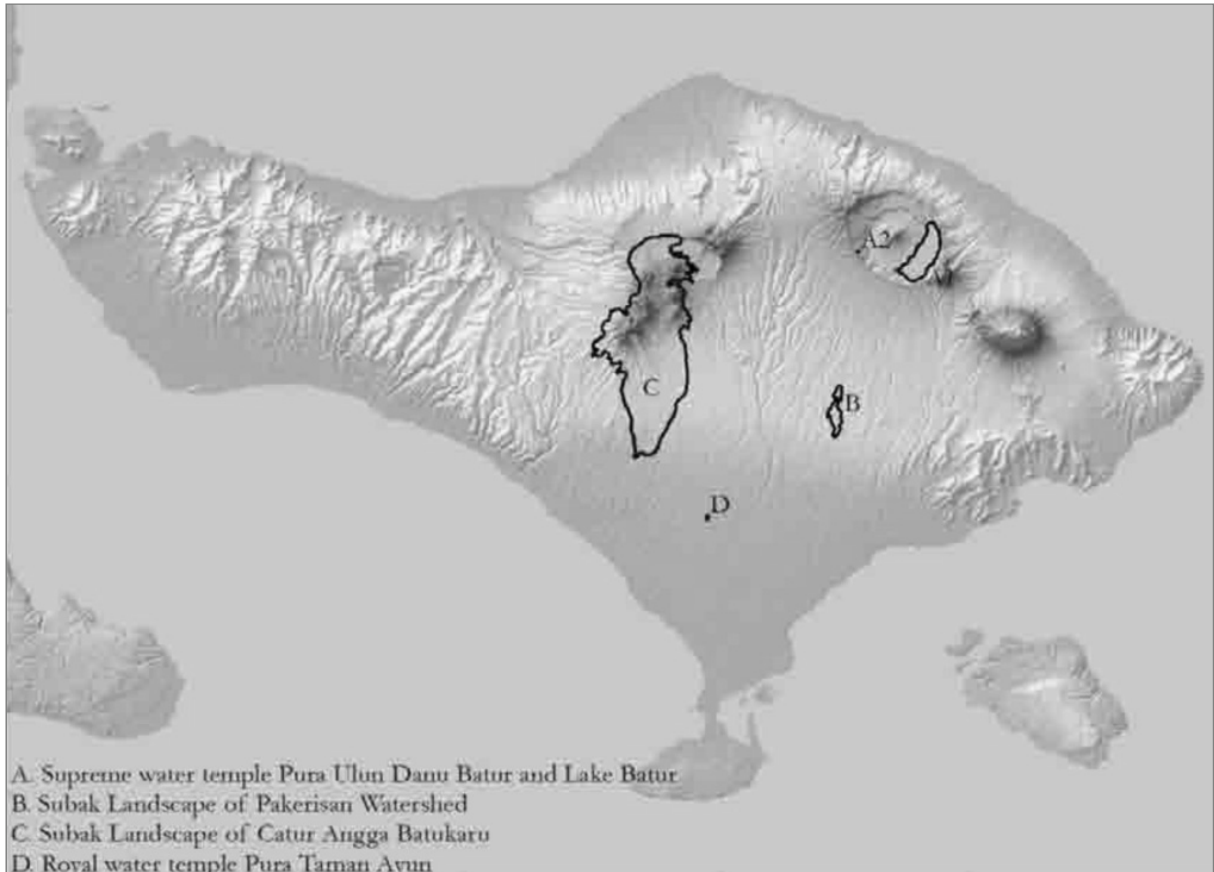
All of the nominated properties and their component parts are living sites still in heavy and continuous use by the local community. These sites are communally maintained by the *subak* system in the traditional manner. Temple maintenance is in the hands of the community who traditionally contribute funds and materials, and also volunteer labour for routine conservation measures that are carried out in cooperation with the local government and the Archaeological Office for Bali-NTB-NTT Province who provide the necessary expertise.

To sustain the living landscape ways will need to be found to provide more support to support the traditional systems and to provide benefits that will allow farmers to stay on the land. The protection of the setting of the

landscapes will also be essential in order to protect the source of water that underpins the *subak* system.

ICOMOS further recommends that the State Party give consideration to the following:

- Adapting the buffer zone boundaries to landscape features, and particularly watersheds, through detailed studies;
- Elaborating a disaster preparedness plan;
- Developing detailed monitoring indicators;
- Creating low-key site specific information to raise awareness of the *subak* system;
- Promoting traditional building practices for village houses.



Map showing the boundaries of the nominated properties



Rice terraces of Subak Wongaya



The main irrigation canal from the spring at Tirtha Empul, branching into flows for Pulagan and Kulub Atas



Supreme Water Temple of Pura Ulun Danu Batur



Water temple of Pura Luhur Batukaru