

Institutional and Regulatory Roles in Maintaining Sustainability of *Subak* as a World Cultural Heritage in Bali

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Abstract

Subak in Bali is a traditional irrigation system and is thought to have existed before the ninth century. Subak adopts the philosophy of Tri Hita Karana, which means three causes of the creation of harmony: the creation of a harmonious relationship with God/Creator; human relationship with the natural surroundings; and human relationship with other humans, and has been recognised as a World Cultural Heritage in 2012. Subak sustainability is dependent on the institutional and regulatory bodies in realizing the creation of harmonious relationship between man and man. The contribution of the board (Prajuru), especially the leaders (Pekaseh) of Subak in maintaining a tradition is held for many years, which is based on the principle of ngayah (working selflessly). The success of maintaining Subak is supported by the internal regulations (awig-awig); additional rules (perarem), and meeting decisions (pasuara). Awig-awig, which was originally just an agreement between the members of Subak, became a tradition called dresta or sima and is based on the belief related to Hinduism. Compliance of the prajuru and krama of Subak in carrying out activities in accordance with awig-awig is an important part in maintaining the Subak.

Subak is a traditional irrigation system in Bali which is thought to have been built and operated before the IX century. *Subak* is socio-religious and agrarian in nature, and is based on the philosophy of *Tri Hita Karana* - the philosophy of the traditional village in Bali. *Tri Hita Karana* philosophy includes three causes of harmony: the creation of a harmonious relationship between human and God (called *Parahyangan*), humans and other humans (called *Pawongan*), and humans and the natural surroundings (called

Palemahan). The beauty of the landscape of *Subak* irrigation in terraces and its implementation philosophy of *Tri Hita Karana* in performing the activities of agriculture and water management for irrigation prompted UNESCO to award *Subak* as a World Heritage Property of the Cultural Landscape of Bali Province in 2012 (Ukirsari, 2012; Yekti *et al.*, 2017). Implementation of *Tri Hita Karana* in *Subak* system includes: *Parahyangan* relating to a series of religious ceremonies in the rice-growing season ranging from

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draining water from the river to irrigation canals to storing grains in storage (the barn); *Pawongan* - the *Subak* organization (called *Sekehe Subak*) and the regulation of the *awig-awig* along with additional rules called *perarem* and *pasuara* (decisions of the meeting), as well as *Palemahan*-procedures for water distribution or water management (Norken *et al.*, 2015; Norken *et al.*, 2016). This paper attempts to give a comprehensive picture of the existence of the organization and regulation of water control system and their role in carrying out the operation and maintenance as well as preserve the tradition that has been practiced from generation to generation and has got a recognition as world cultural heritage.

Methodology

This study was conducted through in-depth interviews to *Pekaseh* (Head) of *Subak* Pulagan at Tampaksiring village in Gianyar Regency and *Pekaseh* of *Subak* Jatiluwih at Jatiluwih village in Tabanan Regency which are parts of *Subak* as World Cultural Heritage; also to *Pekaseh* of *Subak* Pecelengan Pedukuan at Mendoyo Daging Tukad Village in Jembrana Regency. In addition, this study was supported by a literature review relating to institutions and *awig-awig*, and their roles in maintaining *subak* sustainability as a World Cultural Heritage.

Results and discussion

Subak and its development

Although *Subak* is known to have existed for a long time, its definition was formally described in the Regional Regulation (*Perda*) of Bali Province No. 02 / PD/DPRD/1972. It defines *Subak* as "the organization of indigenous people of Bali which has socio-agrarian and religious

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characteristics which had historically been established since long time ago and continues to grow as an organization taking care of lands in the field of water management and others in an area" (Partha, 1972). Furthermore, the Regional Regulation (*Perda*) of Bali, No. 9 of 2012, defines "*Subak* is a traditional organization in the field of water system and/or planting system at the farm level for traditional communities in Bali which is socio-agrarian, religious, and economical in nature which has historically continued to grow and flourish" (Pastika, 2012). Various investigators also give definitions of *Subak* each with different points of view, such as: Geertz (1980) defined *Subak* as rice fields that get water from one source. Grader (1979) described that *Subak* is a collection of fields of the same water source or from the same branch of a duct. Furthermore Sutha (1978) described that *Subak* is a community organization called *Seka* or *Sekehe*. *Subak* is an organized social entity whose members are bound to one another because of their common interest in relation to irrigation for rice fields, has leadership (board) which could act inside and outside the organization and has both material and immaterial assets (Griadhi *et al.*, 1993). Sutawan (2008) defined *Subak* as a socio-religious agricultural and irrigarion institution dealing primarily with water management for the production of annual crops particularly rice based on the *Tri Hita Karana* principle. Thus *Subak* in principle is an irrigation and agricultural system which is traditional, religious, and autonomous in nature set up to regulate

water from its source to irrigate rice fields and manage seasonal crops. But lately, *Subak* organization has been created to regulate all agricultural crops including plantation known as the "*Subak abian*" that manages plantations (Norken *et al.*, 2016).

Regarding the history and development of *Subak*, and its existence, the inscription Sukawana AI, in 882 AD (IX century), which mentioned "*huma*" means rice-field, while in the inscription Bebetin AI the year 986 AD (X Century) mentioned "*undagi pangarung*" means artisan building water tunnels or *aungan* in Balinese, further the inscription *Pandak Badung* in 1071 and *Klungkung* 1072 (XI century), wrote about "*kasuwakan*" or "*kasubakan*" in Balinese means *Subak* organizations, or an irrigation area (Purwita, 1993; Pangdjaja. 1998; Sutawan 2008). It further states that the number of *Subak* grew from 1193 in 1971 to 1331 in 1991 (Purwita, 1993), and to 1601 in 2013 (Astawa, 2013). In contrast, the total area of *Subak* got reduced from 103455 hectares in 1977 to 86911 hectares in 2012 (Sushila, 1987; Astawa, 2013). Rate of decline of rice growing area is a serious challenge to maintain *Subak* in future. In the last decade, land conversion of rice fields into non-rice fields reached to about 1,000 hectares per year and it seems likely to continue (Finlayson and Paramita, 2013).

Organization and organizational structure

Every *Subak* in Bali in general has its name and organizational structure. Although the organization structure is sometimes very simple its quite effective

in regulating the activities carried out by farmers who are members of *Subak* which is called *Krama Subak*, and administrators/boards of *Subak* called *Prajuru Subak* (Sushila 1987; Pitana 1993). A small *Subak* is led by only a chairman called *Kelian Subak* or *Pekaseh* and assisted by a secretary called *Penyarikan* or *Juru Tulis*, while for a large *Subak* the *Prajuru* consists of: *Pekaseh* (chairman/head), *Petajuh* (deputy chairman), *Penyarikan* or *Juru Tulis* (secretary), *Patengen* or *Juru Raksa* (Treasurer), *Kasinoman* or *Juru Arah* (channel of information) and *Saya/Bhaga/Penyade* (special assistant or working groups relating to various types of activities). For a large *Subak* or multiple *Subaks* which have the same water source is called *Subak Gede*, and chaired by the *Pekaseh Gede* and a deputy of *Pekaseh Gede* (Sushila, 1987; Pitana, 1993; Sutawan 2008; Norken *et al.*, 2015). In the 1980s *Subak* organization began to be formed covering a watershed called *Subak Agung* and headed by *Pekaseh Subak Agung*. *Subak* also can be divided again by smaller portions called *tempek* and led by *kelihan tempek*, which is under a *pekaseh* (Pitana, 1993; Sutawan, 2008). Later there has been a development that the *prajuru* of a *Subak* is equipped with a working group called *penyade* or *bhaga* which is responsible for the implementation of *Parahyangan*, *Pawongan*, and *Palemahan* aspects, tailored to the needs of each *Subak* (Norken *et al.*, 2016; Utama, 2016). A *pekaseh* or *prajuru* are generally elected by consensus or acclamation (called *suryak siu*) of the members of the *Subak*. In the past, elections were often held on the

basis of descent, where the son of a *pekaseh* directly replaces the parents in accordance with the traditions that are embraced from generation to generation. The main criteria of a *pekaseh* to be elected by members of *Subak* are: honesty, dedication, and loyalty exhibited by the attitude and behavior while becoming a member, as well as having a selfless devotion. *Prajuru Subak* is often formed for a longer term due to the trust shown by the members for their sincere and selfless performance - often called the principle of *ngayah* (Sutawan, 2008; Norken *et al.*, 2015). Lately, there has been an agreement that the position of a *Subak prajuru* is limited to 5 years and may be re-elected, develops an election procedure by voting, and some change in the criteria, such as the candidate to be a *prajuru*, he must be honest and responsible, and educated enough.

Subak is an autonomous organization and decisions on various issues are taken through mutual agreement among the members of *Subak* with the board (*paruman krama*) as the highest power (Sushila 1996; Sutawan, 2008; Norken *et al.*, 2015). So it is not surprising that every *Subak* has its own traditions (called *dresta*) that may vary in carrying out various activities. As for members of *Subak*, it is generally divided into three groups: a) *krama pengayah* or members having fields and work as a farmer; b) *krama pangoot* or *pengampel* representing the land owners; and c) *karma leluputan* given special tasks, such as *bendesa adat* (traditional village leader) (Sutawan, 2008; Norken *et al.*, 2016). The general organizational structure is given in figure 1.

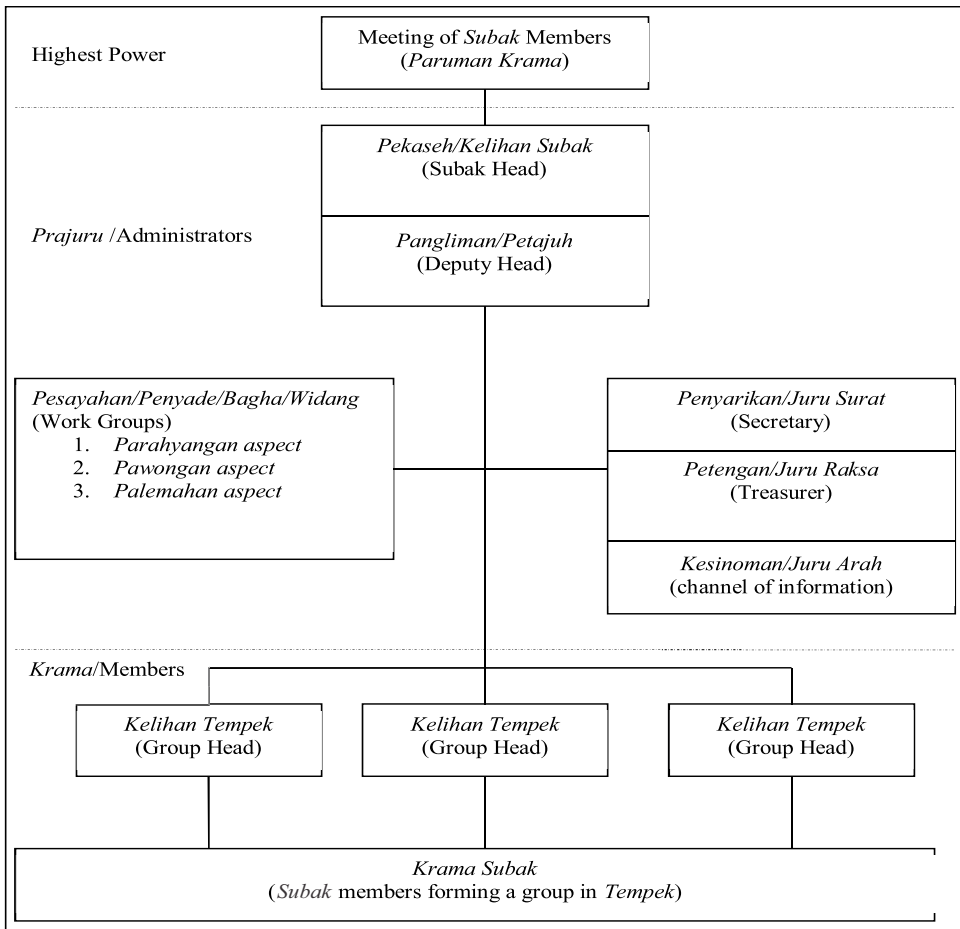


Figure 1. *Subak* structural organization (Sushila, 1996).

The obligation of *Prajuru* and *Krama*

Subak members have their respective duties and obligations in carrying out various activities. *Prajuru* and *krama* of *Subak* have an obligation in accordance with their position, which can be described as follows: *Subak* management (*prajuru*): a) implement, ensure and lead members of *Subak* in implementing regulations (*awig-awig*), agreement (additional rules or *perarem*) as well as the decision of the meeting called *pasuara*, including chairing

a meeting called *paruman* or *sangkepan*; b) guide and watch the ordinances and ceremonies (ritual called *pengaci*) to maintain the sanctity of the *Subak*; and c) represent the *Subak*. While members of *Subak* have the obligations of: a) observe and implement all the rules (*awig-awig*, *perarem* and *pasuara*); b) attend and participate in decision-making in the meeting of members; c) willing to be involved in the management in accordance with the agreement (*perarem* or *pasuara*). In addition, members of *Subak* have the

task to be carried out including: a) maintaining the integrity of the water control system in order to succeed in line with expectations, b) carrying out development and ceremony on *Subak*, and c) carry out other obligations, such as paying taxes, dues/*urunan* (which is also called *sarin tahun*), carry out farming, keeping law and order in the distribution of water and farming, making a report when to sell a rice field. The obligations of management and members of *Subak* are generally governed by legislation (*awig-awig*), any changes or additional are made by decisions in the meeting called *pasuara* (Suanda and Aryana, 1999; Suanda and Derken, 1999; Artiya, 2011a; Artiya, 2011b; Sutama, 2016; Norken *et al.*, 2016).

Rights of *Prajuru* and *Krama*

The management of *Subak* has the right to: a) obtain incentives from the contributions of the members whose amount and portions are in accordance to their position, for example: *pekaseh* 1000 marks (marks given for comparison among personnel of the board in accordance with its position), the deputy/*petajuh* 600 marks, secretaries/clerks 600 points, treasurer/*juru raksa* 600 marks *Kelihan tempek* 400 marks and so on; b) exempt from contributions/dues (*urunan*) and other forms of levies. Incentives earned by *prajuru* *Subak* are derived from *urunan* (called *sarin tahun* in the form of a bundle of rice and now in the form of money based on the ownership area of rice fields, around Rp. 50.000/kecoran, namely unit of water obtained, equivalent to 0.4 ha). The

amount of incentive that becomes the rights of a *prajuru* is the remainder of the sum of all *urunan* subtracted from the cost of implementation of the ritual (*parahyangan*) during the growing season (generally every 6 months), and then divided in accordance with the portions. Although the management of *Subak* gets incentives whose amount is generally very small (around Rp. 300,000- the money at current value every 6 months), but the managements of *Subak* always sincerely implement their obligation without rewards based on *ngayah* principle. While the right of members of *Subak* include: a) getting a share of water equitably, b) elect and be elected as *Subak* management, c) raising opinions and proposals, d) ask permission for not participating in activities or performing activities through deputation or making excuses, e) reporting a violation, f) getting a share of the wealth, and g) receiving good care and treatment (Norken *et al.*, 2016).

In carrying out the obligations and the acquisition of rights, both administrators and members of *Subak* generally implement the principles of togetherness with the motto: *sagilik-saguluk salunglung-sabayantaka* (united and mutual respect or mutual assistance). With these principles intensity of conflict in general is very small, although sometimes there is a conflict but it is soon overcome by the management or by patron..

Patrons of *Subak*

In addition to having autonomous and independent management, *Subak* also has patrons from elements outside the *Subak* management. In the past, the most

respected *Subak* patrons were *Sedahan* and *Sedahan Agung*. *Sedahan / Sedahan Yeh / Pengelurah* is the officer of the District Government called *Kecamatan* that regulates and oversees irrigation water in its territory; while the next higher level of *Sedahan* named *Sedahan Agung* is the officer of Regency Government called *Kabupaten/Kota* that regulates and oversees the law and order of the irrigation system and is an advisor and implementer of the irrigation at the Regency level. Since the introduction of the Regional Autonomous Government at the Regency Level in the 2000s, the authority of the Regency Government plays a vital role in determining the Work Unit of Local Apparatus. This has a huge impact on the existence of *Sedahan* and *Sedahan Agung* gearing towards the obscurity of the existence as government officials patronizing the *Subak*. Lately only the Tabanan regency which is still functioning with *Sedahan* and *Sedahan Agung* (Norken *et al.*, 2007; Norken *et al.*, 2010). In addition, *Subak* is also fostered by the Public Works Department of Regency/City Government and the Sub Department of Irrigation that takes care of the development and maintenance of irrigation structures. As for matters relating to agriculture, it is fostered by the Department of Agriculture, while issues related to customs are supervised by the Department of Culture. Lately various institutions related to *Subak* have appeared like - *sabhantara pekaseh*, forums of *Subak*, assemblies of *Subak* or the like which are basically organizations/associations of *Subak* aim and serve as a consultative and

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coordinating media between *Subak* and *Subak patrons* and the government.

The role of the organization in the preservation of *Subak*

Although the *Subak* system is thousands of years old, it is still practiced today. Despite the rapid urbanization and development of tourism in Bali, the challenge in maintaining *Subak* is very heavy. Various challenges include: land use, lack of land ownership and low farming income, interest of youth in the wetland agricultural sector is very low, high risk of crop failure due to pests, decreasing quantity and quality of water resources, and so on. The principle of *ngayah* (working sincerely without expecting anything in return/profit) as a spirit embraced by the *pekaseh*, has given a strong foundation of devotion to duty-related tasks of *Subak* (Norken *et al.*, 2016).

***Subak* regulation (*Awig-Awig*)**

Awig-awig are regulations governing *Subak* internally and arranges a variety of activities related to organizations, rights and obligations of the board and the members. *Awig-awig* can be expanded and supplemented with additional rules called *perarem* and *pasuara* (decision of the meeting). *Perarem* and *pasuara* are usually done to adapt to the changes that occur to meet the demands of the farmers as

members of *Subak*. *Awig-awig* is the rules governing the implementation of the philosophy *Tri Hita Karana* in the execution of farming activities in the paddy fields. As a rule, *awig-awig* generally consists of a chapter called *Sarga* and Section called *Palet*, and article called *Pawos*. Scope of *awig-awig* include: names and places, the basic principles, membership rules, the rules of the religious aspect, the rules of irrigation, setting fines, etc. *Awig-awig* is usually explained and written in Balinese language and characters, although lately it is written in Latin characters as well and approved by the Government. *Awig-awig* of each *Subak* is generally not equal because it is basically made according to the agreements based on solidarity and fairness to assume the rights and obligations of the principle called: *sagilik-saguluk salunglung sabayantaka* (unity and respect of Indonesian - called *gotong royong*). Not all *awig-awig* of *Subak* made in writing and approved by the authorities, some *Subak* set simple *awig-awig* or even unwritten. In the past *awig-awig* was not written and only set in a custom called *dresta*. However, *awig-awig* is always respected, followed, and adhered to by the members and the board of *Subak* Suanda and Derken, 1996; (Suanda and Aryana, 1999; Artiya, 2011a; Artiya, 2011b; Sutama, 2016; Norken *et al.*, 2016).

The role of regulation in the preservation of *Subak*

Awig-awig which was originally just an agreement with the members of *Subak* through meetings (*paruman* or

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sangkepan), then became a tradition (*dresta*) and a culture that is based on the belief in Hinduism in Bali, and passed on from generation to generation in conducting paddy farming (irrigation). Awareness in maintaining harmonious relationship between man and God (*Parahyangan*) becoming the spirit of *awig-awig* of *Subak*, and has become a driving force for *Subak* to continue various activities even today, despite various limitations of modern time. The challenge faced by *Subak* is the inconsistent regulation of external elements that is supposed to be supporting its existence, such as regulations or statute laws of the central government. For example, the replacement of Bali Provincial Regulation No.02 /PD /DPRD /1972 by the Bali Provincial Regulation No. 9 of 2012 on irrigation has not strengthen the presence of *Subak*. However, at the national level *Subak* receives recognition through the Government Regulation (PP) 20 of 2006 on irrigation, but the regulation is not valid and does not have a replacement along with the repeal of Law No. 7 of 2004 on Water

Resources (Gatra, 2015). In future regulatory support from the government is needed in efforts to preserve the *Subak* that has been recognized as a World Cultural Heritage (Norken *et al.*, 2016).

Conclusion

Subak in principle, is a traditional irrigation system, which is socio-religious and agrarian in nature based on the philosophy of *Tri Hita Karana* and is recognized as a World Cultural Heritage of UNESCO. Every *Subak* from a small to large ones has been adapted to the needs of the organization, headed by a Chairman called *Pekaseh* elected with the principle of deliberation and is very effective in organizing various activities. Sincerity and dedication of the *Pekaseh* evoke sympathy and respect of the members of *Subak* who follow and obey all policies that have been agreed and approved together. Each *Subak* has internal regulations called *awig-awig* written or unwritten, are carried from generation to generation, respected and adhered to sincerely by the board (*prajuru*) and members (*krama*) of *Subak*. The role of the organization and *awig-awig* is very important in maintaining and preserving the existence of *Subak*.

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