

## The Existence of Subak in Responding to the Challenges of Globalization



**Komang Krisna Heryanda**

Faculty of Economic, Universitas Pendidikan Ganesha, Indonesia

---

**ABSTRACT:** This study describes the existence of subak as a traditional agricultural irrigation system in Bali in maintaining its existence in the midst of the rapidly changing issue of globalism. The challenge for Subak in the future is to be able to adapt to changes that occur without leaving the entity as a traditional organization that must maintain the noble values that are inherited. In this paper, we will discuss the challenges of subak both from the external side and from the internal side of the subak itself so that the existence of subak can survive in the future. The method used is a literature review from various sources of research articles. The results of the study show that Subak is experiencing challenges in land conversion, less water availability, environmental damage due to pollution, and the lower interest of the younger generation in farming. Meanwhile, from an institutional perspective, the existence of subak that is not yet a legal entity makes it difficult to prevent the transfer of land functions and resolve existing disputes between farmers. In addition, technological advances have not been fully adopted by subaks due to the limited ability of the subak's human resources.

**KEYWORDS:** Bali, Globalization, Institution, Subak.

---

### 1. INTRODUCTION

Subak is one of the local wisdoms that still exist in several areas in Bali. It is a traditional water distribution organization in rice fields. The subak organization has 4 (four) elements such as agricultural land (rice fields), water sources, subak members and subak temples. So in every subak organization these four elements will always be there and are an absolute requirement for a subak organization [1]. Preserving subak is one way to maintain the preservation of agriculture and the environment in order to achieve food and biological security, especially in the Bali area. This belief is based on the reason that elements within the subak organization such as agricultural land, water distribution subak members, and ritual activities at the subak temple still function properly.

In general, subak is still wanted to play a role in the development process in Bali. Bali development means development that is able to prosper the Balinese people as a whole, maintain the stability of Bali from customary, religious and ethnic conflicts. In addition, some observers of subak, including the government, still believe that keeping subak is a way to save Balinese culture from the influence of tourism globalization. But there are many challenges that must be faced by subak as a traditional institution in Bali. These challenges may be able to destabilize the life joints of the subak or even threaten its existence if efforts cannot be made so that these challenges can be used as opportunities for the subak to strengthen and enhance its role in the future in accordance with the times. [2].

Based on the explanation above, it is necessary to study further the existence of subak in the era of globalization which is full of challenges in order to be able to survive as a pedestal for farmers in Bali in carrying out their agriculture. In this paper, we will discuss the challenges of subak both from the external side and from the internal side of the subak itself so that the existence of subak can survive in the future.

### 2. METHOD

This is a systematic review of the literature, which explains how the research and development methodology is used to combine and evaluate research that is relevant to the core of a particular topic. The purpose of a systematic review of the literature is to examine, identify, evaluate, and interpret all research on an interesting phenomenon with a variety of questions in certain

## The Existence of Subak in Responding to the Challenges of Globalization

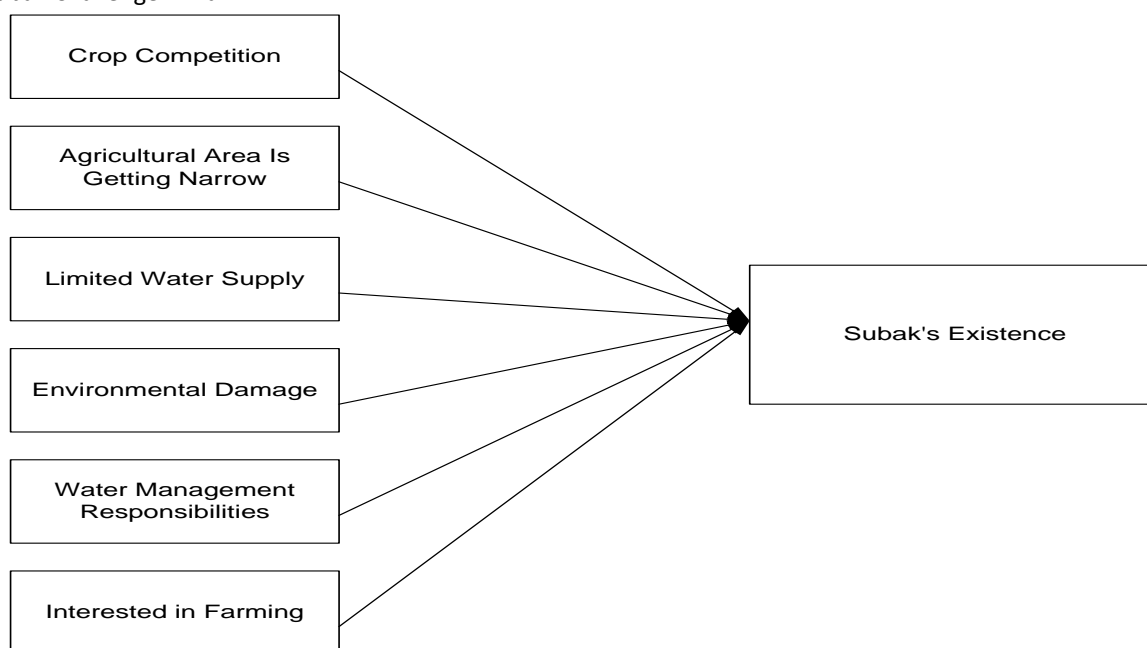
appropriate research [3]. This study employs descriptive analysis, which is a systematic presentation of the data obtained, followed by an explanation and justification for the reader.

### 3. RESULT AND DISCUSSION

The Balinese subak culture is a traditional irrigation management system as a pillar of Balinese culture, starting to face problems. The problem that arises is that nature is starting to degrade which has the potential to weaken the harmonization between humans and their environment in a number of subak [4]. Subak culture specifically related to rituals is only effective at the level of the superstructure. Ritual activities, the belief in the concept of Tri Hita Karana (THK) is still firmly attached to the Balinese people. However, at the implementation level, a number of subaks have begun to be degraded due to land conversion, professional change, a weak economy and the younger generation who are no longer interested in continuing the existence of subaks. [5].

Here are various kinds of challenges faced by Subak, especially in facing the era of globalization which if not resolved, the survival of Subak could be threatened. As an illustration, the concept of the challenges faced by Subak will be presented in the following figure :

Figure 1 Subak Challenge in Bali



The real challenges faced by subaks in Bali today can be divided into 6, namely marketing competition for agricultural products, reduced agricultural area, increasingly limited water supply, environmental damage due to development of other sectors, handing over responsibility from the government to farmers in maintaining water networks, and declining public interest in working in the agricultural sector [6]

#### The Existence of Subak in the Era of Globalization

Judging from the previous presentation, there are various kinds of challenges faced by Subak as an agricultural organization based on local wisdom. Of course this is not easy to solve because it is very complex between one field and another. The real picture of the condition of Subak in Bali is presented as follows.

- a. Competition in Marketing of Agricultural Products is Increasingly Sharp. So far, subak farmers are still acting individually in farming. In fact, they are classified as small farmers with a narrow cultivation area, limited capital and a very weak bargaining position
- b. The Shrinking of Irrigated Rice Fields Due to Functional Transfer. One of the challenges faced by Subak is the shrinking of irrigated paddy fields as a result of the conversion to non-agricultural activities. In Bali in recent years the area of rice fields that have changed functions is estimated to reach 1000 hectares per year [1]
- c. Water Availability Is Increasingly Limited. Increasing people's income and population as well as development in all fields, especially settlements and the tourism industry in Bali, demands the fulfillment of water needs that continue to increase both in terms of quantity and quality. This has an impact on the increasingly scarce availability of ground water for irrigation

## The Existence of Subak in Responding to the Challenges of Globalization

d. Environmental Damage, especially Water Resources Pollution. In several places, there have been complaints from farming communities about environmental pollution, especially water resources in rivers and irrigation canals due to industrial waste and waste from hotels and settlements [7]

e. Handover of Irrigation Network Management Responsibilities to Farmers. Due to the increasingly limited capacity of the government, both in terms of personnel and funding, to carry out operation and maintenance activities (OP) of irrigation networks, the government has adopted a set of policies which basically give responsibility for managing irrigation networks to farmers who are members of P3A/subak. For irrigation networks over 500 hectares, farmers are required to pay the Irrigation Service Fee (IPAIR). Meanwhile, for those under 500 hectares, it is completely handed over to P3A/subak through the Small Irrigation Delivery Program (PIK).

f. Reduced Interest of Youth to Work as Farmers. There is a tendency that farming in the fields is considered no longer able to support improving the welfare of farmers compared to working in the industrial and service sectors, especially those related to tourism. This is due to the narrow area of arable land and the low exchange rate of farmers.

Judging from the fact that subak has still existed until now since its inception, which is almost a thousand years ago, it is necessary to be optimistic that subak will be able to face these challenges. However, it should be underlined that efforts are still needed to empower these traditional irrigation institutions in order to improve their ability to face the various challenges that come their way. But there are still some potentials that Subak has. First, a relatively stable organization such as a clear structure, clear management authority and responsibility, equipped with awig-awig (regulations) with various sanctions. Second, Each subak member has the right to supervise and monitor anyone, including the management, in implementing mutually agreed regulations. Third, high spirit of mutual cooperation in carrying out subak activities, especially in maintaining physical networks and subak ritual activities. The subak ritual is a unifying element for its members so that the subak becomes a strong and resilient organization. Fourth, subak has clear territorial boundaries and is based on hydrological principles not on the basis of administrative units. Fifth, subak has a philosophical foundation of Tri Hita Karana which emphasizes balance and harmony, namely balance and harmony between humans and each other, with their natural environment and with God Almighty. Sixth, subak has a mechanism for handling conflicts that arise between its members and between members of the subak concerned and members of other subaks. Seventh, Awig-awig can be changed and adjusted according to changing conditions based on the agreement of all subak members. Eighth, fundraising as one of the important functions of subak to finance repair and maintenance of irrigation networks as well as for the purposes of performing rituals.

In fact, not only the good potential is owned by Subak. Some of the weaknesses in the subak system include: (a) Most of the subaks in Bali do not have legal entity status; (b) The area of subak farmers is limited and many have the status of being passive. (c) Lack of capital ownership and limited access to credit owned by farmers / subak. (d) Weak bargaining position of farmers because they act individually in the procurement of production facilities and marketing of agricultural products. (e) Limited ability of farmers in the field of non-rice cultivation technology starting from the production process to post-harvest processing. (f) Limited managerial and entrepreneurial skills among farmers. (g) Weak control of farmers over market information, especially those related to quantity needed, price, time, quality, payment system, etc. (h) Lack of knowledge and mastery of technology in the field of conservation of natural resources, especially water resources. (i) There are still several DI (Irrigation Areas) which are a physical amalgamation of irrigation systems but do not yet have a forum for coordination between subaks within the DI environment concerned.

In fact, in some countries there are already irrigation organizations that are able to play a dual role, namely apart from being irrigation managers, they are also able to manage the activities of various economic businesses, such as those found in several irrigation organizations in India and Bangladesh. The economic activities carried out by irrigation organizations in Gujarat India, for example include: procurement of agricultural production facilities; credit; marketing of agricultural products; post-harvest processing; and providing agricultural extension services [8]. In Bangladesh there are irrigation organizations that manage groundwater and also successfully perform business functions that include crediting, marketing agricultural products, procurement of agricultural production facilities and leasing agricultural machinery [9]

Various efforts need to be made to strengthen subak institutions in order to continue to exist in the face of various future challenges. In subak conditions in Bali, several things must be done to perfect the subak institution so that it can become the focus of farmers in improving their welfare [10]. Overcoming the marketing competition of the subak members has not utilized subak institutions as a common container to conduct more agribusiness-oriented business activities. In the face of increasingly sharp competition, farmers should unite through an existing container that is subak in carrying out activities that are more

## The Existence of Subak in Responding to the Challenges of Globalization

agribusiness-oriented instead of just using the subak container only for the purpose of operation and maintenance (OP) irrigation network.

The reduction of rice fields in Bali due to switching functions is quite significant every know. The shrinkage of this rice field area is very rapid, even more so in locations near the city because it is triggered by prices that tend to soar [11]. It seems that farmers who own rice fields in the area around the city tend to be tempted by the offer of high land prices. Because, when compared to trying to work alone for farming the results are really unbalanced. Farmers may prefer to deposit money from the sale of their land in the bank and just receive interest every month which can be much greater than the results of their farm. If the shrinkage of rice fields in Bali continues as it is now feared that subak organizations will be endangered [12]. For that, it is necessary to establish policies that can reduce the acceleration of the transfer of irrigated land functions for example by requiring compensation in lieu of the investment value of irrigation network development for each transfer of functions, strict and indiscriminate enforcement of spatial violations and existing green lines. Even if necessary prohibit the transfer of irrigated land functions for non-agricultural use.

The scarcity of water sources should also get attention by subak. Competition that leads to conflicts of interest in its utilization between various sectors, especially the agricultural and non-agricultural sectors, is likely to increase in the future [7]. The absence of water control rights owned by users is one of the causes of conflicts in water utilization. This is understandable because the water that has been used more for agriculture, now and in the future must be allocated also to the non-agricultural sector. Considering that water is becoming increasingly scarce, farmers are required to be able to manage water more efficiently and so are other water users in order to be able to develop a water-saving culture.

The downward trend in water quality will increase along with the increasing number of industries that emit toxic waste that is channeled through rivers and irrigation canals. In this regard, subak is required to be able to play an active role in efforts to maintain environmental sustainability [13]. The need to encourage and facilitate the establishment of coordination containers between subak for the purpose of preventing or reducing the emergence of conflicts in the utilization of water between subaks in the same bend, coordinating the allocation of water more fairly, setting planting patterns and planting schedules between related subaks, coordinating the payment of Irrigation Service Contributions and receiving irrigation network assets from the government if the concerned will be handed over management responsibilities to the farmers/ subak.

Attracting the younger generation to farm is not easy. Working outside the agricultural sector tends to be more attractive than being a farmer who is all mud-covered and full of risks due to crop failure and price fluctuations [14]. It is understandable that the village youths of peasant families tend to abandon their parents and go to the city trying to find more prestigious jobs. It can also be expected that in the next few years who live in rural areas working as farmers are elderly people who are certainly less productive again. This tendency may have negative implications for the subak's own life. The government must be able to guarantee the price certainty of agricultural comoditas so that the profits obtained by farmers are not much different from the advanced sector [10]. With the certainty of the price of agricultural products, they can estimate more accurately how much profit is obtained from farming. This will make the young man interested in returning to farming as the focus of his life

## 4. CONCLUSION

Conclusions from the previous exposure can be concluded as follows.

1. Subak is faced with various challenges both present and future. These challenges include trade liberalization (including agricultural products), the transfer of irrigated land functions to non-agriculture, the increasingly limited availability of water relative to needs, environmental damage, especially water resource pollution; the transfer of water management responsibilities, and the reduced interest of young people to work as farmers.
2. Faced with such challenges, subak will be able to maintain its existence because subak has potential such as a clear organizational structure, high spirit of gotong-royong, ritual activities that are basically a unifying element of the members, have a philosophical foundation Tri Hita Karana, the existence of conflict management mechanisms, and the existence of a function of extracting funds for the benefit of the organization.
3. Subak also did not escape from weaknesses such as mostly un-incorporated, the area of farmers' work is very narrow and has a status of captivity, limited farmer capital, weak farmer bargaining position, limited mastery of technology, managerial and entrepreneurial ability and market information, and not all have a coordination container between subak

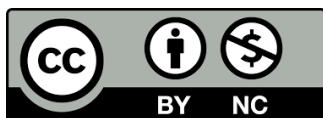
## The Existence of Subak in Responding to the Challenges of Globalization

The advice that can be given from the results of the above exposure is as follows:

1. Efforts that need to be taken to hold relevant programs in order to further strengthen subak institutions, such as the provision of legal entity status, training and education programs and counseling in various fields (administration and management, bookkeeping, operation, operation and maintenance of irrigation networks, environmental preservation, cultivation technology of various types of agriculture, market information services.
2. Involving subak in the decision-making process related to the problem of the problem, establishing policies that can reduce the acceleration of the transfer of rice fields, and facilitate the development of subaks that are able to play a double role as an irrigation institution as well as an economic institution

### REFERENCES

- 1) N. G. A. G. E. Martiningsih, "Pelestarian Subak Dalam Upaya Pemberdayaan Kearifan Lokal Menuju Ketahanan Pangan dan Hayati," *J. Bumi Lestari*, vol. 12, no. 2, pp. 303–312, 2012.
- 2) W. Windia, "Sustainability Of Subak Irrigation System In Bali (Experience of Bali Island)," *Semin. Hist. Irrig. East. Asia*, pp. 1–9, 2010.
- 3) Sugiyono, *Metode Penelitian Kombinasi (Mix Methods)*. Bandung: Bandung ; Alfabeta, 2015.
- 4) N. Jha and J. W. Schoenfelder, "Studies of the Subak: New Directions, New Challenges," *Hum. Ecol.*, vol. 39, no. 1, pp. 3–10, 2011, doi: 10.1007/s10745-011-9383-1.
- 5) W. Widiatmaka, "Subak Sebagai Benteng Konservasi Peradaban Bali," 2019. [Online]. Available: <https://www.researchgate.net/publication/335970157>.
- 6) N. Sutawan, "Eksistensi Subak Di Bali: Mampukah Bertahan Menghadapai Berbagai Tantangan," *Soca (Socio-Economic Agric. Agribusiness)*, vol. 1, no. 2, pp. 1–10, 2001.
- 7) I. Lanya, N. N. Subadiyasa, and G. P. Ratna Adi, "Impact of spatial plan on the conversion of Subak rice fields and food security, in Badung and Gianyar Regencies, Bali Province," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 149, no. 1, 2018, doi: 10.1088/1755-1315/149/1/012003.
- 8) E. Wortmann-Kolundzija, "Empowering Smallholder Farmers through Farmer Organizations: Insights from Kenya and Burkina Faso," *SSRN Electron. J.*, no. December, 2019, doi: 10.2139/ssrn.3498199.
- 9) E. Mallorie, "'Grameen Krishi Foundation: A Multifunction Organisation.'", *Irrigation Managemnt Network*, Network Pa., London: Overseas Development Institute, 1994.
- 10) A. N. S. Yudianrini .N, Susrusa K. Budi, "Dampak Pengembangan Agribisnis pada Subak terhadap Pendapatan Rumah Tangga Petani Impact of Agribusiness Development on Subak to the Farmers Household Income Pendahuluan," *J. Manaj. Agribisnis*, vol. 2, no. 1, pp. 37–48, 2014.
- 11) G. Sedana, "Analisis swot Subak Padangbulia berorientasi agribisnis," *J. Ilm. dwijen Agro*, vol. 1, no. 1, pp. 6–17, 2010.
- 12) G. S. MacRae and I. W. A. Arthawiguna, "Sustainable Agricultural Development in Bali: Is the Subak an Obstacle, an Agent or Subject?," *Hum. Ecol.*, vol. 39, no. 1, pp. 11–20, 2011, doi: 10.1007/s10745-011-9386-y.
- 13) D. Roth, "The Subak in Diaspora: Balinese Farmers and the Subak in South Sulawesi," *Hum. Ecol.*, vol. 39, no. 1, pp. 55–68, 2011, doi: 10.1007/s10745-010-9374-7.
- 14) I. K. Arnawa, I. W. Runa, I. M. Sukerta, P. S. Astuti, and D. L. K. Budi Martini, "Dairy Farmers Empowerment in Subak Anggabaya Penatih Timur Denpasar Bali Indonesia," *Int. J. Contemp. Res. Rev.*, vol. 9, no. 05, pp. 20218–20223, 2018, doi: 10.15520/ijcrr/2018/9/05/510.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.