

# INSTITUTIONAL DESCRIPTION OF THE BALINESE SUBAK

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## ABSTRACT

*Subak* is a traditional organization with unique cohesive and coercive binding power at different level of hierarchy. An ethnomethodological approach was employed in an attempt to understand the Balinese *subak* organization. Regencies of Gianyar and Tabanan were selected as the study area. The objectives of this research are to recognize institutional elements of the *subak* and to describe the socio-institutional related variables within the organization. The expected outcomes of the activity are: 1) institutional characteristics of the Balinese *subak*, including techno-social characteristics and management style, 2) cohesion power and pattern of the *subak* among its members, and 3) logical interpretation of indexical expressions used in relation to *subak's* routine operation. For the purpose of this study, collection and analysis of indexical expressions, conversational analysis and observation, and analysis on nonverbal interaction were employed through the implementation of ethnomethodology. This paper describes *subak's* socio-religious existence, management style and cohesion power highlighting the community's indexical expressions and their relation with farmer's actual acts in the respective agro-socio-ecosystems.

**Keywords:** Social institutions, organization, participatory management, ritual

## ABSTRAK

*Deskripsi kelembagaan subak di Bali*

Subak adalah suatu organisasi tradisional yang memiliki kekuatan kohesif dan koersif yang unik pada tiap hierarki. Suatu pendekatan etnometodologi dilakukan untuk memahami kelembagaan subak di Bali. Kabupaten Gianjar dan Tabanan terpilih sebagai wilayah pusat pendekatan etnometodologi tersebut. Tujuan penelaahan ini adalah untuk memahami elemen-elemen kelembagaan subak serta untuk menjabarkan kaitan berbagai peubah sosial kelembagaan dalam organisasi tersebut. Keluaran yang diharapkan dari kegiatan ini adalah: 1) karakteristik kelembagaan subak di Bali, termasuk karakteristik teknisosial dan gaya pengelolaan atau "management style", 2) pola kekuatan kohesif kelembagaan subak dan antar anggota subak, dan 3) penjabaran logis terhadap ekspresi indeksikal yang dijumpai dalam rutinitas subak. Untuk kepentingan penelaahan ini, pengumpulan dan analisis ekspresi indeksikal, pengamatan dan analisis percakapan, serta analisis interaksi nonverbal diterapkan dalam konteks implementasi pendekatan etnometodologi. Makalah ini mengungkap kehadiran kelembagaan sosial religius subak, pola pengelolaan dan kekuatan kohesif kelembagaan yang mengungkap ekspresi indeksikal serta kaitannya dengan tindakan praktis petani dalam lingkungan agro-ekosistem masing-masing.

**Kata kunci:** Kelembagaan sosial, organisasi, pengelolaan partisipatif, upacara

**A**mong various local institutions related to agricultural practices, the *subak* of the Balinese is known as a principal farmers organization. Various publications and analyses on the organization have been published (Geertz, 1966, 1980; Pangdjaja, 1998, 1999; Sumarta, 1992). Besides its technical cohesion and advantages, the *subak* provides social benefits, although it is not as prominent as the essential economic contribution to the farm family of the respective area. Native Balinese writers such as Bagus (1999); Pangdjaja (1999); Sumarta (1992);

Tonjaya (1994), emphasized their approaches on the *subak's* innate aspects, which Pangdjaja (1999) acknowledged as a socio-agrarian-religious organization. Yet, none of them approached the *subak* from the institutional side and human relation point of view. Virtually none of them described in detail on the institutional management of the organization. This paper tries to reveal the organization's socio-religious existence, management style and cohesion power by applying an ethnomethodology approach highlighting the community's indexical expressions and their relation with the farmer's actual

actions in the respective agro-socio-ecosystems.

## ETHNOMETHODOLOGY APPLICATION

Garfinkel (1967) defined ethnomethodology as an approach to a community's indexical expressions or idioms and other sensible acts as a unity in a social process in an organized and established daily life. Included in the analyses of this approach are: 1) differences between objective and

indexical expressions, 2) reflection on practical acts, and 3) the ability to analyse such acts in a daily context. Ethnomethodology is primarily concerned with studying the commonsense features of everyday life, with emphasis on those things that "everyone knows" (Bailey, 1982). Many ethnomethodology studies involved conversational analysis (Sacks *et al.*, 1974), nonverbal interaction (Garfinkel, 1967), or interaction within a particular organizational system or setting (Turner, 1974). Suradisastra (1997) employed ethnomethodology to develop a model of participatory management of Mount Halimun National Park in West Java through analysis of indexical expressions of the local community. He analysed the society's traditional idioms and phrases to understand their social acts in their daily life and discovered that traditional Sundanese idioms were as valid as they had been and still functioned as the society's control on social behaviour.

General and qualitative information were collected through a fragmented longitudinal observation during the period of 1997–99 in the regencies of Buleleng, Tabanan, Gianyar, Klungkung, and Karangasem. In 2000 an intensive observation was focused on four *subak*'s in two watershed areas of the southern part of Bali Island. The study locations are presented in Table 1.

Information was gathered through participatory observation both within the

*subak* as a micro-level farming organization and among individual farmers as members of the existing society. Sources of information were the community's key persons, such as *pedanda* (Hindu Bali priest), *pekaseh* (*subak* chairperson), *kelian* (*tempek* chairperson) and farmers in a *subak* organization. The number of people interviewed was 35 farmers for each regency. Local field extension workers were also involved in the data collection process. Roles and objectives of *mantra* as the central focus of the society's indexical expressions were analysed and interpreted through participatory fashion using the ethnomethodological approach on "shared meaning" (Garfinkel, 1967). Direct conversation was directed to farming practices in broad term within the *subak* context, while farming-related behaviours comprise farmer's daily acts in applying offering to the Hindu gods and deities (Table 2). Inductive statistics (Bailey, 1978) was employed to interpret the results of the analyses.

### TECHNO-SOCIAL MANIFESTATION OF *SUBAK*

Physically, *subak* is a farmer's organization covering a watershed ecosystem. Technically, a *subak* plays important roles in water distribution and farming practice in a particular water-

shed. A *subak* in a major watershed is called *subak gede* (greater *subak*). *Subak gede* may consist of only one *subak* if the area is relatively small. It may also consist of several smaller *subak*'s. In general, a major *subak* of a main river may comprise *subak timpag*, *subak meliling*, and *subak buluh*. *Subak timpag* covers the agricultural land in the upstream area of the respective watershed. *Subak meliling* is usually located at the center part of the main river, while *subak buluh* is normally located in the downstream region of the major river. The observed *subak* of *Yeh Petanu* (*subak*'s Lanyahan and Teges) in the Regency of Gianyar are categorized into *subak buluh* due to their location to the main river. On the other hand, *subak*'s Buruan and Kediri of *Yeh We* in the Regency of Tabanan are classified as *subak meliling*.

Traditionally, the cropping pattern of the upstream *subak*'s (*subak timpag* and *subak meliling*) is determined by water availability. The normal cropping pattern in these areas is rice-rice-*palawija*. *Palawija* is a term for non-rice crops (e.g. corn, eggplant, chili, vegetables, etc.) planted after the rice harvest. The ecosystem conditions and water availability in the area of *subak buluh* provide better possibilities for farmers to grow three crops of rice each year, but due to ecological change and other technical consideration, the cropping pattern in this particular area has changed to two crops of rice and *palawija*.

The traditional Bali planting season recognizes three main seasons (*dewasa*) which are called according to the crop: 1) *kerta masa* or *saseh kepitu*, the period to plant rapid growing rice (*tebak cicih*) during the rainy season, starting in the month of October, 2) *gegadon*, *kerta gadon* or *tebak taun*, the beginning of dry season during the month of February, and 3) *pabianan*, the peak of the dry season during the month of June when farmers grow *palawija* (*palawija* in Balinese is *abian* although *abian* also means dry land). There are also months in the Balinese calendar that allow farmers to grow rice out of the regular season. Such special months are called *sasih kepitu ngunye kesange* or the seventh month that possesses rainfall features similar to those of the ninth month in the Balinese calendar. These particular months allow farmers to grow rice without

**Table 1. Study locations of Balinese *subak* performance, 2000.**

Watershed	Regency	Sub-district	Village	<i>Subak</i>
Yeh Petanu	Gianyar	Tegal Alang	Tegal Alang	Lanyahan
		Ubud	Peliatan	Teges
Yeh We	Tabanan	Penebel	Buruan	Buruan
		Kediri	Kediri	Kediri

**Table 2. Types of variables used to understand Balinese *subak* performance, 2000.**

Variable	Manifestation	Level of measurement	Level of information	Technique of collection
Indexical expression	<i>Mantra</i>	Qualitative	Primary Secondary	In-depth interview and observation
Topical conversation	Direct conversation	Qualitative	Primary	Participatory observation
Nonverbal behavior	Farming-related behavior	Qualitative	Primary Secondary	Participatory observation

distressing the regular water distribution system within a *subak*. From the technical point of view, farmers only adjust the usual cropping pattern from rice-rice-*palawija* to rice-rice-rice. In Balinese terms such an act is to change *pabianan* (*palawija*) into *tebak* (rice).

*Subak* in Bali is not merely a water user group or a techno-social organization. It is also an institution that sets and develops its own rules (*awig-awig* and *sima*) and goals. In Balinese tradition, a farmer community in a particular location usually sees itself as an element of the surrounding ecosystem. Ecological conditions, weather and season, technology, skill and religion and the existing local norms and rules are considered as an entity, which interactively plays a decisive role in agricultural practice and farming behavior. The implementation of such an entity is exemplified through the existing communal management of natural resources. In contrast to other communities, which often emphasize physical and production-oriented tasks, each segment of the planting season for the Balinese Hindu is always connected to religious and social rites.

As a social institution, *subak* provides great possibilities to its members to maintain social contact. Such a social contact is defined as social interplay and is manifested in various communal activities in the form of task-oriented groups, which Bagus (1999) identified as *seka* or *seke*. *Seka* is a group of farmers that provides agricultural-related services or performs communal social activities. The existence of a particular *seka* is determined by the *subak*'s needs in a particular time of the season. A *seka* provides both social and technical services to its community. *Seka numbeg* provides labor for land preparation while *seka tandur*, *seka mejukut*, and *seka merana* perform rice transplanting, weeding, and pest control, respectively. At the end of a planting season, a *seka manyi* (group of harvesters) and *seka gebros* (rice selector group) offer their particular service. In relation with water distribution, a *subak* may also possess *seka jelinjangan* (water user group) and *seka sambang* (water watcher group). Agricultural modernization and machinery have influenced the *seka* to evolve and form a quite modernized task group such as the *seka* hand tractor, which basically is *seka numbeg* equipped with

agriculture machinery. While rendering their technical services, members of a *seka* perform social interplay as well.

The existence of *seke* among the four observed *subak*'s demonstrates slight variation. Apart from its ecological location, a *subak*'s socio-economic location seems to determine its service-oriented group within the organization. *Subak*'s Lanyahan and Teges, which are located near administration and tourist attraction centers, show their more urbanized attitude toward farming. Both *subak*'s show strong economic orientation that has change their traditional way of farming. Virtually all segments of activities have been calculated on an economic basis. Major tasks in rice farming, from land preparation to harvest, which are more individual than communal, have been changed from mutual self-help to a contractual system. Laborers are usually Javanese migrants. On the other hand, the *subak*'s communal needs such as water watch, water user, and pest control are assisted by the services provided by internal groups (*seke sambang*, *seke jelinjangan*, and *seke merana*).

In contrast to semi-urbanized *subak*'s, the other two *subak*'s still possess internal traditional groups that serve particular farming necessities. With the exception of land preparation and harvest, which farmers usually contracted to external labors, *subak*'s Buruan and Kediri are still operating internal *sekes* to perform major tasks in rice farming in the area. This phenomenon can be explained by the *subak*'s economic and cultural situation. Villages Buruan and Kediri are relatively separated from the urban life and, therefore, are less contaminated by urban life.

## MANAGEMENT OF SUBAK

Participatory management is typical in a *subak* organization. Sumarta (1992) named such management as aspiratory management: management that puts emphasis on the member's aspirations. Direct contact and two-way communication have been the *subak*'s unique characteristics for a society living a Balinese feudalistic life. These characteristics can almost be physically seen in a typical *subak* meeting called *sangkepan*, which is regularly conducted

in an every 35-day period in the Balinese calendar. The *sangkepan* is carried out regularly in a communal *bale banjar* or meeting place, located in a strategic spot of the respective ecosystem. In three out of four observed *subak*'s, the frequency of *sangkepan* has been reduced to two meetings in a year due to the routine nature of the existing farming practice. Such a *sangkepan* may contain factors that attract farmers to attend. Topics of discussion in a *sangkepan* play important roles in pulling farmers to attend the meeting and to be actively involved in the discussion. For example, a *subak*'s written rules and plan (*awig-awig*) may contain subjects that attract farmers to attend. The personality and warmth of the *subak* chairperson can also provide similar appeal as well as the social atmosphere of the event. The most attractive subject of discussion is the organization's plan to carry out the *ayahan* (*subak*'s activities) during the season, which contains rather detailed communal activities. The absence of a *subak* member from the *ayahan* or a routine *sangkepan* is usually compensated by a particular levy. Such a sanction is determined in the *sima* (the *subak*'s rules of sanction).

The approach also revealed the binding factor of a *subak* as written in the organization's *awig-awig* or written rules and the group's work plan. An *awig-awig* usually contains rules concerning: 1) obligations of a member to grow crops in the designated and agreed time, 2) division of labor and duties, 3) membership rules, election procedures of *subak*'s chairperson and the assistants, 4) rules of water distribution to ensure fair and productive results, 5) water control and penalties, 6) social and communal activities, 7) agreement upon rituals based on Balinese Hindu beliefs, and 8) other matters related to farming practices and social interaction in the area.

As a grass root organization, *subak* possesses high cohesion at the micro level. Such cohesion gradually turn into coercion at the higher level. This unique feature was developed due to the government's intervention in order to positively exploit the cohesion power of the *subak* to increase local government income from land-and-residence tax collection. A *subak* consists of hierarchies based on size and location of the watershed ecosystem as explained by Bagus (1999); Pangdjaja (1999); Sumarta (1992):

- 1) *Sedahan Agung*: the highest *subak* institution, located at the office of regional income at the *kabupaten* (regency) level. A *Sedahan Agung* is a government official position with regular government salary.
- 2) *Sedahan Yeh*: similar to *Sedahan Agung*, but located at a lower hierarchy of a watershed of a *yeh* (river) in a regency.
- 3) *Subak Gede*: *subak* organization at a watershed ecosystem, socially organized, led by a *sedahan* or *pekaseh gede*, located administratively at the *kecamatan* (sub-district) level.
- 4) *Subak*: water user organization at a part of a watershed area, headed by a *pekaseh* and socially organized.
- 5) *Tempek*: the lowest hierarchy of water user organization at a planting area or farmer's group, led by a *kelian*. A *tempek* is usually an area with natural boundaries such as creek, high up trees, large stones, etc.
- 6) *Kerama*: individual member of a *subak*.

*Sedahan Agung* and *Sedahan Yeh* do not possess authoritative power or regulating power of the organization; they only function as the coordinating body of the autonomous *subak* at the lower level. Swellengrebel (1960) In Sudarta *et al.* (1989) indicated that the position of *Sedahan Agung* was formed around year 1925 by the Dutch Colonial Government to group and organize the existing rice fields in a particular area. Suteja *et al.* (1989) supported their position by emphasizing that direct government intervention to the *subak* organization began in the year 1925. By so doing, the colonial government was able to determine both land classification and amount of tax to collect. The Indonesian government continues this policy for the same purpose.

The *Sedahan Agung* and *Sedahan Yeh* are coercively created and both positions are appointed, whereas from the *subak gede* to the lowest *subak* hierarchies, all positions are elected. All decisions and the decision making process start at the lowest hierarchy of the *subak*, namely the *tempek* at the *sawah* sub-system. *Kerama* of the *tempek* are involved in the construction of their *awig-awig* or written rules and norms related to farming practices in their respective ecosystem. Such *awig-*

*awig* plays crucial roles as a binding element of the individual farmer of the *tempek*.

In terms of bodily organization, a *subak* consists of administrative elements such as *pekaseh* (chairperson) and several *kasinoman* or *juru-arrah* (assistant to the chairperson). Each *juru-arrah* coordinates 5–6 *kelian tempeks*, which, in turn, coordinate several member farmers. In a larger organization, a *pekaseh* may get assistance and help from the *panyarikan* (secretary), and *panengen* or *juru-raksa* (treasurer). To enforce fair water distribution, each *tempek* performs *matelik* or “water watch”. In a critical situation the *matelik* may well be escalated into a *magebagan*. In such an affair, a *kelian* is technically responsible to carry out the curfew while the *pekaseh* is more responsible to organize such an activity in a broader context.

All observed *subak*'s show a similar organizational model and possess similar boards. This phenomenon is typical due to the fact that all *subak*'s in the Island of Bali have undergone official training on *subak* organization, which produced a rather uniform organization. Types of activities, division of responsibility, and communication pattern of the observed *subak*'s are similar as explained below.

The communication pattern of greater *subak* follows a Y-pattern. The *Sedahan Agung* or *Sedahan Yeh* transfers information to the *sedahan*. In turn, the *sedahan* passes on the message to the *pekaseh* who further conveys the information to the *kelian*. The *kelian*, then, transmits the necessary information to the *kerama* at his respective *tempek*. The communication pattern of the organization reflects its feudalistic and top-down features in which the lower class of the society more often receive information than provide input and they are obliged to put such an information into action. Discussing or arguing about suggested information will waste time due to the fact that such an argument will take a long time to reach the highest hierarchy of the *subak* organization.

On the contrary, the communication pattern at a lowest level of *subak* organization follows a multi-directional form. In such a form, the *kerama* communicate freely with each other as well as with the leader in regular *subak* activities (the *ayahan*) and during regular meetings or *sangkepan*. The ethno-

methodological approach revealed that information that was transmitted within a *subak* community was often never verbalized. Participatory observation revealed that the *kerama* of a respective *subak* accepted and implemented agriculture-related information on their fields when they considered such information would be good use to them. As an example, during the observation period the *kerama* of *Subak Lanyahan* in the Regency of Gianyar increased the use of animal manure to improve their soil nutrients without significant argument when the information was transmitted to them.

## INDEXICAL EXPRESSIONS

The *subak*'s socio-religious aspect is more prominently seen from its rhyme, the religious phrase aimed at social acts and relationships. The rhyme appeal in the Balinese Hindu prayer has been associated with agricultural tasks and farming practices at the micro level. Central to the Balinese rice farmer is *Bhatari Sri*, who is also called *Maha Dewi Sri*, the rice goddess who protects and exalts rice from seeding to harvest and post-harvest treatments. There are also several gods and deities who either protect plants or raze them, such as *Wisnu* (the guardian of life), *Ishwara* (the benefactor) and *Brahma* (the destructive force). To acquire protection and to avoid destruction, farmers perform rituals and provide typical offerings to each deity and read prayers called *mantra* or *sesonteng*. Thus, the *mantra* in a ritual is the heart of indexical phrase for the Balinese Hindu. The *mantra* is devoted to particular deities or gods who together or individually take care of rice as the source of living for the Balinese Hindu. The ritual varies for different stages of growth and for various purposes. There are also *mantras* to ask blessing and protection. Rites, subjects and objectives of each ritual in accordance with field activities are presented in Table 3.

With respect to rice farming practices, socio-religious rituals tie a *subak* as a farm community. The rituals are performed in a temple or *pura* and carried out at different hierarchies of *pura*. The ritual begins at *pura bedugul* (the *subak*'s temple) and *pura ulun suwi*, followed by individual rites at the farm

**Table 3. Rituals related to field activities of subak.**

Activity	Ritual	Devotion of <i>mantra</i> and objective of ritual
Water distribution	<i>Mapag toya</i>	Deities of water and river
Land preparation	<i>Ngendag, ngendag mamacul</i>	<i>Bhatari Sri</i> (rice goddess), permission to start working
Seeding	<i>Mawinih muang ngurit pari, ngurip memulih</i>	<i>Bhatari Sri</i> (permission to seed)
Transplanting	<i>Pidartan nandur pari, nandur, mamula, matur piuning Mabuwihin</i>	<i>Bhatari Sri</i> (permission to plant)
Weeding	<i>Kekambuhan Wusan mejukut</i>	<i>Bhatari Sri</i> (blessing to clean the soil), <i>Brahma</i> and <i>Wisnu</i> (permission to plant) and <i>Iswara</i> (blessing to grow)
Maintenance	<i>Pengatapan pari, mepinunas Makukungan pari, biyukukung, ngusaba</i>	<i>Bhatari Sri</i> (blessing to weed) <i>Bhatari Sri</i> (keeping the weeds away) <i>Bhatari Sri</i> and deities of pests and water
Harvest preparation	<i>Caru, ngadegang Dewa Nini, nyaopin</i>	<i>Bhatara Surya</i> at Mount Agung and <i>Bedugul</i> (blessing and protection) Deity Bhuta Kala Dengen (for safety during harvest)
Harvest	<i>Nyangket pari</i>	<i>Maha Dewi Sri</i> (blessing for good harvest)
Transporting	<i>Pamendakan, mantenin, mot emping</i>	<i>Bhatari Nini</i> (rice mother), blessing and permission to take rice from the field
Storing (temporary)	<i>Ngungghang pari</i>	<i>Bhatari Sri</i> (protection to the newly harvested rice)
Pre-drying	<i>Nedunang pari</i>	<i>Bhatari Sri</i> (blessing to process rice)

Sources: Pangdjaja (1998, 1999); Tonjaya (1994).

level, carried out at the individual farmer's temple (*pura ulun carik* or *sanggha catu*). *Pura bedugul* is usually located at the *bale banjar* (the *subak's* communal meeting place) or nearby the *subak's* main water inlet, while *pura ulun suwi* or *pura ulun empelan* is located near the dam at the planting area that shares water from the same water source. The ritual at *pura bedugul* is performed by the *pekaseh*, whereas farmers carry out rituals at the farm level. There is also a higher hierarchy of temples, namely *pura ulun danu* where farmers perform annual rituals. These temples are located in the four great lakes in the Island of Bali: Lake Batur, Lake Beratan, Lake Buyan, and Lake Tamblingan. Each priest (*pedanda*) of these temples leads a ritual at the respective *pura ulun danu*. Yet, these great temples are not the only ultimate places to conduct rituals for there is flexibility of such a norm to carry out rituals at closer places due to particular conditions of the organization. Instead of conducting rituals at these particular temples, members of *subak Lanyahan* and *subak Teges* at Kabupaten Gianyar perform ritual of *mepinunas* at *pura* Batur and Pesakenan due to con-siderations of distance and cost.

There are also cases where a *subak* organization consists of different religious members. In such cases, each *subak* member receives the same services and levies whereas each religious group, according to the requirements of its faith, fulfills religious obligations. However, in *subak Lanyahan* a non-Hindu *kerama* is still expected to provide half a share for the Balinese ritual.

The modernization of agriculture has brought chemicals and non-organic materials as an important part of agricultural inputs, although traditional Balinese farmers did not apply chemicals or pesticides to eradicate diseases of their crops. To them, prayers, appeals, or *mantras* play paramount roles in the process of crop pest and disease prevention. *Mantras* are also employed to get rid of oxisfire pests and diseases. Each *mantra* has specific words, idiom, subject, objective, and target. But nowadays, besides applying such pesticides and chemicals to eradicate pests and diseases, farmers continue to perform religious rites to get rid of pests and diseases. In such an act, a *sesajen* (offering) usually follows a particular *mantra*. Both *mantra* and *sesajen* are unique to each pest. *Mantra* and *sesajen*

to get rid of *bojog* (monkey) are different from those to discourage rats. Furthermore, offering that accompanies a given *mantra* also has a specific objective. But in general the objective of providing the offerings is to distract the pest from attacking the crops. Table 4 presents variations of *mantras* and *sesajens* as well as their targets and objectives.

The influence of religious belief and social norms in a *subak* plays a significant role in relation to pest eradication. According to the Balinese belief, the deities and gods will guard their rice field as long as they devote the right *mantra* or *sesonteng* to the right deities. When they use physical materials, such as *sesajen*, it is intended more as bait to distract the pest from the rice plants than as a mixture of materials to eradicate them. To prevent rats from attacking the growing rice, farmers are endowed with at least 3 *mantras* and 10 *sesajens*. Similar approaches are also available for other pests. The norma pest eradication group (*seka merana*), which usually becomes active during an outbreak, is a smaller unit of farmers that perform pest eradication by applying local materials and performing local customs. It is a remarkable group that possesses

**Table 4. Indexical expression and logic of action related to pest prevention.**

Target	Mantra and offering	Example of action/offering	Logic of action
Rats	Three <i>mantras</i> , 10 offerings	Brown rice mixed with shrimp paste on 21 <i>sukun</i> ( <i>Artocarpus communis</i> ) leaves  Animal offal  Cooked rice (plain)  Cooked rice with cooked beans, coconut sugar, and traditional wine	Distraction of pest from growing rice to either strong smelling bait, or more palatable bait The bait is put on relatively wide leaves ( <i>sukun</i> leaves) to prevent it from spreading away. The number of leaves permits farmers to cover the relatively small rice field with the bait Distraction of rats to stronger smell and more palatable bait Distraction to more palatable bait Distraction of rats to stronger smell (traditional wine) and more palatable bait (the mixture of rice, beans and coconut sugar)
Birds	–	<i>Petakut</i> (scarecrow) with offering of fruits	To scare the birds away
Ravens	One <i>mantra</i> , one offering	One bowl of cooked rice	Diversion to the more palatable bait
<i>Bojog</i> (monkey)	One <i>mantra</i> , one offering	Cooked rice, boiled egg and fragrant white powder	Distraction of pest from growing rice to the more palatable and stronger smelling bait
Rice pest ( <i>Walang sangit</i> )	One <i>mantra</i> , three offerings	Coconut oil meal mixed with brown sugar, broadcast to the field	Distraction to the more palatable bait

Sources: Pangdjaja (1998, 1999); Tonjaya (1994).

typical participatory management combining the power of coercion and cohesion in a self-mobilization group. The cohesion is shown by the group's plan that attracts its members to act communally to attain their common goal, namely pest eradication. Such a communal act is strongly related to the farmer's awareness of the importance of technical decision to pest eradication, which no individual farmer can do by himself. However, they are free to select the strategy and technique of pest eradication. On the other hand, the *mantra* and offering that relate to a particular pest eradication possess slight coercive power such as specific target and plea which farmer cannot select freely.

## CONCLUSIONS AND POLICY IMPLEMENTATIONS

It is rather difficult to draw conclusion from a qualitative approach of ethnomethodology, particularly since the approach emphasized the finding of hard evidence which further be interpreted in logical terms. Such factual data bestow better opportunity to generate development policy in agricultural sector.

Among the Hindu Balinese, farming is considered as part of their socio-religious life or *vice versa*. Therefore, farmers' farming behavior is controlled by norms and rules of their community. A traditional *subak* organization employs cohesive and coercive force in harmonious balance, which the *kerama* follows voluntarily. The *mantra* as the society's common indexical expression is assumed to possess particular coercive power, whereas *sesajen* as the actualization of indexical expression shows similar power at the micro level.

The implementation of the hard finding could be directed to the strategy of program development of regional agriculture. The typicality of an indigenous organization indicates that any agricultural development policy ought to consider local institutional potential as a promoting power to stimulate the development of a cohesive organization.

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## Appendix 1. Glossary.

1. *Abian*: *palawija*, other-than-rice crops grown after rice harvest.
2. *Awig-awig*: written and verbal rules and norms set by *subak* members.
3. *Ayahan*: a *subak*'s regular activities.
4. *Banjar*, *bale banjar*: meeting place of a *subak*.
5. *Bojog*: monkey.
6. *Dewasa*: traditional Bali planting seasons.
7. *Gegadon*, *kerta gadon*, *tebak taun*: the beginning of dry season during the month of February.
8. *Kasinoman*, *juru-arrah*: assistant to the *pekaseh* (*subak*'s chairperson).
9. *Kekambuhan*: ritual performed prior to weeding.
10. *Kelian*: *tempek* chairperson.
11. *Kerama*: individual member of *asubak*. *Kerama* consists of *kerama pengayah* (active members, usually involved in mutual help, rituals and other social events), *kerama leluputan* (special members freed from any obligation due to their special position in the community such as priest, village official, etc.), and *kerama pengampel* (passive member, inactive due to particular condition).
12. *Kerta masa*, *saseh kepitu*: the season to plant rapidly growing rice (*tebak cicih*) during the rainy season, starting in the month of October.
13. *Mabuwihin*: ritual prior to rice transplanting.
14. *Magebagan*: escalation of *matelik*.
15. *Mamacul*: working with hoe.
16. *Mamula*, *tandur*: rice transplanting.
17. *Mantenin*, *pamendakan*, *mot emping*: ritual related to transporting rice from the field to the family barn.
18. *Mantra*, *sesonteng*: prayer in Hindu-Bali religion.
19. *Mapag toya*: ritual related to the beginning of land preparation, conducted near the water source (dam or the main creek). *Mapag toya* is performed at the *tempek* level.
20. *Matelik*: water watch to enforce fair water distribution.
21. *Mawinith*: seeding.
22. *Mejukut*: weeding.
23. *Mepinunas*, *pengatapan pari*: ritual performed after the crop reaches *tutug kambuhan* (the age of 42 days).
24. *Nedunang pari*: taking the newly harvested rice from temporary storage.
25. *Ngendag mamacul*: ritual prior to land preparation.
26. *Ngunggahang pari*: storing rice prior to drying or processing.
27. *Ngusaba*, *biyukukung*: ritual prior to harvest, performed at the *tempek* level.
28. *Nyaeb*: ritual to prevent crop loss from pests and diseases, performed at the *tempek* level.
29. *Nyangket*, *nyangket pari*: ritual performed to start harvesting.
30. *Nyaopin*, *caru*, *ngadegang dewa nini*: ritual prior to harvest preparation.
31. *Pabianan*: the peak of dry season during the month of June when farmers grow *abian* (*palawija*).
32. *Palawija*: term for non-rice crops (e.g. corn, eggplant, chili, vegetables, etc.) planted after rice harvest.
33. *Panengen*, *juru-raksa*: treasurer of a *subak*.
34. *Panyarikan*: secretary of a *subak*.
35. *Pari*: rice (seeds).
36. *Pedanda*: Hindu-Bali priest.
37. *Pekaseh*: *subak*'s elected chairperson. *Pekaseh* is a social position.
38. *Petakut*: scarecrow.
39. *Pura*: Hindu-Bali temple.
40. *Pura bedugul*: small temple located at the *subak*'s main water inlet.
41. *Pura ulun carik*, *pura sanggah catu*: individual farmer's temple located in the planting area of individual *sawah*.
42. *Pura ulun danu*: greater temples related to *subak*, believed to provide blessing to farmers. The temples are located at the four main lakes in Bali: Lake Batur, Beratan, Buyan, and Lake Tamblingan.
43. *Pura ulun suwi*, *pura ulun empelan*: small temple located near the dam at the planting area.
44. *Sangkepan*: regular meeting of a *subak*, held once a month in Balinese calendar (35 days).
45. *Sasih kepitu ngunye kesange*: the seventh month that possesses rainfall characteristics similar to that of the ninth month in the Balinese calendar. During these particular months, farmers are able to plant rice without disturbing the regular water distribution system within a *subak*.
46. *Sawah*: wet rice field.
47. *Sedahan Agung*: higher *subak* organization, located at the office of regional income at the regency (*kabupaten*) level. A *Sedahan Agung* is a government official with regular government salary.
48. *Sedahan Yeh*: similar to *Sedahan Agung*, but located at a lower hierarchy of a watershed in a regency.
49. *Seka gebros*: standardization group, separating rice from unfilled seed.
50. *Seka jelinjangan*: water user group.
51. *Seka manyi*: harvesting group.
52. *Seka mejukut*: weeding group.
53. *Seka merana*: pest control group.
54. *Seka numbeg*: land preparation group.
55. *Seka sambang*: water watcher group.
56. *Seka tandur*, *seka memulih*: planting group.
57. *Seka*, *sekaa*, *seke*: group of *subak* members that provide particular agricultural-related services or perform communal social activity.
58. *Sesajen*: offering to the gods, deities or divine beings in Hindu-Bali belief.
59. *Subak buluh*: *subak* organization located in the downstream of the respective river.
60. *Subak Gede*: *subak* organization at a main watershed ecosystem, socially organized, led by a *sedahan*  $\alpha$  *pekaseh gede*, located administratively at a *kecamatan* (subdistrict) level.
61. *Subak meliling*: *subak* organization located at the center part of the main river.
62. *Subak timpag*: *subak* organization upstream of the respective watershed area.
63. *Subak*: water user organization at a part of a watershed area, headed by a *pekaseh*.
64. *Tandur*: transplanting young crop.
65. *Tebak*: rice (plant).
66. *Tempek*: the lowest hierarchy of water user organization at a planting area or farmer's group, led by a *kelian*. *Tempek* has a variety of names such as *banjaran* or *lanyahan* (in the Regency of Buleleng), *munduk* (in the Regency of Badung) and *arahan* (in the Regency of Jembrana). A *tempek* is usually an area with natural boundaries such as creek, high trees, large stones, etc.
67. *Toya*: water.
68. *Yeh*: river.