

THE SUBAK ASSOCIATION*

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"The complexes of rice fields obtaining water from . . . one conduit or from . . . one branch of a conduit are called in Balinese *subak* [lit. "joining waters"], and the owners of the rice fields making up such a complex constitute a subak association, or *sekaha subak*."¹ Their primary concern is irrigation of wet-rice lands. They usually derive their water from one source but Professor C. J. Grader mentions in his study "The Irrigation System in the Region of Jembrana" that the subak Kaliakah is irrigated from two rivers and the decision to join was based on the uneconomic smallness of either section alone.² Large-scale construction and maintenance frequently requires a large membership and substantial financial resources. Still, many subaks choose not to lose their identity for a more effective operating size. Instead, very frequently, as shown by the subak questionnaire, two or more small subaks' members will select a common leader. (See Tables 1 and 2.)

Table 2 illustrates the rapid decrease in the use of the "shared leader" system as the subaks increase in area. Written differently, of all the subaks possessing fewer than 100 hectares, 18 percent share their leader (*klian subak*), while of the subaks over 100 hectares, only 5 percent find it necessary to share their leader. The larger subaks which show shared leadership are invariably linked with tiny subaks with contiguous borders who have felt the need for association with a larger subak in order to maintain their waterworks and service.

The size of the subaks is dependent on a number of variables. First, and most important in determining a subak's size, is its access to water. With unlimited water available, subaks could be as large as their memberships desired. Low farmer mobility, however, has prevented the growth of sprawling subaks and thus concentrated contiguous areas have been developed separately and incorporated into local unions. Nowadays, unlimited supplies of water throughout the year are exceptional and subaks must internally and externally alternate in their use of surface run-off. Topography has its role in size delimitation as well. Ravines tend to divide subaks and in the mountains the

* The basic information for this study came from a questionnaire distributed to most of the subaks in Bali by the writer in 1971. In almost all cases the data collected should represent the situation as it was in late 1971. The tables in the study show that the information so obtained did not always represent the total number of respondents. There were frequent omissions and errors which could not be properly assessed and included in the tables. In general, though, the data appear to be accurate for those tables listed.

1. C. J. Grader, "The Irrigation System in the Region of Jembrana," Bali: Studies in Life, Thought, and Ritual (The Hague: van Hoeve, 1960), p. 269.
2. Ibid.

Table 1
Number of Subak Leaders Shared by Two or More
Subaks by Administrative Districts

Districts of Bali	Total Subaks	Respondents to Questionnaire	Number of Subaks Sharing Leaders in Responding Subaks
Badung	143	81	14
Buleleng	277	58	10
Tabanan	324	121	28
Karangasem	141	40	8
Gianjar	185	41	0
Bangli	46	46	2
Klungkung	45	44	0
Djembrana ^a	82	-	-
Total	1243	431 ^b	62

a. Djembrana was not polled.

b. Results of questionnaire addressed to all subaks in first seven districts.

Table 2
Number of Subaks Sharing Leaders by Subak Size

Area in Subak	Respondents to Questionnaire	Number of Subaks Sharing Leader
10 hectares or less	13	6 (46.2%)
10-25 hectares	67	14 (20.9)
25-50 hectares	106	22 (20.8)
50-75 hectares	75	10 (13.3)
75-100 hectares	49	4 (8.2)
100-200 hectares	84	6 (7.1)
200-300 hectares	25	0 (0)
300 or more hectares	12	0 (0)
Total	431	62 (14.4%)

ravines are close together. Closer to the sea, they fan out and the intermediate land is expanded. Pre-existing inhabited village lands have precedence over agricultural lands and, consequently, serve to bound the subak regime's expansion. The villages' precedence is largely due to values placed on maintaining the compound as a separate economic enclave (producing pigs, coconuts, chickens, etc.), and as a locus of family shrines and spirits, as well as to values placed on preservation of temples, village meeting places, and market spaces to service the community's needs. The writer knows of no instance where agricultural

lands have been formed from inhabited village lands. Future development of the Djembrana and western Buleleng regions, however, will probably result in the establishment of larger than the island-wide average size subaks for several reasons. Access to improved technology will offer more effective water delivery systems. The areas to be developed are largely coastal and, thus, flat, permitting larger units to be built. Finally, in size often lies the political strength to influence government policies on water allocation and attendant areas of interest such as land taxation. With the exception of those small subaks already in existence which find it necessary to unite their leaderships voluntarily, the movement toward amalgamation of subaks *de facto* or *de jure* seems very slow. All subaks automatically have membership in a *pasedahan* (a union of several subaks which are roughly equivalent to the *ketjamatan* in area) -wide union. The Sedahan Agung, at the *kabupaten* level and his district-level counterpart, the Sedahan Jeh (also known as the Sedahan Tembuki), are land tax collectors for the Indonesian government and are concurrently the vehicles for farmer-government dialogue. This arrangement remains essentially unchanged since the pre-Dutch period. At the Sedahan Jeh level (which coincides with a watershed area) irrigation water is allocated on a mutually advantageous schedule of rotation to all member subaks. Pre-arranged formulas, which will be discussed at a later point, determine water usage patterns among the subaks and, so far, water availability per subak has been directly proportional to a water need measured in *tenah*.³ With the introduction of new rice strains requiring different (usually shorter) growing periods, realignment of water schedules could result in economically-motivated political pressure on the *pasédahan* system and force amalgamation on some subaks with insufficient leadership and economic resources to effect changes beneficial to their members in conflict situations with other subaks or water-users. The more frequently these schedules are changed, the more conflict situations will develop. The more conflict situations which develop, the more political, rather than administrative, processes will develop.

The Subak Management

The format of subak management is remarkably homogeneous throughout Bali. Those variations which are found are as a result of unit size or regional naming systems. The varieties of position titles are of little importance to this study and only a generalized schema with representative names is used here. C. J. Grader and F. A. Lieftrinck's works are excellent sources for studies of the position titles by regions.⁴

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3. *Tenah* is a term which the Balinese use to establish land productivity via an input-output formula. A *tenah* is a variable unit which relates water, land, rice seedlings planted, and harvested yield. A *tenah* of water is the amount of water needed to irrigate a *tenah* of land to its optimum growing level. A *tenah* of land produces a relatively fixed amount of *padi* (paddy) from a variable number of seedlings. *Tenah* ownership is the basis for establishing relative indebtedness of the owner to the subak.
 4. C. J. Grader, "The Irrigation System," and F. A. Lieftrinck, "Rice Cultivation in Northern Bali," Bali: Further Studies in Life, Thought, and Ritual (The Hague: van Hoeve, 1969). Both of these writers use the Balinese terminology throughout their commentaries. Lieftrinck's article gives standard usage for Buleleng, Grader's for Djembrana.

Klian Subak

The titular head of the subak is the klian subak. His position is elective and he is subject to removal at any general meeting. His selection is, according to the former Sedahan Jeh of Jeh Oongan I (the pasédahan encompassing the Sanur area), subject to *pro forma* endorsement by the Sedahan Jeh of his region. Rarely, if ever, in modern times is the subak membership's selection refused endorsement by the Sedahan Jeh. Frequently a klian subak holds his position for his entire productive life.

The choice of a klian subak certainly is a matter of concern to the subak's members. What factors are overriding in his selection? In a questionnaire given to subak members in two separate localities, the following list of factors was presented and members were asked to choose the most important factor to them in the klian's selection:

1. His beliefs or opinions.
2. His family background.
3. His experience in subak affairs.
4. His age.
5. The amount of land which he owned.
6. His energy and enthusiasm.

A substantial number of members asked during the presentation if they could choose more than one factor if they felt two or more factors to be equally important. Out of 86 codable responses, all chose either or both the potential candidate's opinions/beliefs or his experience. In fact, 48.8 percent of those responding gave equal value to both, 30.2 percent to beliefs only and 20.9 percent to experience only. The uncodable responses were usually "no responses," though one respondent checked off all the list.

In reality, many klian subaks are chosen as successors to other members of their families, though exact numbers are unavailable. An ethic of family responsibility to the greater community similar to noblesse oblige partially accounts for this. The actual advantage of growing up within the administrative decision-making family also lends extra credence to the candidate. Finally, the attitude of a successful incumbent might be sufficient to insure the selection of a member of his family as his replacement. It is doubtful that even the covert use of the klian's powers would be useful in the selection of his relatives to his post. The carefully prescribed powers of the klian and the size of the community would probably cause such actions to be unproductive.

One of the most striking elements of the klian subaks is their similarity as a group to the total subak membership. Unlike those societies where economic and political power frequently coincide, the Balinese subak society has chosen men for their "goodness" or "worthiness." Their median age is about 32 years; their median irrigated landholding is about .47 hectares; their average length of formal education is slightly over 4 years and their length of service to the subak to date averages 8 years. The median klian's age is, by the writer's observation, slightly older than the average subak member's age. According to land tax records the average irrigated landholding is .46 hectares, or almost identical to the median klian's landholding. Accurate statistics on the average educational background of subak members is not available, but a reasonable estimate would be 2-3 years of formal education per person, or less than the average klian has.

In part, this statistic reflects the requirements of the job, accuracy with arithmetic and legible handwriting in the Balinese and Indonesian languages.

A more accurate portrait of the klians can be gained from Table 3, reflecting data gained from the subak questionnaire.

With the expectation of a life span of only 60 years or less, the Balinese have chosen their leaders from more youthful age groups than would be expected in more technically developed countries. Land ownership can legally pass to any male over 12 years of age and the subaks occasionally choose a klian subak who is under 20. This practice seems to have been curtailed in the past five years for there are no klian subaks under 20 years of age and only one klian in the 21-25 age group was selected when he was under 20 years old. An increasingly longer and more productive life probably accounts for this change as well as a perceptible movement toward the selection of slightly older men whose views are more traditional. The development of the Communist Party in Bali radicalized almost every institution and a conservative reaction seems to have developed even in the subaks.

In Bali as a whole, the proportion of higher caste Brahmans and Ksatrias to lower caste Weisyas and Sudras is roughly 1:10. The Brahmans account for about 3 percent and the Ksatrias for perhaps 7 percent of the total population.⁵ Given their inherited influence and/or wealth, though, the Brahmans and Ksatrias have had more access to higher education, the professions, and governmental positions than the lower castes. The Brahman and Ksatria-educated elites tend to embrace radical Western ideologies. A large number of Balinese Communists who were massacred in the 1965-66 Indonesian coup-counter-coup were of higher castes.⁶ A reaction has since set in within the subaks and in the last five-year period, the percentage of Brahmans and Ksatrias chosen as klians has dropped from 25.9 percent to 10.2 percent (25.9 percent is the 1948-66 period proportion). Three districts have high percentages of higher caste klians--Badung, Tabanan, and Bangli. Badung, in particular, with its 32.1 percent Brahman and Ksatria klian composition demands scrutiny. Probably many of its klians' families were engaged in governmental service, or war, for Badung's former kings. Success often raised the caste of the participant to "I Gusti" or one of the Ksatria levels and since Badung was warlike and frequently successful, the number of Ksatrias multiplied. To prove this contention which was derived from conversations with I Gusti Bagus Oka, former Resident of Bali, would require more demographic data on Badung than are available. Another possibility is that caste per se is more important in Badung. Traditionally, priests and governmental officials have been high caste Hindus, and there is a likelihood that in an area

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5. The percentages of 3% and 7% for Brahmans and Ksatrias is, admittedly, a rough estimate based on conversations with members of the governor's staff to whom I taught English. The 1970 census was not yet finalized when I left Bali and had it been they would still not have been able to deduce caste origin from the data.
 6. Pastor Shadeg, a missionary on Bali during the coup-counter-coup, was interviewed on several occasions between June, 1971 and April, 1972. It was his opinion, reached from extensive travel and knowledge of Bali, that a disproportionate sector of the Communist Party's leadership was recruited from higher-caste Balinese. In turn, these were the people who suffered most in the counter-coup.

Table 3

Characteristics of Klian Subaks

		Number	Percent			Number	Percent
<u>Current Age Composition of Klian Subaks</u>				<u>Age of Klian Subaks at Time of Acquisition</u>			
less than 20 years old	0	0.0%	Less than 20 years old	23	6.0%		
20-25 years old	12	2.7	21-25 years old	74	19.4		
26-30 years old	67	15.0	26-30 years old	80	20.9		
31-40 years old	132	29.5	31-35 years old	80	20.9		
41-50 years old	132	29.5	36-40 years old	60	15.7		
51-60 years old	79	17.6	41-45 years old	40	10.5		
over 60 years old	26	5.8	46-50 years old	19	5.0		
	n = 448	100.1	over 50 years old	6	1.6		
				n = 382	100.0		
<u>Land Owned by Klian Subak</u>				<u>Caste of Klian Subaks (by Family Names)</u>			
less than .15 hectares	45	11.9	Brahman	22	6.7		
.15-.25 ha.	58	15.4	Ksatria ^a	45	13.7		
.26-.40 ha.	66	17.5	Weisya	4	1.2		
.41-.60 ha.	92	24.4	Sudra	258	78.4		
.61-.80 ha.	41	10.9		n = 329	100.0		
.81-1.00 ha.	34	9.0					
more than 1.00 ha.	41	10.9					
	n = 377	100.0					
<u>Formal Education of Klian Subaks</u>				<u>Length of Service of Klian Subaks</u>			
0 years	19	5.1	less than 1 year	12	2.9		
less than 3 years	23	6.1	1-5 years	134	32.8		
3 years	112	29.9	6-10 years	120	29.4		
4-6 years	193	51.6	11-15 years	39	9.6		
more than 6 years	27	7.2	16-20 years	37	9.1		
	n = 374	99.9	21-25 years	33	8.1		
			over 25 years	33	8.1		
				n = 408	100.0		

a. Badung, Tabanan, and Bangli respectively have 32.1, 14.7, and 16.2% of their klian subaks from the Ksatria caste.

of Bali where tourism has encroached deepest, a return to traditional ideals and leadership may be an attempt at compensation for new Western ways. Gianjar and Buleleng both have lower than the population average of higher-caste klians--Buleleng with 5.2 percent and Gianjar with only 2.4 percent. In all districts, Sudra control is the norm. The Weisia caste is poorly defined and tends toward sublimation into the Sudra caste. Again, caste is not a legal standing, but a community standing rooted in ancient socio-religious relationships. Today, its importance is in relation to the individual and his families' position vis-à-vis others in the *bandjar*⁷ and *désa* (village). Vertical caste shifts are increasingly common with the greater mobility of the population, and an accurate essay on caste, its prerogatives, or boundaries in Bali is improbable.

One further caste relationship should be mentioned. Although a fairly small number of subak questionnaires yielded sufficient information, it appears in a cross-tabulation of klian's caste to landholding that the higher-caste klians have slightly larger landholdings than do Sudras; Brahmans and Ksatrias both had 55 percent or more landholdings over the median klian landholding size, while the Sudra had only 45 percent over the median. Land grants given by the kings to those performing feudal-type services account for some of these larger landholdings while caste economic power doubtless accounts for the rest. Educational background differences between the higher and lower caste klians are inconclusive.

Educationally, the klian subaks are poorly prepared for specialized administrative duties. With six years or less of formal schooling, most klians are versed only in the 3 R's and these are taught by rote in most schools. Five percent of the klian subaks have had no schooling while many more have had only a six-month adult literacy course. Most Subaks use the services of a professional scribe for recording proceedings, financial management, etc., but in almost every subak the klian is called upon to read either government documents, official *lontars* (a book composed of strips of specially prepared palm leaves), or other information. The Agricultural Extension Service usually chooses the klian subak as an intermediary in contacts between farmers and the Service and knowledgeability in newer farming techniques is often one of the talents of the klian, despite his acceptance or rejection of them. A system of understudy seems to be used by many subak managements. Without longer-term data, it is difficult to say if serving as a deputy to the former klian is considered a valuable asset in the selection of a new klian. As mentioned earlier, the klians frequently serve for lengthy periods. Their tenure is predicated on performance, but a mediocre performance does not automatically result in dismissal. In fact, given the small community in which the subak operates, removing a klian subak is tantamount to *social and economic ostracism by the entire desa*. The social and economic side-effects of a klian's removal are so great that the fear of those sanctions enforces the klian's caution in subak management. The subak's membership is very careful not to shame its leaders for minor reasons and this attitude may result in a very conservative style of decision-making on the part of the klian subak on major decisions and laxity on minor decisions.

7. *Bandjars* are traditional village subgroupings which are formed to provide a wide variety of socio-economic and religious services to the members. Membership, though legally voluntary, is socially mandatory. In the nineteenth century United States, quilting bees and barn-raising represented bandjar-style activities.

From the following formula, a typical estimated annual gross income for a klian subak from farming and tax collection would be about 56,000 Rupiah (\$134.00).

$$\begin{aligned} \text{Estimated gross} &= (\text{Median Landholding} \times \text{Median Yeild/Ha.} \\ \text{annual income} &\quad \times \text{Number of Crops/Year} \times 16 \text{ Rupiah/kilogram}) \\ &+ (\text{Median subak size in Ha.} \times \text{Median Land Tax/Ha.} \\ &\quad \times 7 \text{ percent tax collection fee}) \end{aligned}$$

This figure is compared to about 11,200 Rupiah gross income for an owner of .10 hectare of land and perhaps as much as 375,000 Rp. for the owner of a 4.00 hectare plot. (This assumes normal land productivity and renting of the excess over 2½ hectares for the larger landowner.) In areas where productivity or rice prices substantially vary from the medians, these estimates could vary as much as 50 percent.

The klian subak is not just a titular figure. He is responsible for the overall management of the subak district. In the area of finances he bears the responsibility for collection of all taxes, fees, levies, and fines from the subak's members, as well as for accurate bookkeeping disbursements of subak funds. In some subaks, he is personally responsible for levying fines on members breaking subak laws, while in others only the general meeting can punish its members. A simple categorization of the offense usually is sufficient to find the exact fine due.

The klian subak has traditionally served as the link between the subak and Sedahan Jeh and other officials. He collects land taxes in exchange for a fee of 7 percent of that collected. Assessments are made, according to the Land Tax Office, on the basis of land value, accessibility, terrain, water availability, and productivity in a meeting of the Sedahan Jeh and the subak leadership, which includes the klian subak and his staff. In royal days, the Sedahan Jeh chose his own klian subaks, guaranteeing their accountability to him, but this situation has changed. The openness of the assessment meetings and collection of individual taxes minimizes the chances of collusion or corruption. It should be mentioned, though, that the collection of more than 50 percent of the land tax assessment has been uncommon in all of Bali's districts in the past few years. The tax enforcement system is weak--further minimizing the opportunity for collusion.

Agricultural and local officials also must funnel their requests, demands, and information through the klian subak. A klian with a penchant for the old ways of doing things can substantially delay or short-circuit any agricultural extension project. One example of this is in the slow introduction of the IR-5, IR-8, and IR-21 strains of high yield rices to Bali. Close to 9 percent of Java's fields have been planted with the new strains, but Bali has only about 5 percent though the availability to both is substantially the same.⁸ The situation is changing now and the rate of introduction has dramatically increased in the past year, but early farmer doubts, and the subak's hierarchical structure doubtless have slowed it. On the other hand, established

8. James E. Hawes, Rice in Indonesia (Djakarta: United States Agency for International Development Printing Department, 1970), p. 19.

effective procedures have a better survival rate in Bali than in Java. The most important of these is the farmer's feeling of responsibility for communal control of irrigation. Today, in Java, most irrigation is fed by government-planned and -operated canals and aqueducts from the Dutch period; in Bali, though, there is almost unanimous preference among subak members for local development and control of all but the largest irrigation works. The klian subak himself may not be responsible for his member's traditional views, but he usually reflects them. Those innovations which the writer has found in the subaks have not been in policies or administration, but in technology. Mr. Raden Agung, Public Works Advisor to the Governor of Bali, among others, feels strongly that the klian subak who is dynamic, will have a subak which is innovative and the klian who is quiescent, traditional, or mediocre will have a complacent subak. This researcher was unable to develop a single criterion to test for innovativeness among the klians. Agricultural extension agents often are in a position to assess the klians' motivation and acceptance of change but this information was not obtained. The one factor which could have shown a subak's innovativeness was whether or not a subak had planted new strains of rice. These strains required new approaches to planting and fertilizing which involved both time and better financing. However, introduction of the rice appears to have been concentrated on the subaks with a size of 75 hectares or more, probably for ease of introduction to the largest possible area. One factor which did show up was that 43.9 percent of the subaks whose leaders owned 1.00 or more hectares did have some acreage planted with the new rice. This contrasts to the average of 27.5 percent for all the other subaks. There is no statistically supportable fixed relationship between a klian's landholding and his subak's size, therefore, we must assume that larger landowners (with more than .80 hectares) are more economically alert to the potential of technological changes.

All of the klian subaks are responsible for submitting reports to the Sedahan Jehs. These cover water availability, condition of irrigation works, water division schedules, types of crops, plant diseases in the subak, projected and actual crop yields, and ceremonies requiring the Sedahan's attendance. In these areas, the subak and the government often interface. The klian's reports serve as a partial basis for tax assessments, waterworks construction or maintenance (on large dams, canals, or tunnels), as well as pest control and agricultural planning. The reports must be considered voluntary, but since, from royal times, these reports were his responsibility, the klian is still obligated to produce them.

Planning is *not* a function of the klian subak except for the scheduling of maintenance and certain payments. In subaks bounded by vacant lands, the subak members, as a group, decide new programs and facilities. In subaks where there is no room for expansion, decisions on land improvement are the responsibility of the landowners and irrigation works are fixed spatially.

"Most klihans (the spelling of Indonesian words has not yet been completely systematized) regard their office as an honorary function, an obligation placed on them by the other members of the sekaha, which they, as good citizens, cannot refuse, and they continue cultivating their rice fields as before, finding in this employment their means of subsistence."⁹ The klian subak, in fact, is a very weak manager.

9. Lieftrinck, "Rice Cultivation," p. 10.

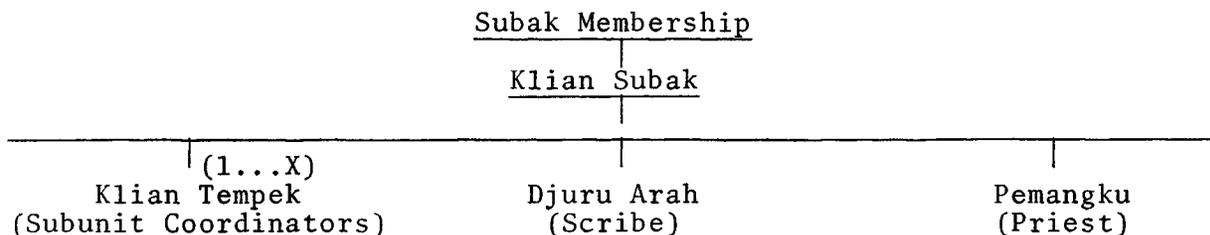
Although he does administer the subak's activities, those activities and the method of administering them is decided in a meeting of the entire subak membership. Also, the klian subak may adjudicate a dispute between subak members, but his decision is the result of consultation with the whole subak. Even then, his suggestion does not necessarily require its implementation. The klian has slightly more power in the punishment of subak-law offenders. Fines are set for specific offenses and indicators of the intent to commit the offenses are incorporated into the (unwritten) law. Consequently, the only choice of the klian subak is whether or not to impose a set fine. His decision to fine can be appealed to the Sedahan Jeh. Usually the infraction is reported by another member and thus is made known to the subak community, thereby insuring, to some extent, the appropriate action taken by the klian subak. The Sedahan Jehs, from the writer's conversations with several of them, handle very few of these cases annually. Perhaps this is due to the fact that the klian subak and the Sedahan Jeh must cooperate on other matters and do not wish to contradict each other over what the klian might assume are internal matters to his subak. The laws of appeal were developed at a time when the Sedahan Jeh was definitely the klian subak's superior. Now that they are "co-workers" and the Sedahan Jeh's income partially depends on the klian subak's effectiveness as a tax collector (the Sedahan Jeh receives 2 percent of all land taxes collected in the subaks under his jurisdiction, along with a fixed government salary) the relationship is strongly symbiotic. Inside the subak, the klian subak is further supported by a number of permanent and temporary staff members.

Other Subak Officials

The number of subak officials varies greatly according to (1) the total area of the subak concerned, (2) the ownership patterns within it, and (3) the terrain. In all subaks studied, though, the following general positions were staffed.

Figure 1

A Typical Subak Organization Chart



Some subaks provide for other general assistants to the klian, but these are not universal.

The number of subunit coordinators (*klian tempek*) is variable--from 1 to 20. The variance is usually, though not legally, linked to total area in the subak. (See Table 4.) The subunit is variously

called *tempek* and *munduk* according to the area of Bali. A subak in an area with flat expanses might have very few subdivisions of its main water channel and hence fewer administrative subdivisions. The klian tempeks are responsible for maintaining the irrigation works in their common irrigation source subunit of the subak. For this responsibility, they have a schedule of all members' names and degree of responsibility to the subak (in accordance with the amount of water they use). These members must provide payment, or services, or both for the maintenance of facilities in their tempek.

Table 4
Number of Tempek by Area in Subak, n = 420

Number of Hectares	Number of Tempek					Row Total
	1	2-5	6-10	11-15	16-up	
10 or less	12	0	1	0	0	13
11-25	45	19	0	0	0	64
26-50	46	46	7	1	0	100
51-75	11	50	9	2	0	72
76-100	2	32	10	0	0	44
101-200	1	38	39	6	2	86
201-300	1	8	14	1	4	28
301 or more	1	5	3	2	2	13
Column Totals	119	198	83	12	8	420

The klian tempek is further responsible for informing the members who own land in his subunit of all meetings of the tempek or subak memberships. He does not have formal powers of adjudication or authority to punish members in his jurisdiction, but he must report infractions of subak rules to the klian subak. In some subaks, he is also responsible for assisting the klian in tax-collection, reports to government officials, and dissemination of the klian's decisions to his tempek's members. The klian tempek is a "chairman" of his tempek and chosen by its members. The research project did not include the collection of biographical data on the tempek-level leaders, since their duties are largely fixed and few decisions are required of them.

Both the klian tempek and the klian subak must have the following qualifications, according to one study:

1. They must be subak members and own some land in the subak.
2. They must be able to read and write.
3. They must be willing to accept the position.
4. They may not serve concurrently as village chief, or chief village administrative official, or as a government official.
5. They must be physically and mentally capable, experienced in agricultural affairs, and must be adults with qualities of leadership.¹⁰

10. Ikatan Sardjana Rakjat Indonesia, Tjabang Singaradja, The Subak as an Irrigation System in Bali (Singaradja, Bali, 1969), p. 30.

The position of *klian tempek* can involve the expenditure of a great deal of time coordinating activities. This is illustrated by the following example in Clifford Geertz's "Tihingan: A Balinese Village."

Subak A, in which more Tihingan (note: Tihingan is a medium-sized village in the district of Klungkung) land is located than any other, only contains 47 percent of the total land owned by residents of the bandjar. And, to put the matter the other way around, this land accounts for only 5 percent of the total land in that subak. Altogether no less than thirty-eight bandjar are represented in the membership of this subak, and the bandjar with the largest amount of land in it owns only about a quarter of its total.¹¹

It is obvious that someone, usually the *klian tempek*, who must personally notify all members in his *tempek* of meetings or work projects, is very harried in the subak mentioned. The landowner whose plot is next to another's may live several kilometers away. A wooden gong is occasionally used to call meetings, but for members living outside the range of its sound, a personal visit is mandatory. If the member is not at home, there are established ways of informing him of his responsibilities.

Another subak official is the scribe, or *djuru arah*, who takes notes at meetings, assists the *klian subak* in official correspondence, and may assist as a deputy treasurer for the subak. He is chosen for his talents by the subak members as a whole, but it is not clear whether or not he must own land in that subak. Since accountability of its officials is normally enforced by censure or the threat of withholding of irrigation water, it seems probable that even the *djuru arah* must have some stake in the subak's operation.

One of the other semiofficial subak employees is the *pemangku*, or subak priest. It is his job to maintain the subak temple. He is a non-Brahman landowner and responsible for the dedication of offerings to the gods. Major temple repairs are completed under his urging and management.

The *pekaseh* are the worker-members in the irrigation association. They respond, according to a schedule, to notification of repairs to be made or new minor waterworks to be constructed. They also must spend a set amount of time each month inspecting selected portions of the subak's irrigation facilities for weakness or need of improvement. In any given subak over 20 hectares in total area, the *pekaseh* will usually number less than 100 percent of the membership. However, in smaller subaks, everyone may have to physically assist in the work or provide a substitute laborer. In their work, they are directed by their chairman, the *klian pekaseh* (a kind of foreman), who may or may not be synonymous with the *klian subak*. Major sources are in conflict on the role of the *klian pekaseh* vis-à-vis the *klian subak*. It appears, though, that where the former post exists, all scheduling of work must meet with the *klian pekaseh*'s approval, at the very least. That is not to imply that there is a natural tension between the two, but that the workers have a channel for expressing grievances other than in the monthly meeting.

11. Clifford Geertz, "Tihingan: A Balinese Village" in Koentjaraningrat (ed.), Villages in Indonesia (Ithaca: Cornell University Press, 1967), p. 235.

Distribution of Resources Within the Association

Different Balinese subak members have different duties--many of them mentioned above. What do they get in return and who pays?

One of the few generalizations to be found in this study is that redistribution of resources within the subak membership is as just as is liable to be found in any democratic organization. No member is exempt from either physical service or financial support. The degree or mixture of the two is decided by the klian subak in consultation with the entire membership. Wealth per se is not a factor. All obligations to the subak are based on irrigation demands placed on the association. If member A has X tenah, and B has 10X tenah, member B is required to provide ten times more services/payments mixture. The one-man, one-vote decision-making system within the monthly meeting also tends to minimize the potential for a struggle between the wealthy and the poor.

There are several systems of land rental which further illustrate the uncommonly equitable distribution of wealth. Large landowners (with more than 1.5 hectares) frequently rent their land to sharecroppers. Throughout the island there are five "shares" which may be paid for land.

<u>Rental System</u>	<u>Share to Owner</u>	<u>Share to Sharecropper</u>
Nandu	50%	50%
Nelon	60%	40%
Ngapit	67%	33%
Merapat	75%	25%
Ngelima	80%	20%

A study conducted by the People's Scholars Union of Indonesia in 1969 (Singaradja, Bali Branch) found that "normally, rich rice field owners make agreements like number one, above (nandu), but poorer rice field owners will choose one of the remaining four."¹² Although only ten of the subak members interviewed in the writer's study rented land, all but one of them used the nandu system, which may further support the contention of the Scholar's Union. Professor Geertz writes that "in the Klungkung region the ngapit, or one-third, system is standard; but, as Balinese only maintain standards so as to be able to vary them, the actual arrangements differ almost from case to case. Social relations between the contracting parties, location and quality of the land, type of crop involved, current economic conditions, source of such capital as seeds and cattle, and sheer love of complication combine to produce a range of tenancy institutions whose adaptability to particular circumstances is endless."¹³ On most land, the break-even point probably lies near the ngapit ratio for the average sharecropper, considering his time and financial investment. Certain areas of Bali, notably Klungkung and Karangasem, are reputed to have more sharecropping agreements than other areas, reflecting perhaps the overpopulation, flood

12. Ikatan Sardjana, The Subak, p. 25.

13. Geertz, "Tihingan," p. 237.

losses, and traditionally larger landholdings in that area. This contention was not adequately researched in the survey, though, and is offered only as an interesting possibility. The weight of the evidence on sharecropping does indicate, though, that extremes of wealth are moderated in the agreements reached. The general attitude of the subak's members that the wealthy have been blessed and should spread the blessings probably accounts for this situation.

The services and monetary obligations which may be mixed to meet the obligation to the subak are:

1. Physical labor
2. Administrative duties
3. Payment of a labor-release fee in money or in kind
4. Substitution of an adult laborer

As mentioned earlier, the amount of physical labor required for routine maintenance has been carefully calculated by the subak and from that figure the subak's members discuss the possibility of exemption of excess members. Members are permitted to purchase exemption from pekaseh status on a supply and demand basis. If a subak of thirty men needs only fifteen for work, the other fifteen may buy out for a figure decided upon on the basis of (1) the number of tenah they own and (2) the estimated total monetary requirements of the routine maintenance.

By no means does the payment of the fee, called *pengoot*, free the landowner from physical work for the subak. He is still subject to call for major repair or construction works. In case of physical incapacity, the landowner must provide a male adult substitute to the subak to fulfill his share of the work.

All members are subject to special levies to cover the cost of extraordinary activities. These levies are imposed on an *ad hoc* basis and assessed proportionally to the number of tenah owned. These might include reconstruction of the village dam, or main water channel, or temple. There is no contingency fund worth the name in most subaks. Routine expenditures for cement, bricks, or bamboo come from the pengoot fund. Some pengoot payments are in cash, with others in kind.

Other subak income is from fines, the sale of subak land,¹⁴ in kind payments, rental income, loan repayments, admission fees (new members only), or, very rarely, government assistance. The total of these is a small percentage of the normal subak's operating costs. In areas where local materials can be used for repair and construction, the monetary cost to the association is minimal, but where materials such as cement are now used, the costs quickly mount up. In mountainous areas, bamboo and hardwood are plentiful and used for almost all construction.

Administrative duties are accepted by the subak as payment of association obligations to the following extents. The klian subak is exempt from the payment of pengoot or other normal water usage-related payments imposed in his subak; he receives a portion (fixed by the members) of fines collected; he receives a share of the in-kind pengoot

14. Subaks often own land adjacent to their temple or dam. The land is tax exempt if attached to the temple compound and the proceeds from crops grown on it are donated to the temple.

payments (i.e., when the payment is a rice payment) in his subak; he receives sufficient free water for his acreage, provided he works the land himself; and he receives a share of the subak-owned rice yield if or when this is collected. Not all subaks own communal rice lands, though many own straw fields, coconut groves, or grazing land.

The klian tempek receives sufficient free water for his land and freedom from regular taxes. He is also in line to receive a portion of fines collected.

The djuru arah is free of normal taxation and other work responsibilities as well as receiving a share of the fines.

The pekaseh may or may not receive a small payment for their work, but it is common to find subaks which annually (after the main harvest) share the balance in their treasury among the pekaseh. Since the pekaseh are usually the poorer subak members, the cash payment can be considered a redistribution of the members' wealth.

One further economic arrangement in the subak that is well worth mentioning is the loaning of money in the subak. Some subaks loan money, on the recommendation of the klian subak, to their members from the general fund. Inflation and economic instability have limited this arrangement in past years, but it is still to be found in some areas. Interest rates are said to be high (2-4 percent per month), though below normal institutional rates (5-6 percent per month). As economic stability returns to Bali, it can be expected that this function of the subak will again become important, and depending on the relative strength of the klian subak in his association, imbalances in the loan structure could develop with his best friends or supporters receiving the lion's share of the loan money available.

The decision-making powers of the subak membership meeting as a whole are within fixed parameters. They may legislate rules for admission, taxation of their members, water distribution, land usages, and work load. They assist in the adjudication of subak rule infractions. They may empower the klian subak and his staff to act on their behalf on matters outside, but affecting the subak as a whole.

The subak requires the attendance of all its members at general meetings held on a lunar month schedule. The members are those who own land in the subak area and whose land is irrigated from the same source as the subak's. Sharecroppers do not have an obligation to the subak unless so designated in their contract with the landowner, but they still receive the same services. Many sharecroppers rent land to supplement their own holdings and do have a voice at the association meeting. Therefore, he has full membership in the subak and full voting privileges. Those sharecroppers who *are* landless, though landless sharecroppers are the exception, may contract with the landowner to assume his responsibilities and duties within the subak. If so, they automatically take his place at the meeting if he owns no other land. There is no weighted voting though in a discussion the more eloquent have considerable influence.

Virtually everyone who owns 1/10 hectare or more belongs to a subak. Anyone owning less may contract for water in exchange for a fixed fee per tenah or portion of tenah. These small parcels are insufficient to provide a livelihood for the cultivator and probably only defray family food expenditures. Overpopulation has resulted in sub-

divisions on many land plots to a marginally productive level and a consequent shift of surplus population to urban areas.

To illustrate the typical format of the subak meeting, the following passage is incorporated in its entirety. The meeting is supposed to be typical of meetings held in Buleleng, Bali in the 1880's and was described by F. A. Lieftrinck, a Netherlands East Indies civil servant who served in Bali intermittently from 1874 to 1906. Meetings today are much the same, though some of the formality has been dropped.

Attendance at the monthly assembly is obligatory, and failure to attend involves payment of a small fine. Every member is assumed to be fully conversant with the decisions adopted at the meeting. Members are required to come to the assembly respectably clothed, that is, they must be dressed in a *saput* (a patterned cloth wound round the body from the waist down), which the Balinese peasant wears only on special occasions. The upper half of the body must be bare, and not smeared with *boreh* (a fragrant unguent). It is forbidden to wear a creese.

When it is time for the meeting to begin, the klian takes out the register of members from the bag made of woven palm leaves in which all the administrative records of the subak are kept. The klian then reads out the names to verify if there is full attendance, and each member has to listen carefully for there is a small fine imposed on those who do not immediately answer when their names are called. The names of any absent members are noted on a separate lontar leaf. Next, the klian informs the assembly of the instructions he has received from the sedahan tembuku regarding taxes, road maintenance, and levies to be paid in kind. After these and similar general items have been dealt with, the internal subak matters are discussed. The klian reports on the condition of the irrigation conduits, the meeting then deciding whether any repair work should be carried out. Arrangements for coordinating work in the *sawahs* are also decided on with due consideration to the weather conditions.

Following these items, the klian goes on to give an account of the subak finances, for the responsibilities of the klian include the administration of the finances, the *sawahs*, the *alang-alang* fields, and all other property belonging to the sekaha subak. The subak funds are acquired initially by the contribution paid by the members on the establishment of the sekaha, and subsequently added to by fines imposed for nonobservance of rules, payments accepted in lieu of performance of duties, and occasional collections made when required by special circumstances. This money is used to meet the expenses of the association. It is drawn on for the purchase of materials for the maintenance of the water conduits when payment cannot be made in kind, for any work in the subak which is done by hired labour, and for costs of the various festivities.

After the klian has given a complete review of the association's finances, the meeting is over, and the gathering then becomes a social occasion. At this juncture the *sayas*, the previously mentioned assistants of the klian, pass around the customary refreshments. Besides preparing these refreshments the *sayas* sweep and clean the pavilion on the morning of the day on which the assembly is held, lay mats for the members to sit on, and place writing materials ready for the klian to use. In addition, they have to provide flowers to decorate the meeting place and furnish the ingredients for the unguent (*boreh*) with which the members smear themselves, after the meeting, for its freshening effect.

At the conclusion of the official business at some assemblies, the members are served only betel quids, at others, sweets and *tuak* (palm wine), and at others, again, a full meal. Apparently in the associations where this latter practice was adopted, the generosity of the members was not left to chance, for it is laid down which foods, and how much of each, must be contributed. In some of the meeting places there may also be seen primitive scales for weighing the portions of food to be served and a gourd for measuring out *tuak*.

Disputes between members of a *sekaha subak* and infringements of any of the *sekaha subak* are dealt with at the assemblies. In the event of any difference of opinion on such issues, the decision is adopted by majority vote. Those who refuse to submit to the assembly decisions are fined, and, if they persist in their attitude, expelled from the association. But, before this step is taken, the member concerned has the right to present his case to the *sedahan tembuku* or the *sedahan agung*.¹⁵

Is the *subak* truly a democratic institution? The answer is a qualified yes. Its leaders are chosen for their ability to perform jobs as the association decides. The full membership's attendance is required at meetings and in fact almost all the members do attend. One-man, one-vote representation is universal in the *subaks* (as well as in other Balinese associations) but obligations are gauged proportionally to water demands. Caste and color, personality and wealth, age and education have a minimal impact on the choice of administrators. The prohibition against government officials holding *subak* positions of leadership limits the influence of outside agencies or governmental units on internal policies. All members are urged to participate actively in meetings and *subak* activities. Carefully codified laws make the fair application of the law a little more probable than in common law systems--despite its occasional inflexibility in unforeseen circumstances. From observation, the general meetings seem to be open forums, but a limited number of members take the initiative in proposing and disposing of the *subak* agenda's items. Since the secret ballot is not used, there may occasionally develop situations where an unpopular stand may be voted down in public, but supported in private. This thesis was not tested in Bali. The homogeneity of responses in the *subak* member questionnaire indicates, however, that the socialization process within the *subak* and the *désa* has succeeded in implanting a broad range of policy attitudes in the minds of the *subak*'s members. From the nature of its specialized objectives, adequate agricultural irrigation and crop protection, the *subak* must be a united organism, with narrowly limited output but a broad base of support.

15. Lieftrinck, "Rice Cultivation," p. 16.