TRI HITA KARANA
FOR BALINESE AGRICULTURE SYSTEM
Agricultural Practices in Bugbug Traditional Village

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Proposed by

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Ministry of Agriculture
Ministry of Forestry
Ministry of Marine and Fisheries
Ministry of Public Works
Ministry of Internal Affairs
Title of the Agricultural Heritage System: TRI HITA KARANA FOR BALINESE AGRICULTURE SYSTEM

Requesting Agency/Organization: Bali Province, Karangasem District, Bugbug as a Traditional Village, < 500 m dpl.

Accessibility of the site to capital city or major cities: to district ± 8 km to Denpasar ± 76 km

Approximate Surface Area: ± 8.87 km²
Each space has typical propose and function in order to maintain the sustainability of ecology, social-economy, and spiritual culture.
1. FOOD AND LIVELIHOOD SECURITY

• Agricultural activities practiced is mostly rice cultivation managed using Subak irrigation system.

• Some of other agricultural cultivated are bananas, corn, long beans and cashew

• Protein comes from tuna, obtained from the local fishermen
2. BIODIVERSITY AND ECOSYSTEM FUNCTION

- Wetland ecosystem (in the form of Subak), dry land ecosystem (Abian), and coastal ecosystem.
- Subak biodiversity consists of rice, banana, corn, beans, and cashew nuts.
- Livestock diversity such as pigs, goats, poultry, ducks, and other cattle.
PLANTS DIVERSITY
ANIMALS DIVERSITY
FOOD DIVERSITY
CULTURAL DIVERSITY
Knowledge systems and technology adaptation applied in the Bugbug village is Subak irrigation management system.

In Bugbug village, there are generally known how to control mice based on their local wisdom associated with pest control → “Ngaben Tikus”
SUBAK IRRIGATION SYSTEM
4. CULTURES, VALUE SYSTEMS AND SOCIAL ORGANISATIONS

• In Subak, all activities are the reflection of people’s closeness to the Creator.
• There are two sources of water, which are owned by farmers and rice field temple. Both jointly manage water distribution system.
• Local wisdom in pest control called “pengabenan ceremony”
5. REMARKABLE LANDSCAPES

• Landscape formation of terraced rice field is common characteristic of Subak view in Bali.
• It is a water management system from the mountain, dams, rivers, to the field area.
• The beauty of terraced rice fields provide more value to the rural agricultural landscape of Bugbug village.
REMARKABLE LANDSCAPES
BUGBUG/KARANGASEM – KARANGASEM DISTRICT
THREATS

• Subak is currently facing problem related to water distribution → limited water resources and competition in water utilization. In addition, water supply factor and high land taxation also trigger the land use conversion.

• Some of the "pawongan" or members of Subak do not obey the irrigation pattern (rice-crops) which is resulting disruption of irrigation system as a whole.
Condition of The Damage DAM

Cellular BTS on The Top of The Hill

Farmland Turn into Housing
CHALLENGES

• Preserving social and cultural characteristic of agricultural system versus over exploitation of tourism.

• Subak irrigation system as a well known water management system should be well maintained, because of its value in system and culture.

• Local Government will create local law to preserve the Bugbug as GIAHS site
1. Food safety, based on local potential and wisdom called SIKKATO (Sinonggi, Kasoami, Kambose, Kabuto).

2. A huge area of 132 hectares of Sago plantation, with 4 different types of sago, can sustain in any seasons. In 2015, the government of Kendari will create a Sago village to sustain sago production and to use it as a tourist attraction.

3. Kendari is located at the southern tip of the equator and designated as Green City by the Government.
SIKKKATO

FAO & WHO advocate for people to consume food with low glycemic index which can prevent diabetic and obesity. SIKKATO is one of it.

Sikkato Glikemik Index compare to Rice Glikemik Indeks

<table>
<thead>
<tr>
<th>NO</th>
<th>VARIETIES OF FOOD</th>
<th>GI</th>
<th>GI CATEGORY</th>
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<tbody>
<tr>
<td>1</td>
<td>SAGO</td>
<td>28</td>
<td>LOW</td>
</tr>
<tr>
<td>2</td>
<td>CASSAVA</td>
<td>55</td>
<td>LOW</td>
</tr>
<tr>
<td>3</td>
<td>CORN</td>
<td>46,52</td>
<td>LOW</td>
</tr>
<tr>
<td>4</td>
<td>RICE</td>
<td>89,73</td>
<td>HIGH</td>
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GI Index :
$\geq 70 = \text{High}$
$59-69 = \text{Average}$
$\leq 55 = \text{Low}$
Sinonggi

Congee Sago served with soup and fish
Kasoami

Sweet Potato served with Fish Steak or Grilled Fish
Kambose

Grits served with vegetables and Fish
Kabuto

Cassava served grated coconut and salted fish
The main support of biodiversity and ecological richness with its stunning landscape and capacity to provide water supply (32.248 hectares).

In 2014, Ruteng Natural Park was given a status as Conservation Forest Management Unit by the Ministry of Forestry of the Republic of Indonesia.

Three pillars was established in 2012 as an integrated system, collaboration of Government, Traditional Society and Religious Group (in this case Church as the majority of Ruteng people are Christian) to safe and to ensure its sustainability.
Tranquility and coolness in 11.5 ha of Lake Ranamese adorned by small group of Grouses

Po (Otus Alfredi) An Endemik Flores little owl

Kantung Semar Orchird (Paphiopedilum Schoseri)
SALT FOLK PRODUCTION “PAHLUNG”
In BULELENG, BALI

- Found only in Bali
- Made of halved coconut trees
- The middle part is dredged as to create a basin which is used to evaporate the brine
- Two Types of Pahlung: open palung and closed Pahlung
“Pahlung” Salt Process

1. Leveling the surface of the ground
2. Collecting water from the sea (bear)
3. Watering the pond surface
4. Draining the "pahlung salt"
5. Collecting the salt from pahlung
6. Filling the Pahlung with sea water to be evaporated
7. Putting salt contained soil into the "tinjungan" and wet it with the sea water
8. Removing the sea water from Tinjungan
1. Institution of traditional law of sea established in 14th century
2. Over period of time, Panglima Laot transformed as an institution with authority to make marine rules, such as:
   a. Regulation to preserve natural resources in the sea and
   b. Regulation for fisheries mechanism and management including fishing territories and gear regulation
3. “Panglima Laot” consists of 3 levels of Commander (Panglima):
   a. Panglima Laot for Lhok (village/district level),
   b. Panglima Laot for Regency level (18 person) and
   c. Panglima Laot for Province level (1 person)
Colloquy Decision of Sea Commander “Panglima Laot” in Aceh
8-9 December 2014

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<tr>
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<th>Customary Law of Laot</th>
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<td>1</td>
<td>The customary law in fishery below have enabled Aceh people to preserve the richness of the ecosystem in Aceh’ seas.</td>
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</table>
| 2 | Fishing moratorium:  
   • Eid al-Fitr and Eid al-Adha, for 3 days each  
   • Friday  
   • Kenduri Laot day, for 3 days (LHOK Level)  
   • Commemoration of Tsunami (1 day)  
   • Independence day of The Republic of Indonesia (17th Agust)  
   Violation on fishing prohibition days will be given sanction by Panglima Laot LHOK in accordance to the LHOK customary law |
| 3 | Fishing Mechanism:  
   Rumpon is *Fish Aggregating Device* using solid items made as coral imitation to attract the fish. |
| 4 | 1) Prohibition of the use of trawl trawlers, fishing gear, toxins, chemicals, and bombings  
   2) Prohibition of destruction of coral reefs and other marine life and  
   3) Prohibition of Mangrove destruction |
| 5 | The witnesses of Indigenous law of Laot have to take oath before resuming their duty |
| 6 | All cases related to the breaking of Laot Law have to be settled legally in accordance to Laot Law. |
INTEGRATION FISH/SHRIMP RICE ACTIVITIES

1. MINAPADI (fish and rice culture)
2. UGADI (freshwater shrimp and rice culture)
3. UGAMEDI (freshwater shrimp, gouramy and rice culture)