

# — THE IP4GROWTH PROJECT

*Tradition, Modernity, Innovation, and Small-holder Agriculture:*

*Lessons from the field*

Graham Dutfield



# A false dichotomy- the “traditional farmer” and the “modern farmer”

All farmers work on the land by cultivating plants to make a living. Often women. Some have plentiful natural and monetary resources at their disposal – others do not. They possess knowledge and skills that urban dwellers do not have, and all have to be good at adapting to change that can be highly disruptive, extreme and unpredictable. Some are self-sufficient and independent, others not at all. Technical inputs and expertise from outside do not always help ...

We need to eliminate binary thinking *and* binary choices!!



# Who are the innovators? Why innovate? Who should benefit? Three different perspectives

- ***The conventional view*** – innovation *for* farmers
- ***The cooperative view*** – innovation *with* farmers
- ***Small-scale farmers as innovators and priority setters*** – innovation *by* farmers. (Innovation goals may be about food security, sustainability, livelihoods rather than economic growth or productivity *per se*.)



***Which is most appropriate and workable depends on many factors – context matters!***



***But the logic of intellectual property rights is that the conventional view is the correct one in all places and contexts***

*Can we change this?*

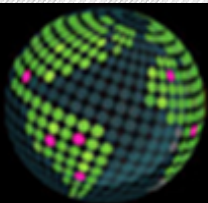


Modernisation and intensification are *not* inherently better. One needs to understand first what it is that we seek to transform.

This may not be evident ...







**GIAHS**

*Globally Important Agricultural Heritage Systems*



## **What are *Globally Important Agricultural Heritage Systems*?**

“Remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development.”



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United Nations  
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Cultural Organization

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## Cultural Landscapes

There exist a great variety of Landscapes that are representative of the different regions of the world. Combined works of nature and humankind, they express a long and intimate relationship between peoples and their natural environment.

An example: Bali, Indonesia







Laut Bali

Selat Lombok

Selat Badung



Scale 1:



**Bali**

PINAU MENJANGAN  
Bali Barat National Park

SEE SOUTH BALI MAP

SEE SINGARAJI MAP

SEE LONIVA BEACH MAP

SEE SOUTH BALI MAP

# Cultural Landscape of Bali: the *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy

The cultural landscape of Bali consists of five rice terraces and their water temples that cover 19,500 ha. The temples are the focus of a cooperative water management system of canals and weirs, known as *subak*, that dates back to the 9th century

The *subak* reflects the philosophical concept of *Tri Hita Karana*, which brings together the realms of *the spirit*, the *human world* and *nature*

The *subak* system of democratic and egalitarian farming practices has enabled the Balinese to become the most prolific rice growers in the archipelago despite the challenge of supporting a dense population

From: UNESCO World Heritage Convention website





# The Bali water temple system – its role in wet-rice cultivation

















## Practical challenges

Half the rivers flow only in rainy season, mainly in deep channels – requires vast network of tunnels, canals, aqueducts to transport to fields

If farmers plant at the same time there will be shortages of water at certain times of the year, but they will suffer less from crops disease and pest outbreaks

If farmers stagger their plantings this will resolve the water problem but they will be more vulnerable to disease and pest outbreaks

## Governance issues

Water management for a large area implies a need for centralised organisation to ensure fair distribution

Centralised decision-making tends to be inflexible and slow to respond to local variabilities

Communities going it alone may adopt practices at the expense of neighbouring communities





# The Water Temple System

Water management from highest to lowest elevation is synchronised by calendars (called *tika*) drawn up by farmer groups, each in one of a network of water temples located from the sacred mountain lake to the coast. The temples are positioned at the heads of each watercourse. This ensures fair and effective distribution of water, and – with coordinated fallowing – enhanced pest control

The calendars are highly complex and the system of calendars determines the production decisions of individual farmers

Temple holy water rituals establish relationships between temples and reinforces solidarity of Balinese *subaks*

System has proved sustainable for over 1000 years – despite political fragmentation of the island and colonialism





# Customary law

Most *subaks* possess written legal codes, called *awig-awig* , which detail the rights and responsibilities of *subak* membership. *Awig-awig* , or traditional customary laws and regulations, including *subak* management and the traditional protection and conservation of cultural properties are covered by regulations of Bali Province Number 5 (2005) Section 19, that clarify zoning for protected sacred sites such as temples, based on local *awig-awig* .

Source: UNESCO



# Forced modernisation: The disruption of the Green Revolution, late 1960s-early 1980s

- A statist bureaucratic management regime took control from the water temples
- Farmers extended credit and forced to purchased “technology packets” – high-yielding and quick-maturing seeds, fertilizers, pesticides
- Farmers ordered to plant continuously – immediately after each harvest

## *Results:*

- Reduced sustainability – water shortages, more disease and pest outbreaks
- Off-site pollution caused by run-off of industrial fertilizers





In 1988, the Asian Development Bank acknowledged that the Green Revolution had unexpectedly led to reduced productivity

There has been a return to the water temple management system and organic agriculture

This has led to a recuperation in productivity



**Not just in Indonesia...**





# Parque de la Papa





# Activities

Technical capacity building and training – setting up natural products cottage industry

Formation of economic collectives: food and gastronomy; ecotourism and science tourism; handicrafts; natural products and medicines

Sharing knowledge and ideas with indigenous peoples around the world

Setting up infrastructure for seed management, registration, improvement, storage

Commercialising locally made products using local content



## Legal basis

1. Legal recognition of Parque based on articles of association
2. General Law of Rural Communities
2. *Written* Inter-Community Agreement
3. Customary law principles:
  - Reciprocity (*Ayninakuy*)
  - Duality (*Yanantin*)
  - Equilibrium (*Rakinakuy*)



# The (frequently overlooked) Article 10(c) of the Convention on Biological Diversity

Each Contracting Party shall, as far as possible and as appropriate:

(c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;





# Universal principles to reconcile intellectual property rights and farmers' rights

1. Enhance cooperation between the formal breeding sector and farmers including small farmers who make substantial contributions to food security and sustainable use of agro-biodiversity – including neglected crops
2. Support breeding targeted to nutritional needs of whole populace without unduly disrupting existing traditions and farming systems where these contribute to biocultural heritage, food security, sustainable use of agro-biodiversity
3. Support development of non-food or luxury food crops for sale on national and international markets that can generate wealth that can be captured at local and national levels

4. Encourage growth of domestic breeding industry dedicated to supplying domestic needs
5. Encourage foreign firms to transfer their high-quality varieties and set up facilities to adapt these to local conditions
6. Support smallholder farmers' rights freely to experiment, cultivate, share, and sell the fruits of their farms including seeds – this might require exemption in Plant Variety Protection rules
7. Help farmer organisations to identify small-volume but high-value niche products and use appropriate marketing tools (trademarks, geographical indications etc.)
8. Seek to identify and take into account local resource management, governance systems and customary rules *and*

# Acknowledgements

## *Literature:*

FAO Website

J. Stephen Lansing, *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali*, Princeton University Press

UNESCO Website

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