MULTI-FUNCTIONALITY OF THE IFUGAO RICE TERRACES

Rogelio N. Concepcion
Project Leader
Director, Bureau of Soils and Water Management

Phase 1.

Country paper for the ASEAN-Japan Multi-Functionality of Paddy Farming and its Impacts in ASEAN Countries

Participating Countries

Brunei, Cambodia, Lao-PDR, Indonesia, Malaysia, Myanmar, Thailand, Vietnam, Philippines

Duration

Phase 1: April 2001 – November 2003
Phase II: December 2003 – March 2006

Funding Source – MAF, Japan

Project Phase 1 Objectives

1. To establish common understanding on the importance of multi-functionality through analytical work in ASEAN member countries

2. To create appreciation on the contribution on multi-functionality to the ASEAN countries long term policy making for further development of sustainable agriculture in the rural areas.

Operational Framework of Multi-functionality

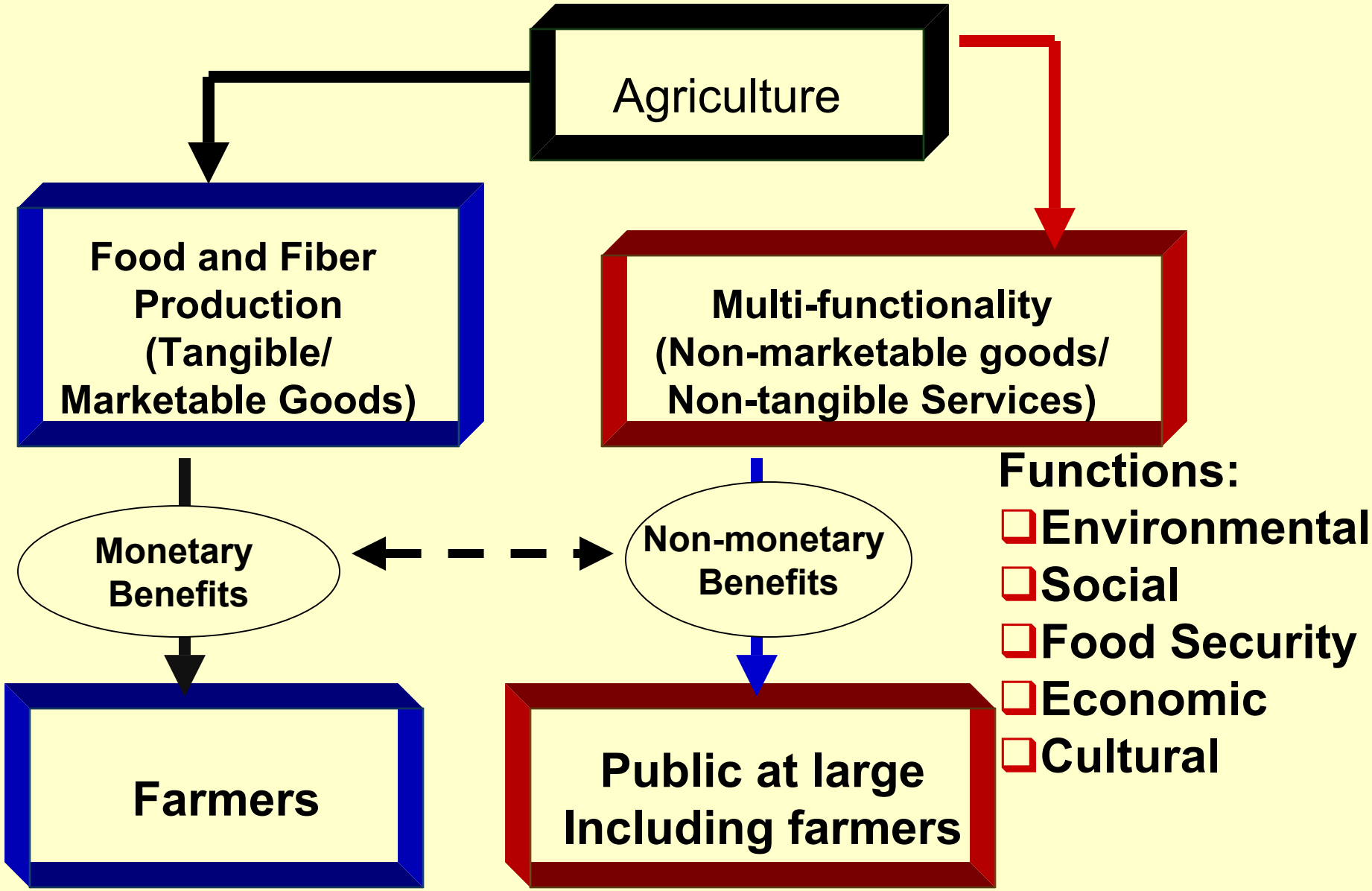
Groentfledt, 2003

Multi-functionality concept was first articulated in the 1992 Earth Summit in Rio De Janeiro in the context of discussion of contribution of agriculture to environmentally Sustainable Development.

Matsumoto, 2002

Agricultural activities not only produce tangible products in the form of food and fiber, but also create non-tangible values, which are referred as the multi-functionality of agriculture.

Multi-functionality is not tradable and cannot be reflected in the food prices. The tradable or marketable products of farming provide direct benefits to farmers, whereas, the non-marketable goods and services benefited not only the farmers but the general public as well.



Multi-functionality of Agriculture (adopted from Matsumoto, 2002)

The Philippine Modernization Law for Agriculture and Fishery provides legal basis for Multi-functionality

The broad concept of multi-functionality of agriculture is stipulated in the Declaration of Policy under Section 2 of Republic Act 84535 (AFMA) which declares that

" The state shall adopt a *market approach* in assisting the agriculture and fishery sectors *while recognizing the contribution* of the said sectors to *food security, environmental protection, and balanced urban and rural development*, without neglecting the welfare of consumers, especially the lower income groups."

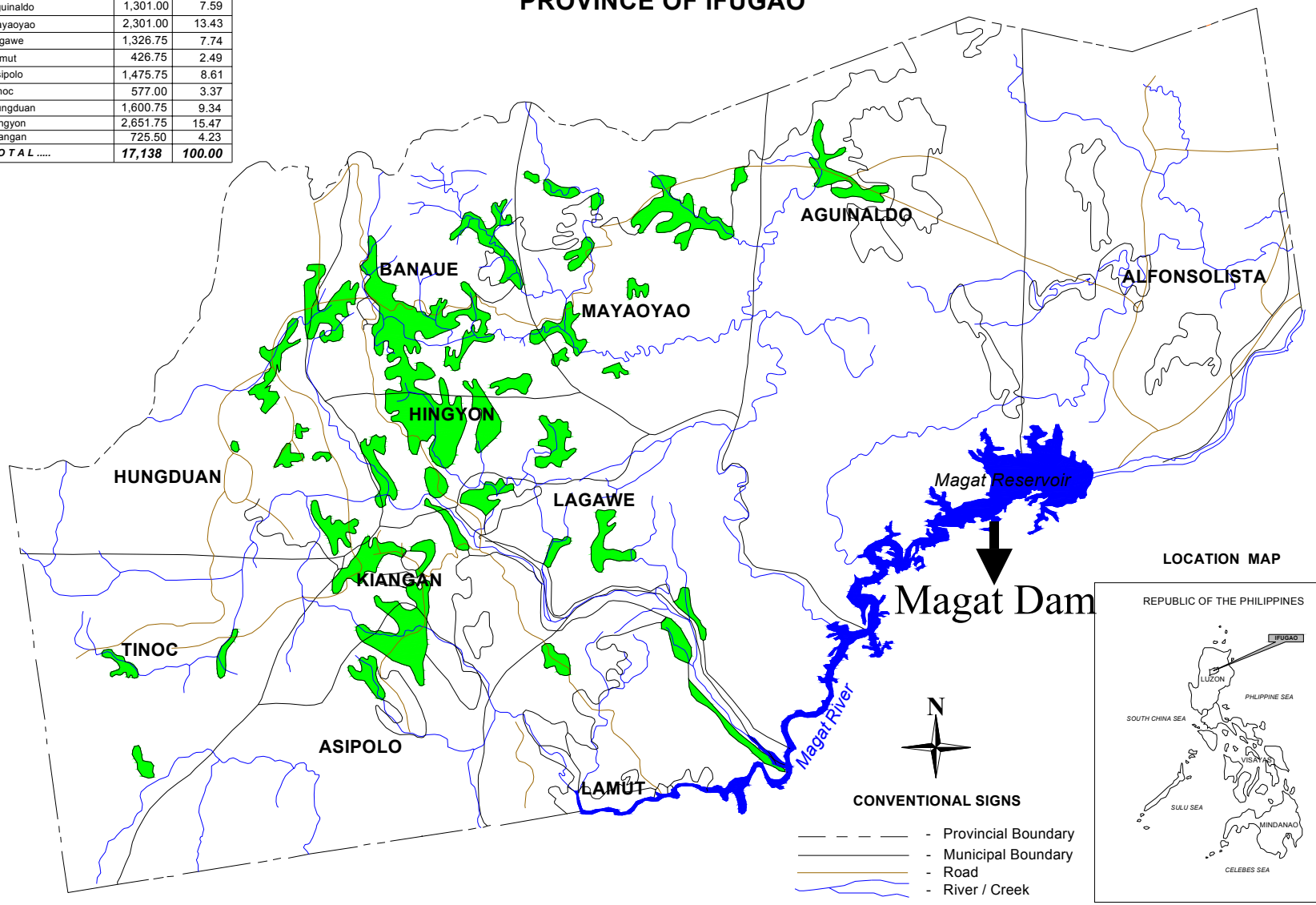
The Pilot Site for Phase 1

- **The Ifugao Rice Terraces**

Location of Rice Terraces
PROVINCE OF IFUGAO

LEGEND

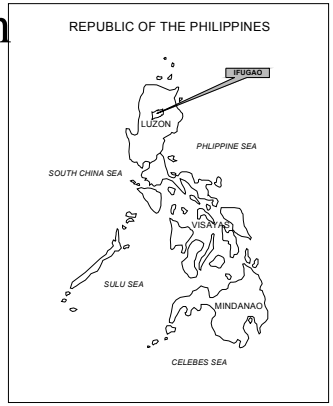
MUNICIPALITY	AREA (Ha.)	%
Banawe	4,751.75	27.73
Aguinaldo	1,301.00	7.59
Mayaoyao	2,301.00	13.43
Lagawe	1,326.75	7.74
Lamut	426.75	2.49
Asipolo	1,475.75	8.61
Tinoc	577.00	3.37
Hungduan	1,600.75	9.34
Hingyon	2,651.75	15.47
Kiangan	725.50	4.23
T O T A L	***17,138***	***100.00***



CONVENTIONAL SIGNS

- Provincial Boundary
- Municipal Boundary
- Road
- River / Creek

LOCATION MAP



In 1996, the UNESCO in declaring the Ifugao Rice Terraces as a World Heritage projected the Ifugao's exceptional achievements as priceless mainly in the form of non-tangible services/multi-functionality with no monetary equivalent:

"For 2000 years, the high rice fields of the Ifugao have followed the contours of the mountain.

The fruit of knowledge passed on from one generation to the next, of the sacred traditions and a delicate social balance, they helped form a landscape of great beauty that expresses conquered and conserved harmony between human kind and the environment."

Categories of Multi-functionalities, Defined

Categories of Multi-functionality Defined

1. **Economic function**

Pure Economic Function (Non-multi-functionality, Monetary Values)

Pure economic function of agriculture is the classical and historical function of agriculture in economic growth such as food supply and income generation for the individual farmers.

Additional Economic Functions (Multi-functionality,Non-monetary values, valuation by attribution)

In addition to this pure economic function,agriculture also provides the people living in the rural area with stable job opportunities regardless of economic fluctuation. These pure economic and additional functions contribute to the rural development well balanced with urban area as well as to the healthy growth of rural communities, which are important factors in the sustainability of a nation's overall development

2. Environmental Function

Agriculture, especially paddy farming, provides a variety of environmental functions such as flood prevention, water retention, soil conservation and biodiversity. For example, paddy fields store the water at the time of heavy rain, and gradually discharge the water into downstream rivers and surrounding areas, and thereby preventing or mitigating the damage caused by flood

3. Food Security Function

Food security is understood as access to food (at all times, everywhere, and by everyone) and to be substantially dependent on domestic population in combination with an adequate supply of food reserves and the capacity to import.

In this connection, national agricultural sectors have two functions:

(i) domestic food supply and (ii) export of some agricultural products enabling imports of other foodstuffs.

Some of the food security effects resulting from domestic agricultural production may be expressed through market mechanisms, but others are externalities or public goods, for example, the insurance effect of a certain level of self-sufficiency or the provision of national strategic needs (food safety and balanced nutrition)

4. Social Functions

Rural viability mainly through the **creation of employment opportunities and income**, which permit farming populations to stay on the land and participate in the economic and social life of rural communities.

Mitigation of urbanization. If the life in rural areas is attractive for both rural and urban people, it can also help **maintain its rural character**. When a serious economic crisis occurs, it is often said that an agricultural sector absorbs excessive labor force in urban areas, and thus it mitigate the formation of the slum and decrease the crime rate areas.

Sheltering function.

Agriculture plays a role of a **buffer, safety net, or economic stabilizer** when a society faces economic recession or exogenous financial shocks. This socially stabilizing role of agriculture is often overlooked by the Policy makers.

5. Cultural Function

Agriculture and rural areas create beautiful landscapes and traditional cultural heritage. They are often used for tourism attraction and provide rural community with additional income. Furthermore, they play an important role to enhance the quality of life for those who live in rural areas.

Study Methods

Data and data Collection

Analytical Methods

Study methods

Function	Data and Data Collection Methods
Environmental Functions	
•Soil Conservation Function	Installed automatic rain gauge
•Flood Prevention Function	Evapo-transpiration estimate, Installed sediment trap in terraced and unterraced fields
•Water Conservation Function	Evapo-transpiration estimate Actual measurement (dike height and width in various slopes)
Social Function	Actual commissioned study. Secondary sources (CECAP) Family income, poverty incidence, farm households, urban-rural employment, migration patterns, human dev. Index, Max. basic needs Index

Function	Data and Data Collected in the Study
Food Security Function	Secondary data Rice supply and demand, per capita consumption, Urban-rural rice sufficiency ratio
Economic Function	Commissioned study Secondary data Irrigated areas, cropping index, aggregate production per mun., income analysis, share of agricultural employment
Cultural function	Actual field interviews and prepared questionnaires in tourist destimnaiton areas within the study areas.

Multi functionality Analyzed	Methods of Analysis
Agricultural production	
1. Economic Function (tangible, non-multifunctionality)	Rice Production and Gross Revenue
2. Non-economic, non-tangible Functions	Analysis of share of Agriculture in: ❑Aggregate food production ❑Share of rice terraces from provincial production ❑Cost and return income analysis ❑Share of agricultural employment

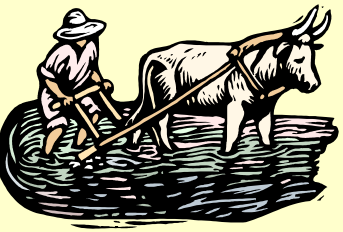
Multi-functionality Analyzed	*Methods of Analysis*
No-Tangible, Non-Agricultural Production Services:	
1. Environmental functions (soil conservation, flood prevention, fostering water resources)	❑Replacement Cost Method (RCM) ❑Indirect Substitute Method
2. Social functions	❑Rural employment and Population
3. Food Security	❑Rice Sufficiency Ratio
4. Cultural functions (rural amenities, rice wine production rituals)	❑Contingent Valuation Method (CVM) ❑Travel Cost Method (TCM) ❑Willingness to Pay Method (WTP)

Summary of Results

Quantitative Values of Multi-functionality of the Ifugao Rice Terraces

Rural-Urban Employment

Year/ Location	Agriculture	Manufacturing	Services
Urban			
·1990	16.7	16.7	66.7
·1995	25.0	12.5	62.5
Rural			
·1990	74.5	1.8	23.6
·1995	80.4	5.4	14.3
Total			
·1990	68.9	30.3	27.9
·1995	73.4	6.3	20.3
·2000	72.1	8.8	19.1



Agriculture has remained the major source of employment during the last 15 years

Social Function

Rural-Urban employment

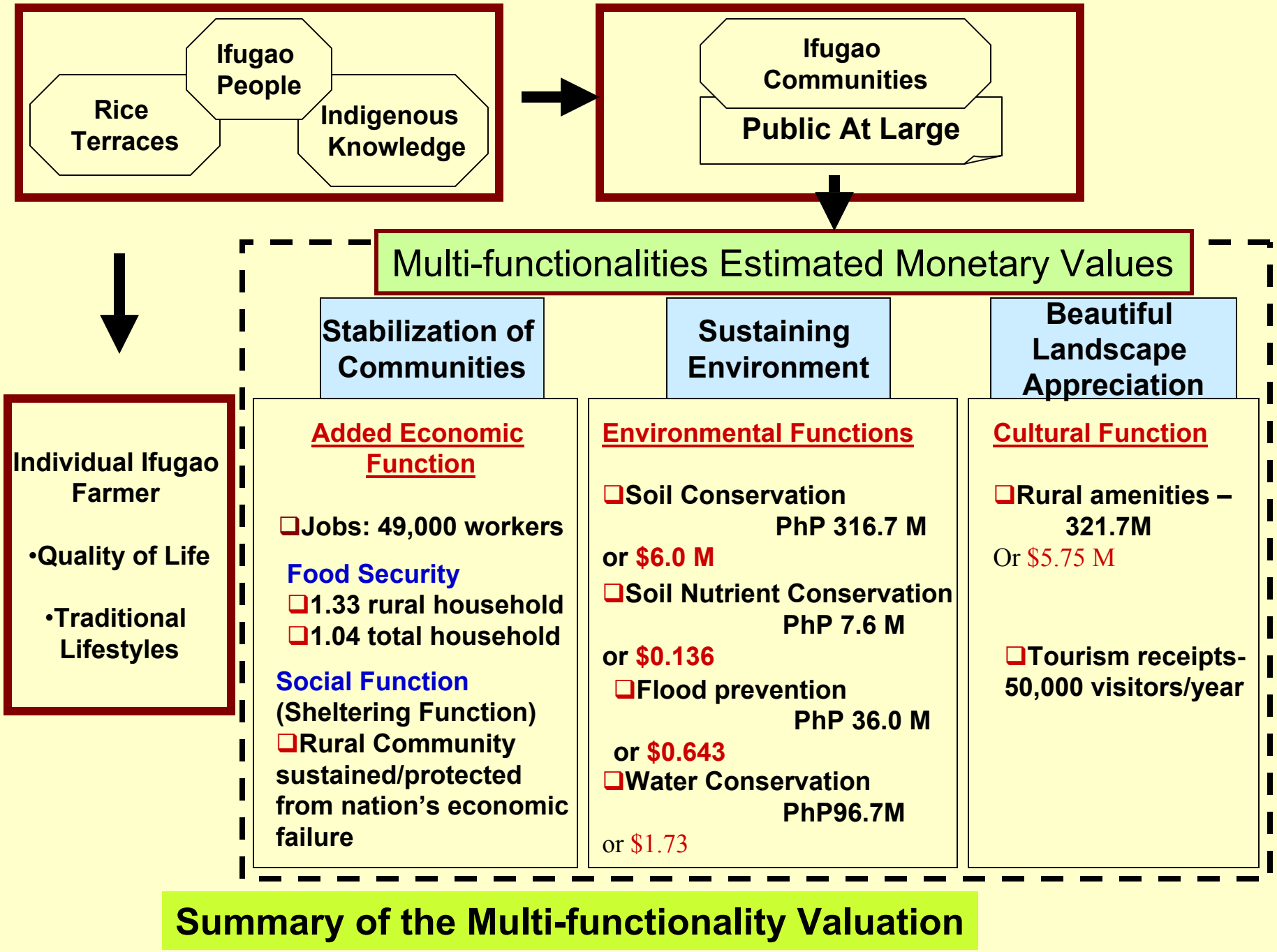
Year	Urban	Rural	Ifugao
Labor force participation (%)			
1990	62.5	78.7	78.3
1995	53.8	72.0	69.5
2000			73.7
Unemployment (%)			
1990		6.8	6.2
1995		5.1	4.5
2000			4.1

Indicate declining capacity of agriculture to absorb labor over the last decade

Result of Self Sufficiency Ratio analysis for Food Insecurity

Household	Actual consumption	Recommended Intake
Rural Household	1.33	1.40
Urban Household	1.04	1.10

The SR suggest that the rice terrace can support the total rice requirements of the communities, including seed requirements. The surplus provided by the 6 municipalities is more than enough to cover the deficit of 3 other municipalities.



Summary of the Multi-functionality Valuation

Future Plans for Action – Phase 2

- **Phase 2 shall start in December 2003 and end in March 2006**
- **Objectives**
  - **To undertake quantitative analyses of the important aspects of multi-functionality of agriculture**
  - **To identify and recommended policy measures that will strengthen the sustainability of agriculture and its support natural resources and ecosystem**

Conclusions

- The study on Multi-functionality can be an important tool for Sustainable Land Use Formulation and in establishing the quantitative and qualitative synergy relationships of the various UN Conventions such as Biodiversity, Climate Change and Desertification and Land Degradation and offer as well the quantitative response to Agenda 21 of the United Nations and Millenium Development Goals

- The Ifugao Rice Terraces, aside for its capacity to supply basic rice requirements, provided a variety of important environmental services an rural amenities worth at least $8.51 million, and the aggregated value of products where farmers are direct recipient, with estimated monetary value of $5.04 million (28,284 MT palay output).

- The Ifugao Rice Terraces for more than 2000 years was able to contribute to the maintenance of a viable rural development. For instance the IRT has been a stable source of rural employment for the last 15 years.

- The estimate rural amenities attributed to the Rice Terraces is $5.75 m/yr. In addition, the continuous paddy farming, likewise, ensured the preservation and transmission of their rich cultural heritage.

- The Rice Terraces was able to provide safety nets to the rural population and mitigate rapid urbanization that would have seriously affected the overall protection and conservation of the IRT.

- There are good indications that local residents and tourists as well are willing to pay for the conservation and protection of the Ifugao Rice Terraces.

Thank you!!!