

# INTRODUCTION

## **The Scientific Excursion: Participants, Objectives and Working Groups**

by

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### **1 Ifugao - cultural landscape and its change**

“The terraced landscape of the Cordillera Mountain Range in northern Philippines is regarded by the nation as the primary symbol of its cultural heritage. It is even more noteworthy that a cultural monument of the extent and grandeur of the Cordillera Rice Terraces was totally constructed without the use of slave or enforced labor.

The irregular shapes of the terraces result directly from the need of a rice culture to cultivate its mountainous terrain, by necessity evolving its own traditional environmental and resource management system over the centuries, and orally transferring the traditions and knowledge associated with this system to its succeeding generations. The impressiveness of the site reflects the delicately balanced processes of environmental, social and cultural factors which have intertwined constantly from the time of the original construction to the present to assure the continued maintenance of this remarkable land form. The preservation and maintenance of the site is symbiotic with the continuation of the culture which it nourishes. Terracing was said to have evolved for approximately 2,000 years, as postulated by the region's foremost scholars.“

VILLALON (1995: 108)

Because of many of the reasons and aspects mentioned in this idealistic description, large parts of the terraced landscape of the Central Cordillera (Philippines/N-Luzon/Ifugao and neighbouring provinces; compare Figure 1) have been designated as a World Heritage Site by the UNESCO in December 1995. However it has become increasingly obvious, that the area and its people face serious problems especially concerning future development (MARGRAF & VOGGESBERGER, 1986, 1988; SETTELE et al., 1995; see also ITC, 1994: Masterplan of Rice Terrace Commission).



Due to population increase and many influences from the so called more developed parts of the Philippines (like in Metro Manila) as well as from other parts of the world, Ifugao culture has also been changing throughout the last decade(s). Because of increasing demand for rice, new varieties are grown and agrochemicals applied in some areas, enabling two crops per year. In some areas swidden cultivation has been neglected, seemingly around touristic spots (see HERZMANN et al., this volume, pp. 77-89). Tourism itself is one of the options of future development. Partly - for example around Kiangan - the former terrace pond field culture has changed into vegetable gardening.

The new possibilities of education also promise a better future in non-agricultural professions. Thus young people tend to leave the region, which leads to an increase in the average farmer's age. This endangers the future of agriculture in the area in general, and is a typical example of tendencies which can be globally observed in culturally highly developed communities of 'Third World Countries' and in general in many mountainous areas (BEINLICH & PLACHTER, 1995; VON DROSTE et al., 1995). Thus, Ifugao Province seemed to be an ideal place for a case study to experience the problems of social, cultural and ecological changes on the one hand and to contribute to the improvement of knowledge on certain aspects of the system on the other hand. Based on the experience of some of the members of our teaching staff (see compilation of German research activities on page 28) we therefore had the idea to conduct an interdisciplinary excursion with 20 students and 6 scientists of 4 German universities, which took place from 28<sup>th</sup> of February to 22<sup>nd</sup> of March 1997.

## 2 Participants

The excursion was organised by university teachers of

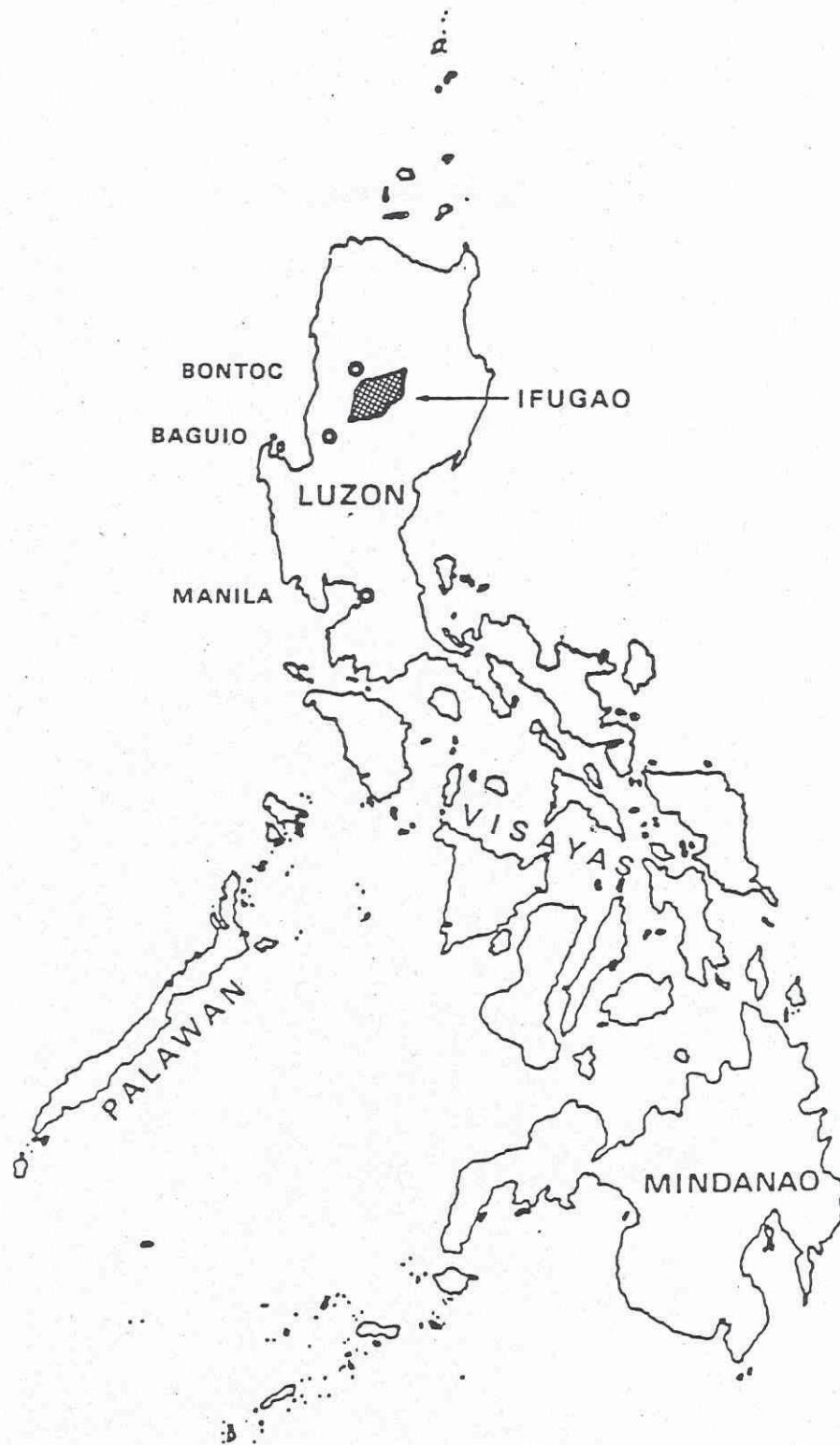
- UFZ - Centre for Environmental Research Leipzig-Halle (J. SETTELE),
- Philipps-University Marburg (H. PLACHTER),
- Justus-Liebig-University Giessen (J. SAUERBORN),
- Brandenburg-Technical-University Cottbus (D. VETTERLEIN), and
- University of Hohenheim (K. MARTIN, R. BARTHELMES).

The students (compare list of contributors and participants on page 5) represented the following university courses:

- agriculture (with specialists in plant production, agro-ecology, environmental safety, human nutrition and sociology),
- biology (emphasis: nature conservation, botany, zoology), and
- environmental engineering (esp. soil conservation).

## 3 Objectives of the investigations

The experience of interdisciplinary and scientifically as well as socially relevant research was the major objective of the two-week field study. This had to be achieved by confronting students and supervisors with the problems of people living in a system with rapid and fundamental changes. Based on long-term experience in the region of some of the participants, it was possible to investigate a broad variety of aspects of Ifugao landuse and culture. The task also has been to put results of such detailed work back into the landscape ecological frame later on, and to prepare a public presentation of the results.



**Figure 1:** Ifugao Province (our 'study region') within the Philippine archipelago  
(taken from MARGRAF, 1988)







#### 4 Working groups

Field work was conducted in 5 working groups:

**Socioeconomy:** As new developments are only possible with the people implementing them, work of this group was of overall relevance for all other groups. The main task was to get some ideas about Ifugao people's own view of their future. What are their expectations and future plans, mainly concerning landuse? How is their nutritional perspective and how their rice supply from their own fields? Reliable information on some of these aspects is essential for future activities and scenarios of development (see SETTELE et al., this volume, pp. 91-98). The detailed results of the group are summarised by BARTHELMES et al. (this volume, pp. 29-42).

**Nutrients:** This group focussed on Nitrogen cycles in the Ifugao landuse system, especially on (inorganic) Nitrogen transported into the rice field water body. Calculations on the effects of increasing numbers of tourists (for example based on scenarios of ITC, 1994) have also been made. As a hypothesis it has been stated, that much of the nutrients reach the fields with surface runoff and thus fertile fields are especially below the villages (e.g. stated by MARGRAF & VOGGESBERGER, 1986, 1988; for details see JAHN et al., this volume, pp. 43-54).

**Water snails:** Since the last studies on the aquatic fauna of the terraces has been conducted around 1990 by MARTIN (published in 1994), an alien species - the Golden Snail (*Pomacea canaliculata*) - has reached the region. This species has been reported as an important rice pest in the lowlands of the Philippines and in many other parts of South East Asia (HALWARTH, 1994; NAYLOR, 1996). Aim of the study was to find out the impacts of the snail, especially on the snail community in the fields (including possible replacements of indigenous species). It also has been hypothesised, that the snail is a pest of young rice seedlings in the area. For further details see paper by MARTIN et al. (this volume, pp. 55-61).

**Botany:** Analysis of successional trends in the landscape and changes in species composition in relation to landuse. Data should complement the results of the compartment group for the different types of landuse distinguished. In the long term such data would be useful to analyse the effects of landscape structure and distribution of certain plants for the dynamics of insect pests and their natural enemies on a landscape level. It also could and should form a basis for the evaluation of the function of different compartments in terms of erosion control. Hypothesis has been, that in later successional stages widespread species are replaced by more regionally distributed ones, and that species number in the first years of succession declines, but in forested stages increases again. Due to time limitations, only some first stages have been investigated, therefore only parts of the hypotheses could be tested. Details of the research and its results are described in DIEFENBACH et al. (pp. 65-75).

**Compartments:** The objective was to analyse the changes in the distribution of different compartments of the Ifugao landuse system (mainly rice fields, swiddens in use, swiddens in fallow, grasslands, woodlots and forests) over a period of approximately 40 years. Analysis was based on the maps of CONKLIN (1972, 1980), aerial photographs from the early 1980's (provided by CECAP, which is gratefully acknowledged) and own field data. Investigations were concentrated on the Banaue villages of Tam-an and Poitan. According to presumptions of SETTELE (1994), basic hypotheses had been, that forest cover in the area is reduced and thus watershed problems could be expected, which should have led to decreased irrigated rice field areas. Details are summarised in the article of HERZMANN et al. (this volume, pp. 77-89).



## 5 Presentation of activities and results

The main presentation of our results took place on 18<sup>th</sup> of March 1997 in Banaue, to which the director of the Rice Terrace Commission 'Mr. Juan DAIT', extension officers, farmers' representatives, members of CECAP (Central Cordilleran Agricultural Program of the European Community), and further members of the Ifugao community have been invited.

Two articles by Mr. Juan DAIT mentioned the group's activities in Philippine newspapers (these articles can be found in the appendix of this volume, pp. 110-121, together with copies of 4 further German reports, which have been published by members of our group after we have returned from the Philippines). The public presentation of our results for most of us has been a completely new experience. For most of the students it has been the first time ever to present results in English language, and also the first time to present their ideas to people directly confronted with the consequences of such research and ideas.

This report is a final summary of our activities. We hope that it is of use as an additional source of information for decisions concerning the future development of the World Heritage Site of the Central Cordillera Rice Terraces.



**Picture 3:** Part of Tam-an valley, main research area during the excursion (March 1997)



# **Rice Terraces of Ifugao (Northern-Luzon, Philippines) Conflicts of Landuse and Environmental Conservation**

- Report of a Scientific Students' Excursion -

edited by

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