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The ugly duckling in the international agricultural
research pond:
the role of social anthropology in research for
increased agricultural productivity

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INTRODUCTION

Examining the history of social anthropology we recognise the fact that since the birth of the discipline in the middle of the nineteenth century and up to the present day, a great number of anthropologists have described and analyzed agricultural production within the various communities they have studied. This is not particularly remarkable since securing the daily bread is, after all, one of the most essential features of any people's livelihood. Anthropological classics have, almost without exception, focused on the relationships between human communities and their natural environments. This implies that they have studied the systems, tools, techniques, organizations and institutions that communities all over the world, and to all times, have applied in order to acquire the material and spiritual means they depended on. Here can be mentioned Malinowski and his thorough description and analysis of agriculture and cycles of exchange among the Trobriand islanders; Julian Steward and his studies of the relationship between Shoshoni culture and the manners in which they utilized the natural resources; Evans-Pritchard who in detail depicted the importance of cattle herding within the Nuer mode of adaptation; Paul and Laura Bohannan who portrayed landrights and agriculture among the Tiv; Edmund Leach who studied the relationship between kinship and landrights in Ceylon; Raymond Firth's analysis of Polynesian agricultural economy; Sahlins' analysis of the "stone age mode of production"; Foster and Wolf who investigated typical features within the "peasant mode of production"; Stenning, Gulliver and Barth who have examined various forms of nomadic and semi-nomadic adaptations; Geertz's description and comparison of the two separate agro-ecological systems in Indonesia; Marvin Harris who have analyzed how well-known cultural features, e.g. male chauvinism, could emerge as responses to various communities' needs for nutrition; Audrey Richards who wrote the classical study on Bemba agriculture; and Rappaport's mathematical-ecological approach to the conception of pig keeping in New Guinea. This is, of course, just a few and randomly chosen examples from a large bibliography on the subject of "agricultural anthropology".

It is correct hence to argue that anthropologists have studied all forms of agriculture, and that they have applied any sort of technique from archaeological methods about the origin of agriculture to advanced ethnographic descriptions of modern, industrialized agriculture (Rhoades 1984: 1).

The discipline's focus on agriculture is highly understandable as the fundamental industry in most societies is the production of food and fibres. With increased population pressure on limited natural resources, human beings in the future must seek new ways to intensify food production. The manners through which this will happen will be a natural field of interest for anthropologists. Seen from this perspective, an obvious question must be posed: How is it possible that anthropologists who have had, still have, and in the future are expected to have such a close and direct connection to farming populations all over the world have such a restricted role regarding research, planning and implementation of increased productivity in agriculture?

ANTHROPOLOGY AND AGRICULTURAL RESEARCH: A BRIEF HISTORICAL ACCOUNT

The position of anthropology within international research for increased agricultural productivity is limited, but it is present. When anthropology was first introduced to this type of research is difficult to date, but it might be valid to take as a point of embarkation the two American anthropologists Robert Redfield and W. Lloyd Warren who in 1940 presented the article: "Cultural Anthropology and Modern Agriculture" where they claimed that anthropology could offer a unique perspective on how agriculturalists adapt to their social and natural environments. According to them anthropological analytical theories and the field based methodology could make a solid foundation for planning and implementation of agricultural development programmes (Redfield and Lloyd 1940). The ideas presented in the article had, however, little impact, and in the next thirty to forty years the paths of anthropological and biological agricultural researchers rarely crossed.

One of the few crossing points to appear was in the USA during the Second World War where a temporary and limited collaboration took place between anthropology and agricultural research. In this period some interdisciplinary projects which were dealing with food policy problems employed anthropologists. One committee under the National Research Council working on such issues was lead by Margaret Mead (Rhoades 1986: 59).

Generally, however, anthropologists were left on their own, and communication with the biological sciences was, with some few exceptions, non-existing. Two attempts to break this state of non-communication should be mentioned. The first came with

Pierre de Schlippe's book from 1956: "Shifting Agriculture in Africa" which addressed culture and agriculture among the Azande of Southern Sudan. The second came with Clifford Geertz's book from 1963: "Agricultural Involution", which was based on participation in an interdisciplinary team under the auspices of the Massachusetts Institute of Technology, Center for International Studies in the period 1952-59.

Based on a long and broad working experience with African agriculture de Schlippe became very much occupied with the connection between a people's culture and the agricultural methods that this people employed in the adaptation to the natural environment. Based on his experiences he wrote: "If only we could interpret a traditional (agricultural) practice in terms of its environmental and traditional limitations, we could certainly find the way to its (the agricultural practice) improvement...This task requires the co-operation of two disciplines - agronomy and social anthropology. Neither the agricultural research station nor the field anthropologist alone can give us the necessary understanding of agricultural practice in the humid tropics. The crucial problem...lies in the contact zone between man and his environment...and therefore between the two fields of research which have not yet undergone the necessary co-ordination" (de Schlippe 1956: xvi).

Despite his intentions and aspirations, his efforts did not have any serious and enduring effects regarding the anthropological contribution to international agricultural research. And it did not lead to any closer contacts between anthropologists and agronomists.

THE ENTRANCE OF ANTHROPOLOGY INTO THE ARENA OF INTERNATIONAL AGRICULTURAL RESEARCH

Several influential international organisations are today heavily involved in agricultural assistance to the Third World, e.g. the World Bank, USAID and FAO. When, however, we talk about international institutions that are genuinely engaged in agricultural research for increased productivity it is basically the large agricultural research centres within the CGIAR-system¹ that spring to mind, and it is the role and function of anthropologists within this system I will concentrate my attention in the continuation of this presentation.

¹CGIAR is the Consultative Group for International Agricultural Research based in Washington D.C. It has a close affiliation to the World Bank.

The first important watershed that demarcated the entrance of social scientists into agricultural research took place at IRRI² in the early 1960s. At this stage IRRI started to employ agricultural economists, with Vernon W. Ruttan as the first one. It was in connection with the economists' appearance on the arena that the systems analytical approach, i.e. "Farming Systems Research" was developed. The role of economists has since then significantly increased to the extent that every international research centre today has its own economic department (Rhoades 1984: 4-5).

The opportunity for anthropological participation arised approximately ten years later. Up to that stage both economists and biologists had been particularly critical towards anthropologists, one reason being their perceived negative attitude toward the biologists' great achievement - the "Green Revolution". Another reason for the negative attitude, and perhaps even a more serious one, was the "narrow" perspective perceived to be so prevalent among anthropologists. As Susan Almy writes: "The biggest objection against anthropologists was that they sat in a single village whereas the centers were mandated to create knowledge useful at an international level" (Almy cited by Rhoades 1984: 5).

The first institution to accept the "non-economic social science perspective" (primarily sociology and anthropology) as participating disciplines within agricultural research at an international level was the Rockefeller Foundation. In 1974 it established and funded a fellowship-programme called "Social Science Research Fellowship in Agriculture and Rural Development". CIP, the international potato research center in Peru was the first CGIAR-center to receive a Rockefeller Foundation research fellow within anthropology, and CIP is up to now the center that has used the highest number of anthropologists (Rhoades 1984: 6).

BIOLOGISTS VERSUS SOCIAL SCIENTISTS

The entrance of social scientists into the international scene of agricultural research - which the biological researchers felt to be their private domain - did not take place without tensions and conflicts. According to Vernon W. Ruttan (1980: 1): "The tensions (between natural and social science disciplines)... stemmed from several sources. One was the later emergence of fields such as agricultural economics and rural sociology as compared with fields such as agricultural chemistry and agronomy.

²The International Rice Research Institute in the Philippines, a member of the CGIAR.

This time lag resulted in a struggle to establish the legitimacy of the social science based disciplines within colleges of agriculture, agricultural research institutes and ministries of agriculture. A second source of tension was the different subject matter of the...disciplines...The subject matter of the natural science based disciplines is plants, animals and land. The subject matter of the social science based disciplines is man and man's institutions. These two subject matter areas intersect at the level of the farm..; at the level of the community..; and at the level of the society or nation...".

Regarding the relationship between social scientists and biologists, R.L. Sawyer, director of CIP have summarized the situation in the following manner: "In the past relationship between agricultural and social scientists has been an uneasy one. Social scientists were often seen as outside critics who levelled sharp and unsympathetic attacks against agricultural research and development, especially in Third World countries. Anthropologists in particular seemed aloof, and arrogant toward biological science research. While anthropologists viewed themselves as defenders of traditional agriculture against the negative effects of modernization, individuals working to improve food production saw the social scientists' relationship to rural populations as unbalanced...The sad irony is that agricultural development could have benefitted from anthropology" (Sawyer 1984: vii).

A central issue that has all the time affected the collaboration between biological researchers and anthropologists concerns the incompatibility between the continuous pressure to develop new varieties, cultivation techniques and tools, and the more thorough and exhaustive methodology signifying anthropological research. But this contradiction between the quick and effective biologists and agricultural engineers on one hand, and the slow-moving anthropologists on the other is fictitious. As Robert Rhoades claims: "most agricultural experimentation tends, by necessity, to be painfully slow...[To] conduct a simple, on-farm potato storage trial takes over a year, not including data analysis and writing up. Besides, few self-respecting technologists have faith in only one season" (Rhoades 1986: 63). In another context, Rhoades argues: "Any potato breeder will tell you it takes a minimum of 10 years to breed a new variety. CIP's storage experiments have been going on for a decade...Economists at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India have been researching the same few villages for over a decade. Agricultural research under any disciplinary label is a time consuming process...It may be...that anthropologists and sociologists...are more vulnerable to criticisms when they commit

sins of agricultural science" (Rhoades 1984: 48).

Several anthropologists who have worked for the international research centers are obviously frustrated about the attitudes of the biologists to their profession. Angelique Haugerud, who worked as an anthropologist at CIP, concludes: "There is a perception on the part of the biological scientists who dominate the international centres that the anthropologists, if not controlled, are commonly tempted into complex and complete studies of particular communities or situations (...) This unwillingness (of using anthropologists) is linked not only to the view that biological scientists are more useful, but also to the common perception that social science research is politically sensitive and risky" (Haugerud 1989: 35/42).

Regarding the participation of social scientists in projects run by the international rice research institute (IRRI) in the Philippines, the social scientists give the following comment: "Social scientists have been assigned the role of 'those who know what farmers want' in contrast to agricultural scientists, 'those who know what farmers need' and both the information and the methodologies used by social scientists have appeared inaccessible and often illegitimate to the latter" (Jiggins and Fresco 1986: 489).

Christina H. Gladwin, who worked as an anthropologist at Guatemala's institute for agricultural science and technology (ICTA), clearly demonstrates her grievances with her role and function by stating: "The anthropologists in the socioeconomic team waste their uniquely anthropological training. While they contribute to ICTA's program by surveying farmers, analyzing regional budget data, and evaluating last year's farmer tests, they do nothing that cannot be done by a sensitive agronomist with two or three courses in social science. They could be collecting ethnolinguistic or ethnoecological data on the ways farmers process information about the environment and categorize their traditional varieties of seed ... ; their lands, soils, and crops..., and the pests and diseases that attack their crops and livestock...Ethnoecological analyses of native terms and expressions and ethnographic decision modelling of the kind presented here are tools that would make an anthropologist's contribution to a farming systems program unique and invaluable" (Gladwin 1982: 89).

From the arguments above we might get the impression that anthropological knowledge and competence is not appreciated within international agricultural

research, and hence of little importance and relevance. The positive signals are, however, more numerous and powerful than the negative.

Regarding the most recent field of research within the CGIAR-system, agroforestry, Burch, Jr. and Parker (1991: ix-x) argue that "the need for approaches that balance biophysical and social knowledge are suggested by several factors: (1) the social scale in which we are operating is large; (2) deforestation is more often a symptom of underlying institutional and cultural problems than of failures in technology; (3) afforestation, reforestation, and other land rehabilitation activities gain more through improved social organizational technologies than through biophysical activities. Indeed, agroforestry is a "very social science" (...) The successful agroforester will need an awareness of cultural values and the forces that compel the emergence of new values. Here anthropology may be the best guide."

From an even more authoritative position, it is clearly stated: "Insights gained from close contact with the everyday lives of farmers and ethnographic methods to help pinpoint areas needing technological improvement are but two examples of how anthropologists can have a positive input...At the International Potato Center, an atmosphere has been developed where anthropologists are able to make a positive contribution in solving food production problems...Indications are that the mood in anthropology has now shifted toward a positive interest in agricultural research and development...To the extent that it (the social scientist input) succeeds, agricultural research strategies to improve food production will be richer and more effective. Anthropologists...will contribute directly to worldwide efforts to intensify food production and therefore to the well-being of the people they study" (Sawyer 1984: vii).

FARMING SYSTEMS RESEARCH

When analyzing the work of anthropologists within the international centers for agricultural research, it is possible to single out the following fields as the main foci of anthropological contribution: (1) Extension, including information, communication and technology transfer; (2) technology development; (3) training of other experts; (4) project planning, monitoring and evaluation; (5) interdisciplinary research with participation from local farmers on their own fields ("on-farm trials"); (6) household studies; (7) nutritional - food system - research; (8) research on gender issues; and (9)

studies on indigenous knowledge and its application on the management of natural resources. But up to now there has been one field of study that more than any other has engaged the attention of anthropologists, and where they had hoped that their particular competence would mean a break-through in agricultural research - farming systems analysis/research.

The economists were the first to work with agricultural systems analysis, and as Norman W. Simmonds claims: "Turning toward studying the farm as a "system" is a substantial step forward – from addressing only its technical and economic dimensions towards capturing the tight interplay between the agrotechnical, economic, sociological, managerial, and cultural variables intrinsic to the farm unit" (Simmonds 1985: vii).

From an anthropological perspective the most important feature signifying the farming systems approach is that sociocultural factors are explicitly given recognition as significant variables of any farming system. A comprehension of these variables must, by necessity, be of ultimate importance in order to examine farming systems, improve them, and, alternatively, to develop new ones. For anthropologists farming systems analysis represented a field of study where their particular scientific competence could be applied in order to actively solve "real" and "concrete" human problems. And exactly within this field, and the closely related "on-farm research", we find that anthropologists have laid down substantial efforts within the international agricultural research centers.

But even within this field of research the participation of anthropologists has not been completely frictionless. Simmonds, who accentuated the relevance of systems analytical research, made the following summary: "So economics has come to stay (in farming systems research). The position of anthropology is less clear...but one recalls the not altogether unfair stereotype of an anthropologist living in a village for years and emerging at the end with the view that the villagers are all splendid chaps who ought to be allowed to get on with their agriculture in their own ways regardless of the fact that the world around them will not allow them to do so...There might be little to distinguish him (the anthropologist) from the economist with well-developed social perceptions. But any generalized adoption of social anthropology would be, I believe, merely an expensive way of avoiding a few, not very costly, mistakes by OFR/FSP teams" (Simmonds 1985: 51).

Simmonds' understanding and opinion of the role of anthropologists are based on what one usually labels "arm chair research". Other economists, and in particular active field economists with practical experience regarding interdisciplinary research, are of a quite different opinion. Douglas E. Horton, with a long experience as an agricultural economist at CIP contends: "Experience from the Manataro Valley Project does not support this view, however (that anthropologists/sociologists are unnecessary team members in farming-systems research), and anthropologists' contributions to interdisciplinary teams were found to be no less important than those of economists and biological researchers. The holistic ecological framework and rapid, effective survey methods employed by the researchers were extremely useful throughout the research process" (Horton 1984: 58).

When the most senior economist within the whole CGIAR-system, Vernon W. Ruttan expresses that: "Anthropologists, in particular, have demonstrated a capacity to understand the dynamics of technology choice and impact at the household and village level that is highly complementary to both agronomic and economic research" (Ruttan 1982: 42), one should feel confident that the positive role of anthropologists within agricultural systems research is both relevant and legitimate.

WHAT SIGNIFIES THE ANTHROPOLOGICAL PERSPECTIVE IN FARMING SYSTEMS RESEARCH?

We have by now clarified the relevance and importance of anthropology as a discipline within agricultural research. But what characterizes the anthropological perspective? May be the following illustration by Ella Schmidt can give us a hunch: "it is sometimes difficult to remember that behind a kilogram of potatoes or corn there lies a human network of labour and knowledge supporting their production, and ultimately the perpetuation of a way of life. It is important that agricultural research keeps in mind the main actors: those farmers...that our research affects and perhaps benefits" (Schmidt 1988: 293).

Phil Burnham (1973:93), a bit more dramatically, makes the following assertion: "Quite commonly, Eskimo culture is cited as an apt, if somewhat extreme, example of how man's cultural capacity allows him to adapt to even the harshest circumstances. At such a gross level of analysis, such statements are unquestionably true, for it is apparent that the culture does make the difference between life and

death for the Eskimo as it most probably does for every other human being today".

In contrast to biologists and technical engineers it is hardly possible for anthropologists to point out concrete measures they have generated which have had the effect of increasing production with a certain number of kilogrammes per acre. Anthropologists do rarely focus on the physical technology itself, but on the managers of that technology, i.e. the cultivators, and their institutions, knowledge and beliefs. In this way they often appear as cultural mediators between cultivators and technical researchers, they "translate" and communicate the cultivators' knowledge, perceptions, needs and aspirations into a technical language which the experts can understand. One recurrent theme that anthropologists dealing with agricultural research often have emphasized, is that technical experts and local cultivators quite regularly have different strategies and conceptualisations ("paradigms") regarding experimentations and trials. When local farmers make experiments, which they continuously do, they have objectives, apply methods, and reach conclusions which are not easily apprehensible by technical experts who are outsiders both to the sociocultural and agroecological environments. Social anthropologists may, as they are often knowledgeable of the rationality of both local indigenous systems and external expert systems, create channels of communication between the two systems which may enable the development of common objectives, strategies and research methods. The social scientist can influence a process of network integration between local and scientific knowledge (Box 1988: 70), and we must admit the central importance of local knowledge. David Brokensha and Bernard Riley (1980: 113) make the following claim regarding the Mbeere community in Kenya: "In fact, Mbeere and other folk-belief systems contain much that is based on extremely accurate, detailed and thoughtful observations, made over generations. Without this basic "scientific" knowledge...the Mbeere would not have survived in their harsh and marginal environment".

What characterizes anthropology is that it has a set of methods and theories which can be used to track the relationship between, on one side, the drudgery of a human group to secure a viable livelihood, and, on the other, the group's religion, kinship relations, politico-economical conditions and ecological environment. The core of an agro-anthropological methodology concerns the close integration of agriculture with other social actions which together makes it possible to get a holistic image of the conceptions underlying a farmer's decisions to do what he does and the way he does it.

International agricultural research was, and still is, based on the principle that the "clients" should adjust their systems of cultivation and their social structures to the technical solutions elaborated by the experts. This is very much in contrast to an anthropological approach which, per definition, implies that the experts' solutions must be adjusted and adapted to the farmer and the local conditions under which she operates.

As a point of departure, one has to acknowledge the basic fact that cultivators are experimentalists and basically interested in technical innovations which may secure their livelihood and increase their income. In this respect we have to acknowledge that almost every crop variety and cultivation technique found in the world today are developed by local farmers themselves, on their own fields, and without any assistance social or biological scientists. These varieties and techniques have to be scrutinized, mapped, analyzed and understood in a full sociocultural and agroecological context before they are put on the research agenda for improvement or replacement.

THE "HOLISTIC" AND THE "CULTUROLOGICAL" PERSPECTIVE ON AGRICULTURE

It is possible to argue that the anthropological approach to agricultural development builds on two perspectives which are mutually dependent. The first is the *holistic* perspective; the second is the *culturological* perspective.

The holistic perspective

The fascination of anthropology towards the rural areas in the Third World has basically to do with the scientific foundation of the discipline. When the social sciences emerged and evolved from the mid of the nineteenth century, it was anthropology - as the youngest and last appearing discipline - that had to be content with the left-overs as the other social scientific disciplines had demarcated and outlined the subject matters pertaining to their professional fields of study. And everybody wanted to study the West and the "great" civilisations. What remained was what was conceived to be the technologically and economically backward parts of the world, i.e. the peoples of Africa, Asia, Oceania, and South-America, and the indigenous peoples of the Western world, peoples who today are commonly labeled

as "recipients", "poor", "clients", or "target groups".

From the initial period of study the anthropologists applied a broad approach including both natural, social and cultural variables. Since the anthropologists in this manner quite often appeared as a unification of sociologists, economists, historians, ecologists, linguists and agronomists, they developed a more comprehensive, composite or, rather, "holistic" perspective (Rhoades 1984: 1). At the same time as they studied the whole society, they also studied the society in a holistic context. This has ever since been a typical feature of the scientific profile of anthropology.

The culturological perspective

To give an example of what the culturological perspective implies, let me use a quotation by Pierre de Schlippe:

"it seems to me of greatest importance to acknowledge that a system of agriculture of a human group is an important although interdependent part of the whole culture of the group and that as such it is endowed with all features of a culture(...) [A] system of agriculture is an important cultural concept(...) agriculture is that part of culture which is the main force of adhesion of a group to its environment" (de Schlippe 1956: 240, 243, 244).

The following statement shows that the culturological approach is not an entirely new perspective, etymologically, but substantially builds on traditional perceptions: "Long before European forestry had taken shape, let alone been imposed upon Asia, Asian forestry had addressed the needs of the village, incorporated social and religious values, and reflected the wisdom of the arts. Hinduism, Buddhism, and other Asian religions emphasized the wholeness of society and nature and the union of the forester and the forest, the scientist and the poet" (Burch, Jr. 1991: 4).

THE APPLICATION OF THE ANTHROPOLOGICAL CONTRIBUTION TO INTERNATIONAL AGRICULTURAL RESEARCH

What anthropology offers agricultural research is hence a human focused approach to agriculture where it is possible to track the relationships between the farming households, the natural environment, the technology, the crops, the animals, and the wider societal environment. Methodologically the approach includes, participatory observation; informal interview surveys; cross-cultural communication; techniques to comprehend indigenous knowledge systems; and techniques for comparative analysis.

These methods enable anthropologists to comprehend both the mode of living among local peoples; their needs and problems; their values and beliefs; and their more comprehensive worldviews. This because the researcher, as a point of analytical embarkation, has a holistic approach where every aspect of human behaviour is envisaged as an expressive component of an integrated sociocultural system. This methodological foundation might quite often collide with a more typical specialized disciplinary foundation where research takes place in separate "compartments", be it on research stations or in laboratories. Seen from an anthropological perspective, biological researchers have a tendency to neglect the fact that in the center of any agricultural system, as in almost any ecological system, we find the human being, and this human being manages, controls and manipulates the various processes which constitute the system. Due to this reality, we have to take this human being as a point of departure in the research for increased agricultural productivity.

The basic concept underlying the anthropological perspective is "culture": a flexible, accommodating and adaptable pattern of ideas underlying any type of behaviour. Even if a culture is a changing, processual pattern, we will most often find that important components are transmitted from generation to generation. Seen in an agricultural perspective it is possible to say that at the basis of the human activities connected to the supply of food and other necessities there is an arsenal or storehouse of techniques, knowledge, values, perceptions and tools which human beings apply in their cooperation with the bio-physical environments.

Generally, it can be said that anthropologists study the processes and patterns of social action and interaction, institutions and organisations, and the social, cultural and natural constraints and opportunities on individual and collective behaviour. The most important functions of this discipline within agricultural research could be the following:

1. To participate in the development of new and improved technologies where the central position of the human being in the sociocultural and agroecological systems is emphasized. This includes, among other things, a close cooperation with local farmers to ensure that they are actively engaged at all levels of agricultural research and development including, planning, experimentation and evaluation.

2. To ensure that local (indigenous) knowledge gets a prominent position within agricultural research, and that agricultural research will be directly related to and evaluated against this knowledge.
3. To ensure that among agricultural scientists it is acknowledged that at the core of every agroecological system is found a community of farming households who are the genuine managers of the natural resources. If researchers want to make some changes regarding the management of these resources, this will imply, by necessity, that both the managers themselves and the community, of which they are a part, must also change.

In relation to the third item Nyle C. Brady (1982), director for the International Rice Research Institute, IRRI, has argued: "we increasingly recognize that factors relating directly to the farmer, his family, and his community must be considered if the full effects of agricultural research are to be realized. This recognition has come partly from the participation of anthropologists and other social scientists in interdisciplinary teams at several of the IARCs during the past few years...I hope that anthropologists, social scientists, biologists, administrators, and policy makers will continue to forge interdisciplinary teams in our common efforts to solve agricultural problems of small farmers in the developing world."

CONCLUSION

Up to the present day, social anthropology has more or less played the role of the "ugly duckling" in international agricultural research. As the classical ugly duckling, anthropology has been disregarded and ignored, and it has been pecked at by the "real" ducks believing that anthropologists do not really belong to the pond. But anthropologists are agricultural researchers to the same degree as biologists and economists, and want to be treated likewise. This does not imply that anthropologists want to wipe out their professional idiosyncrasy, particularity and uniqueness. Anthropologists must be careful not to turn into dilettantes and technical amateurs in order to be accepted. Anthropologists must claim recognition for their professionalism as any other type of scientists. The difference between anthropologists and other agricultural scientists does not relate to interests, competence or professionalism, but to variation in technical themes (subject matters) and approaches.

The agricultural sciences are facing tremendous challenges in the years to come. Up to year 2000 it is calculated that yields have to increase by around 30 % and that 25 % more land has to be put under the plough in order to keep abreast with the population growth (Rhoades 1986: 57). Both the population growth and, most importantly, the growth in agricultural productivity will have to take place in the Third World, in areas where anthropologists have first-hand knowledge about both agroecological and sociocultural systems. If not more anthropological expertise will be applied in the years to come than what has been common up to now, then one will, I believe, not succeed in this challenge. On the other hand, if anthropology is properly and adequately applied, it may prove, to the astonishment of many, that the discipline evolves to be the beautiful swan which all other fowls in the small pond admires and respects.

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