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Analysing Service Provision
Instruments for development cooperation
illustrated by examples from irrigation

Walter Huppert and Klaus Urban

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Foreword

During the early 90s, many partner countries of development cooperation underwent change processes that were geared to the technical, economic, ecological and social transformation of organisations and segments of society. With these processes, the demand for advisory and consultancy services among partner organisations rose substantially.

Like many other development cooperation organisations at the time, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH increasingly came to recognise its role as service provider to these partners who, in the majority of cases, are themselves service organisations. This provides a unique opportunity for mutual learning on both sides.

Within the scope of restructuring processes currently under way in many developing countries, the role of the state and government is being redefined. Consequently, many organisations which were mandated to implement government policies, now have to redefine their roles. They have to do this in response to the process of liberalisation, decentralisation and delegation of authority designed to increase participation in decision-making within society. This can only be achieved successfully when the services in question are identified precisely. This also means that the relationship between the service provider and the clientele needs to be made the focus of attention by these organisations. Increasing attention is therefore being focused on the distinguishing characteristics of services, and the specific features of their management. For Technical Cooperation - which the German Government sees as serving to enhance the performance capacities of people and organisations in developing countries - this is of crucial relevance in two respects: On the one hand, it is necessary to support and strengthen the self-conception of partner organisations, as well as their capabilities as service organisations, and to clarify their relationship to their clientele within this context. On the other hand, this new orientation poses a major challenge to Technical Cooperation organisations. It requires meeting the standards of a professional provider of client-oriented advisory services for development. In order to meet these new and fascinating challenges to development cooperation, GTZ is currently undergoing fundamental analysis of, and changes to, its efficiency and effectiveness as a service providing organisation.

Against this background, this book performs two important functions. Its fundamental concepts and basic understanding of service analysis in development cooperation, illustrated by the example of the irrigation

sector, will offer guidance and assistance in the application of such difficult analyses in the various sectors of development cooperation. It is hoped that this will be welcomed, and serve as a starting point for discussions with partners. At the same time, it might help stimulate the service providers of development cooperation to reorganise, restructure or reorient their advisory services, in order to be of maximum benefit to their increasingly diversified clientele in developing countries.

Eschborn, January 1998

Günter Dresrüsse

Director, Department Planning and Development, GTZ

Acknowledgements

This book contains key conceptual basics and instruments which were elaborated in the course of several activities within the 'irrigation' section of the GTZ. Basically it draws on the results of the GTZ in-house research and development project 'interact' and on outputs of the 'maintain'-project.¹ Through discussions and practical implementation, many GTZ staff both in Germany and abroad were involved in the 'interact' measure, which was implemented and managed by the authors. The members of a GTZ in-house working group, who provided the authors with continuous and immediate feedback on the various issues, deserve special mention. Without them, the results of 'interact' would not have been produced in their present form, and neither would this book. They are: Thomas Buhl-Böhnert, Dr. Thomas Engelhardt, Dr. Michael Goebel, Manfred Guntz, Christian Hagen, Heike Kühlwein-Neuhoff, Dr. Rolf-Dieter Reineke, Dr. Mechthild Rüniger and Dr. Lutz Zils. Among the field staff, particularly intensive feedback and experiences with application of the instruments were provided by Sabine Dorlöchter-Sulser, Humberto Gandarillas, Luis Salazar and Dr. Rolf Steingruber. Artur Vallentin and Thomas Buhl-Böhnert contributed to those parts that draw on the 'maintain'-project.

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Prof. Dr. Peter Klaus, who holds the chair in business management and logistics at the University of Nuremberg-Erlangen, deserves our special thanks. He provided professional advice on service-related issues to the GTZ 'irrigation' activity area before, during and after the 'interact' project. We would also like to thank Dr. Frances Sandiford-Rossmiller, Dr. Ed Rossmiller and Dr. Waltina Scheumann for their valuable comments and contributions to the final version of the book.

1 'interact' was the working title given to a conceptual development project entitled 'Service-oriented management in agricultural development. The example of irrigation', the results of which were presented by the GTZ in December 1994 in an unpublished document (Huppert/Urban 1994a). The title 'maintain' refers to recent conceptual developments in GTZ with respect to maintenance strategies in irrigation.

Finally we owe our gratitude to Mrs. Helga Schiller, who very diligently and with a great deal of patience typed all the 'interact' papers, and compiled them into a manuscript ready for publication.

Walter Huppert and Klaus Urban, Eschborn 1998

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1. Introduction

1.1 Background and Objectives

The products of development cooperation are primarily services. Growing public criticism and demands for increasingly high standards are combining with diminishing resources to force the organisations involved in development cooperation to devote greater attention to these products, and the processes to provide them. This, however, is no easy task. Many services are literally intangible, and cannot be evaluated in the same way as a material good. What makes things even more difficult is that efforts to focus more attention on services in development cooperation raise a number of questions that are not easy to answer:

What in fact are services? What are the distinguishing features of services for development? What different types of such service exist? How is it possible to make transparent who provides or should provide what services to whom in a project context? How is it possible to detect and avoid overlaps, duplication or even unnecessary services? How can the quality of services be assessed? Which particular features of services make their management different from managing the production of material goods?

Questions such as these have rarely been addressed systematically, despite the fact that they relate directly to the 'product' of development cooperation.

The reasons for this are many and various. One important reason is that, even today, service management strategies in development cooperation are still largely based on a concept of management that originates from the production of material goods. Here 'Input-Transformation-Output' models - or to put it another way, 'Resources-Activities-Results' models - predominate, i.e. models developed around categories which are not directly transferable to a large number of services.

To date, however, the systematic application of recent findings with respect to service management has been the exception rather than the rule in development cooperation.

The deficit described here is so serious and, more to the point, has such far-reaching implications for the activities of Technical Cooperation, that it prompted the GTZ to launch an in-house research and development project to address these issues.

The aim of this research and development project 'interact' was to take a subsector of development cooperation - irrigation - as an example and

to identify and analyse important aspects of management specific to the provision of services for development. Applying findings from management research and practice, the intention was to develop and test concepts, instruments and methods for improving service management in this subsector - as a model for other sectors of development cooperation.

The field of 'irrigation' seemed a good choice for such a project for the following reasons:

The irrigation sector of development cooperation has for some time been experiencing considerable difficulty in delivering its services to water users on an efficient, sustainable and ecologically sound basis. In many cases, investments in the irrigation sector have failed to 'pay off' as expected. It is not uncommon for newly constructed irrigation systems to be under-utilised or fall into disrepair.

The reasons for this, which are similar to those in other infrastructure sectors of development cooperation, are identified by the World Bank in its 1994 World Development Report. The report states that the planners' view has so far been fixed almost exclusively on the creation of infrastructure stock, and not on the effectiveness and efficiency of the intended service provision (The World Bank 1994, p.1).

The GTZ had already been devoting particular attention to aspects of services and the management of services in irrigation since 1986. It had also published introductory texts on the topic (Huppert 1989; Huppert 1990). In addition, in close consultation with the GTZ Bolivia section, and with the participation of the farmer target groups, the project partners and a number of consultants, a start was made in 1989 on pursuing explicitly service-oriented strategies in irrigation projects in Bolivia.

In 1991 this situation prompted the GTZ to direct the focus of the 'interact' research and development project, which had been designed to look into the problems of service delivery, towards the irrigation sector. The results of this undertaking are recorded in an unpublished report (Huppert/Urban 1994a).

The present publication includes important extracts from that report, linking them with more recent developments from the GTZ's irrigation activities that are relevant to the analysis of governance modes for service provision and an understanding of service delivery systems.

The book is intended to create an appreciation of the fact, largely overlooked to date, that non-commercial organisations in general and development cooperation in particular are engaged in the 'production' of services in complex service delivery systems, and that there is therefore a

need for 'service orientation' on the part of the actors involved. The text focuses on methods and instruments for analysing complex service systems. The assumption is made that transparency with regard to the roles of the actors involved and the services that are to be provided by the individual organisations or groups is likely to enhance considerably the governance of such service systems. It also examines another question: How can the interaction of a number of different service providers in development cooperation measures be geared towards achieving specific objectives, where this is not ensured by either the 'invisible hand' of the market or the powers of direction of an individual manager?

The methods and instruments presented are based on numerous applications in irrigation projects supported by German Technical Cooperation. Despite this sector-specific focus, it may be assumed that many of the basic comments made here and the instruments described can essentially be transferred to and applied analogously in other segments of non-commercial service provision.

This book is primarily intended for those readers who, as managers, planners or staff members in non-commercial service organisations in general, and development cooperation in particular, take a keen interest in the 'products' in whose production they play a part: services.

1.2 Contents

Chapter 2 first of all attempts to define the term 'service' and also examines the special features of non-commercial services. Chapter 3 takes a closer look at service analysis in complex organisational set-ups. It discusses methods and instruments to identify and analyse the many and various services and service relationships in service systems. Chapter 4 deals in more detail with the analysis of governance modes for service provision, and presents a form of analysis that focuses on the rules, procedures and common practices that help organise service provision between the participants or partners in the provision process. It thereby addresses the issue of how the many different individual services in a complex service network can be controlled such as to achieve a specific objective, where this control cannot be left to either the market or a single responsible management. In this connection chapter 5 looks at ways and means of identifying constellations of power and interests in service networks. Chapter 6 presents a conceptual approach to the organisational analysis of service organisations. Finally, chapter 7 draws conclusions for future service orientation in development cooperation.

The text explicitly focuses on the presentation of instruments for service analysis in development cooperation, illustrating them with the help of case studies. Consequently, the underlying conceptual approach to 'service management in development cooperation' itself is only briefly referred to, especially with respect to the definition of the term 'services' and some selected aspects regarding the peculiarities of service provision in the non-commercial sector (chapter 2). The 'interact' project dealt with a number of additional topics such as 'service quality', 'evaluation of services', and 'strategic management of service provision' that could not be included here (cf. Huppert/Urban 1994a). However, some references for further reading are given in the text and in the list of references.

2. Services and Service Provision in Development Cooperation – A Definition of Terms

The majority of organisations involved in development cooperation are service providers. They provide services to partners, who are mostly themselves service organisations. In spite of the overwhelming importance of services and service provision in development cooperation, the question as to what the specific features of services and services management are, has yet to be addressed systematically. On the contrary, service management strategies in development cooperation are still largely based on concepts of management that originate from the production of material goods.

In order to better understand service provision in development cooperation it is necessary to be aware of the distinctive features of services and their relevance for the management of services. The commercial service sector, together with a number of mainly North-American universities and academics specialised on the topic, has dealt with these questions (e.g. Lovelock 1984, Voss et al. 1985, Mills 1986, Norman 1986, Lehmann 1989, Lehmann 1993, Corsten 1994, Cowell 1994, Bruhn 1997). The following text will draw on this discussion, relating it to the distinctive features of service provision in the non-commercial and especially the public sector (cf. also Huppert 1994).

2.1 Services: Problems of Definition

Services are extraordinarily heterogeneous. Ranging from legal counselling to car repair, from fire-fighting to health care, from transport to adult education, services appear at first glance to have little in common. It may therefore initially seem hardly surprising that there have hitherto been no accepted definitions of the term 'services' that can lay claim to general validity.

Such uncertainty surrounding the term is astonishing, however, if one considers that the industrialised countries have long since evolved into service economies. In Germany, for instance, by the mid-1980s more than half the working population were already employed in the service sector.

The 'definition gap' concerning the term services as used in the non-commercial sector is nothing short of incredible. Non-commercial organisations such as public authorities, public-sector enterprises, associations, clubs, charitable organisations and the like are primarily service organisations. Yet here too there is no clear, consistent understanding of what is distinctive about the services that such organisations provide.

However, if the distinctive features of a 'product' remain unclear, how can 'production' then be organised in anything like an optimal manner? It is tempting to assume that some of the inefficiencies which are notorious in the non-commercial sector can, in the final analysis, be traced to conceptual ambiguities of this kind. Put another way, clarification of what constitutes the distinctive features and characteristics of services can certainly help improve the quality of the services provided by a service organisation.

2.2 The Goods-Services Continuum

In the early stages of the 'service management' discussion in the 70s a common way of defining services was to establish what services are not. By contrasting important features of material goods with those of services, an illustration was provided of how services differ from material goods (cf. Fig. 1).

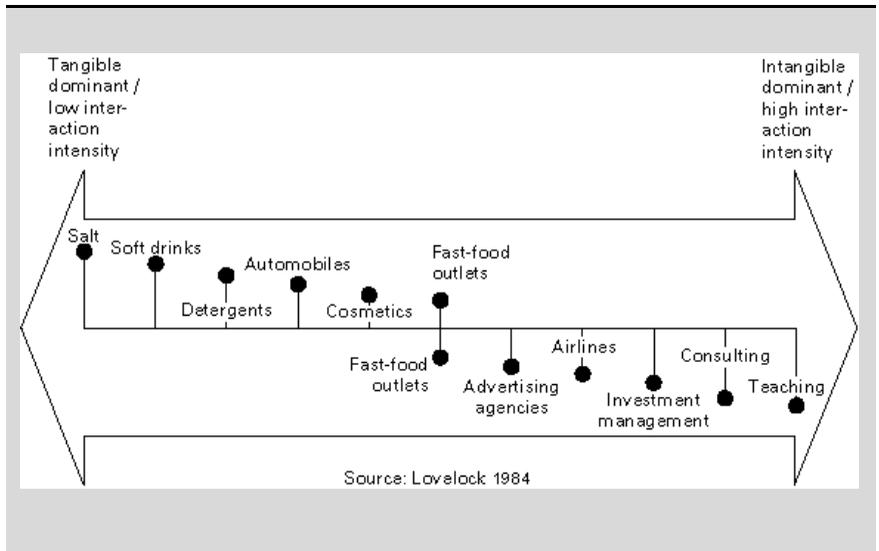
Fig. 1 Comparison between Goods and Services

Goods	Services
tangible, visible	intangible, invisible
storable	non-storable
the object of the production process is the property of the producer	the object of the production process is not the property of the producer
technology is capital- and/or material-intensive	technology is labour-intensive
production is geographically independent of the point of consumption	production is at the point of consumption

Attempts to characterise services by distinguishing them from material goods did, however, suffer from one serious flaw: exceptions could be found to almost all demarcation criteria².

This led to the suggestion that the 'pure' production of goods and the 'pure' provision of services should be considered as two ends of a continuum (cf. Lovelock 1984, and Figs. 2 and 3). The 'pure' production of goods in this context referred to the act of manufacturing a material product in which there was little or no direct contact with the final consumer during the production process. This is the case, for example, in mining, in agricultural production, and in major building projects. In contrast, 'pure' services were taken to be intangible 'products' which are not actually expressed in terms of a product per se but rather of an activity or process, and which require a high degree of interaction with the customer in their provision.

Fig. 2 The Goods-Services-Continuum



- 2 Services such as 'car repair' may well contain material or 'tangible' elements (for example a new exhaust being fitted). Also there are material goods which cannot be stored or kept in stock; one need only think of easily perishable varieties of fruit or vegetables.

Activities that lie between these two extremes are difficult to categorise or to assign to either the material goods side or the services side. This means that on the one hand there are services in which efforts are directed more towards the attainment of a result or the provision of a 'product', which may well be of a material nature. In this sense, car repairs, the supply of gas or water and other similar services largely possess the characteristics of such 'product-related' services.

These can be contrasted on the other hand with services in which efforts are mainly directed at the execution of a process, in which interaction with the customer plays an important part. 'Process-related' services of this kind are therefore activities rather than products. Teaching, consulting and investment management, for example, can be characterised as process-related services in this sense.

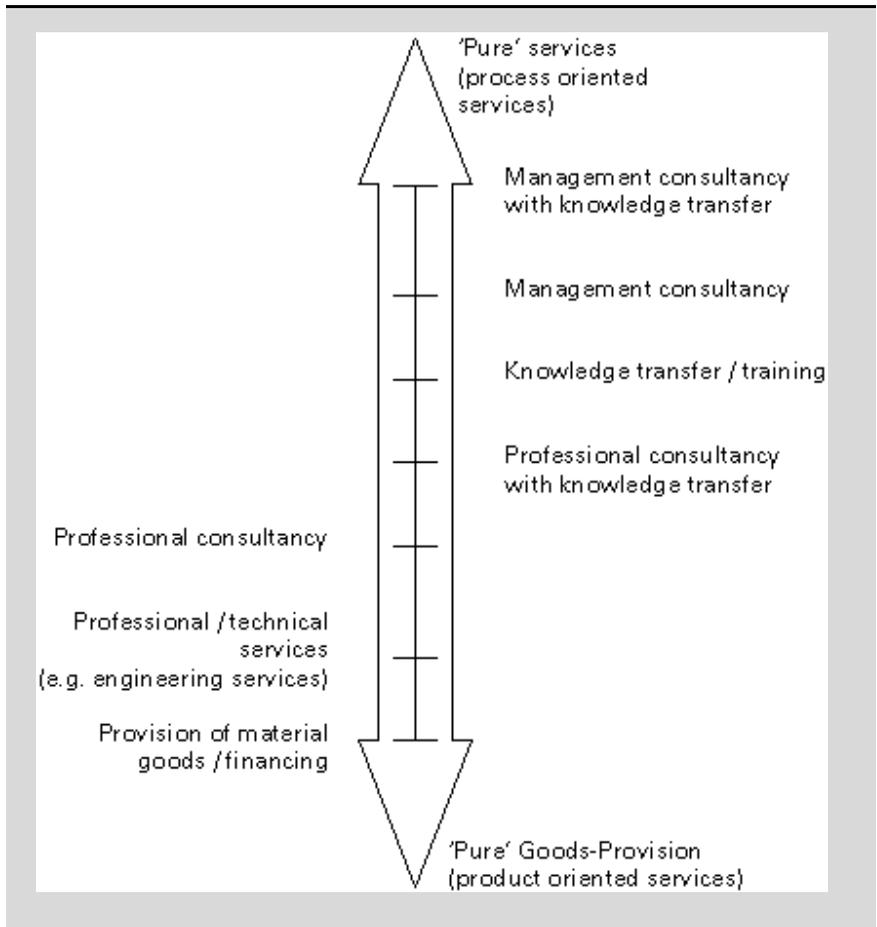
The transition from the 'pure' production of material goods to the provision of product-related services is often barely perceptible; it takes place where the customer begins to be directly involved in the provision of the service. This can take the form of the customer informing the 'producer' of certain requirements or preferences, thus enabling the producer to individualise the product, i.e. to tailor it to the recipient's wishes. The essential feature - and this is frequently seen as the determining feature of services - is that the customer introduces an 'external factor' into the production process (cf. Maleri 1973). This 'external factor' may comprise information (e.g. in the case of the personal preferences conveyed to an architect), a material good (car repair) or even the customer's own person (massage). In the latter case the services are often known as 'person-related' services.

2.3 Service Interaction

In the 'idealised' concept of 'pure' goods it is possible for manufacturers to design the product on their own, to produce the finished product, and then - possibly after placing it in storage - to supply it to the customer.

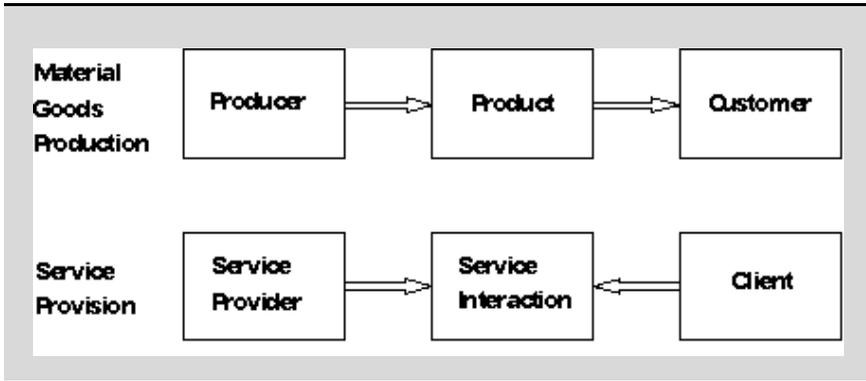
As customers increasingly participate in production, producers lose some of their 'sovereignty'. With regard to product-related services, the customer's involvement is still rather limited (e.g. car repair). As the level of interaction and hence the possibility of the customer's involvement in the performance of work increase, the producer's sovereignty is restricted to a corresponding degree. Such customer participation reaches extreme proportions in the case of person-related services which are aimed at changing a customer's behaviour. Advisory services such as

Fig. 3 The Goods-Services-Continuum in Technical Cooperation



management consultancy, legal counselling, education and training etc. are services in which the customer involves himself - or his organisation - as an 'external factor', and the purpose of which is to achieve some kind of change to that 'factor'. These are services in which it is not only the result of the performance of the service that is of interest to the customer, it is also the process of performance itself. In this case the service as such is provided as part of the process of interaction between the supplier and the customer (cf. Fig. 4).

Fig. 4 Material Goods Production and Service Provision: The Processes



The provision and consumption of a service thus occur simultaneously, to some extent even within a single act. Thus the customer becomes a 'coproducer', or better, a 'prosumer'.

2.4 Service Packages

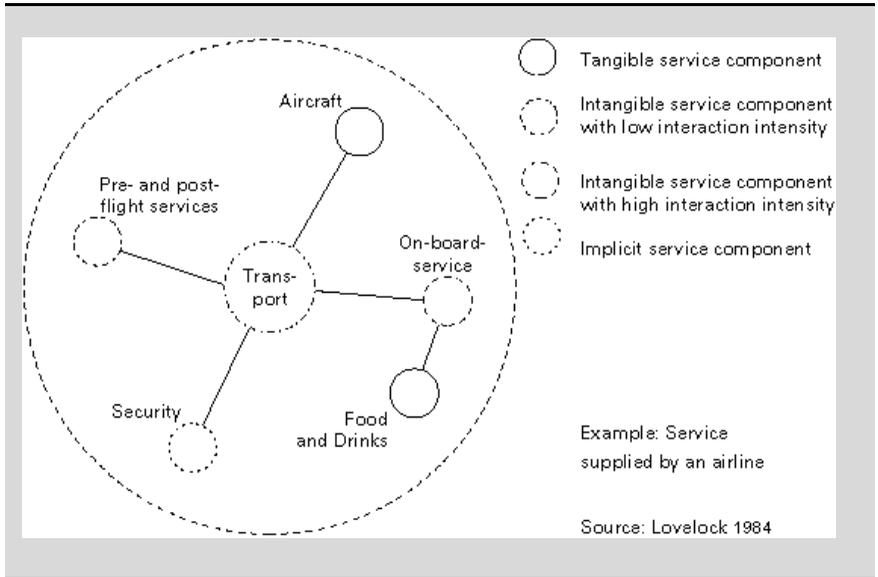
It was stated above that if the provision of goods and services is viewed as a continuum, it is difficult to identify a position along this continuum for a given individual service. Goods or services that lie between the two extremes of 'pure' material goods and 'pure' services contain elements of both.

The idea was therefore developed of presenting a certain 'product' as a service package, and within this package describing the various individual inputs as separate constituents of the package. Simplified examples of service packages are shown in Figs. 5 and 6.

The advantage of describing services as service packages is that material and non-material elements involving very little interaction, or others involving intensive interaction, can each be specified and identified separately. In this way it is also possible to locate the key service at the centre of the service package as the core service, and to group peripheral services around the core service such as to graphically illustrate their respective significance.

This means of presentation also opens up the possibility of revealing elements to which considerable importance is often attached but which only rarely receive explicit mention in the description of services: these

Fig. 5 Composition of the Service Package



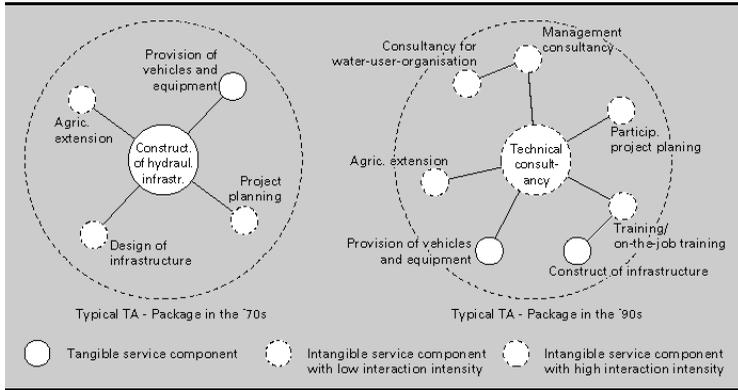
are known as implicit services. An implicit service is a component that is specifically targeted at certain psychological needs of the customer – ones that are often not verbally expressed. A luxury hotel, for example, sells an implicit service that might be termed ‘bestowing status’ as a component of its overall service, although this is not actually stated in any advertisement. Similarly, an airline might offer a ‘security’ element as an implicit service within its service package (Normann 1986).

2.5 Function Splitting: The Distinctive Feature of Non-Commercial Services

If we accept that interaction between the supplier and consumer is a determining characteristic of services, this means that, as we saw above, the relationship between the two sides has to be considered as an important constituent of services.

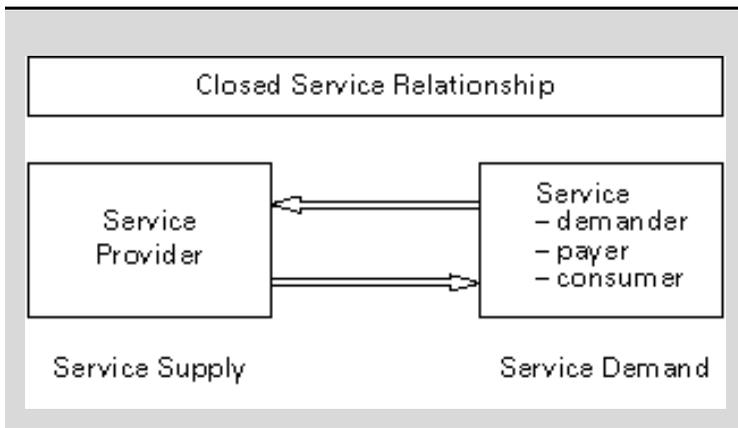
If the partners involved in these ‘exchange relationships’ are examined more closely, it will be found that in the business world the supplier generally faces a customer or client who combines the functions of demander, consumer and payer in one person (cf. Fig. 7). The customer in the role

Fig. 6 Technical Assistance in Irrigation: Composition of Typical Service Packages



of demander expresses a demand on account of an existing set of problems, needs and preferences, in the role of consumer makes use of the service in question, and in the role of payer the customer weighs up whether the offer is 'worth the money' and pays - or refuses to pay - for the service.

Fig. 7 Exchange Relationships in Service Provision: Basic Exchange Relationships in Commercial Service Provision



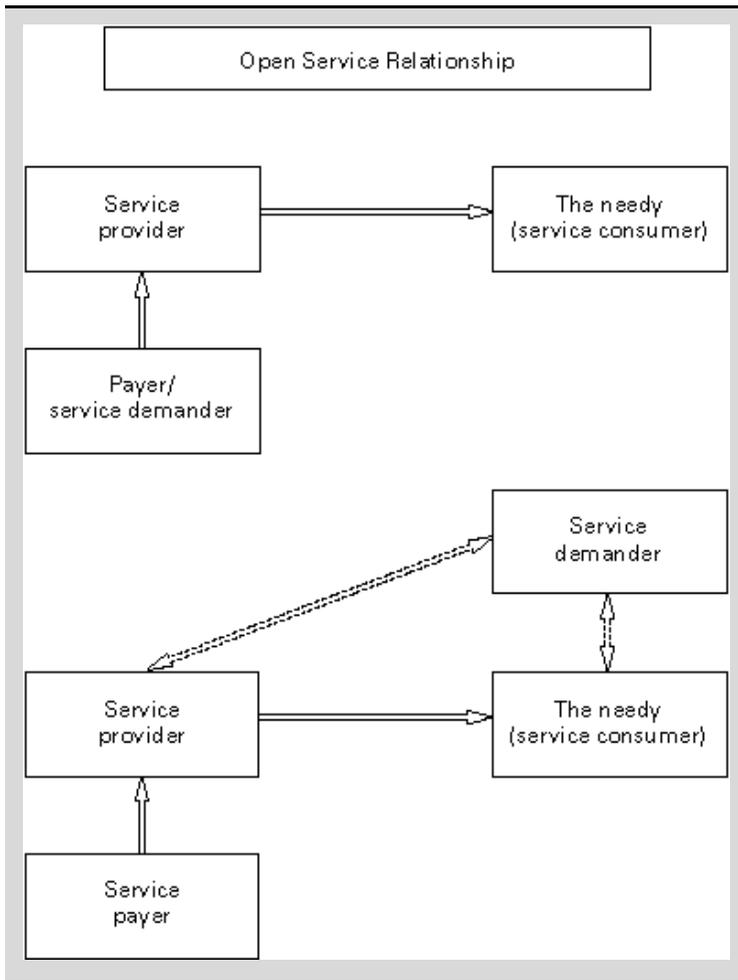
Simultaneous assumption of the roles of demander, payer and consumer by the customer ensures that it is a simple matter to organise the exchange relationship according to the principle that the 'customer is always right'. If service provision does not meet his or her wishes, the customer attempts to shape the exchange relationship by objecting or moving to another supplier. This 'closed' exchange relationship is dominant in the business world. The direct exchange of product and payment allows the largely automatic coordination of supply and demand under market conditions through the mechanism of price.

This is different for services in the non-commercial sector. Exchange relationships here are more complex than in the case of commercial exchange, and only in exceptional cases can they be termed 'closed' in the same way. Instead, what might be termed 'open' exchange relationships are the dominant feature, in which the consumer and the payer/demander – and in many cases even the payer and demander – are not identical. The expression used to describe this situation is 'function splitting' (cf. Herder-Dorneich 1986): the functions of the consumer, demander and payer are separated from each other (cf. Fig. 8). This is the case when executing a development project through a partner institution – as is the case in many irrigation projects. The 'demander' might be a regional government, the 'payers' the national government (local contribution) and the German Federal Ministry for Economic Cooperation and Development (BMZ) and the 'consumer' might be the local irrigation organisations and the water users themselves.

We can distinguish a special kind of situation, mostly in the non-commercial sector, which is very common – the case of the 'merit services'. 'Merit services' are services for which there is no or not sufficient demand on the part of the 'consumer' or end-user. They are services 'of higher interest' where a meritor, very often the state, defines what is the necessary level of service provision and also the conditions under which the service is offered (Herder-Dorneich 1986). Examples of this kind of service are primary schooling and basic social security insurance. Such services would often not be in demand in sufficient 'quantity' – hence intervention by the state is required, the latter acting as a meritor to determine the level of service provision. Many government services that are relevant within development cooperation (e.g. environmental support policies and measures, education) belong to this category.

It is easy to understand that where functions are split it is considerably more difficult to efficiently organise service relationships than is the case with closed relationships. It also becomes plain why it is extremely pro-

**Fig. 8 Exchange Relationships in Service Provision:
Basic Exchange Relationships in Non-Commercial
Service Provision**



blematic to uncritically transfer from the commercial world to the non-commercial sector, views of how to shape the customer relationship.

From the supplier's standpoint, separation of the functions of the consumer, demander and payer results in considerable complication of the process of provision of goods and services.

The desires and expectations of the various participants have to be harmonised with each other. Too one-sided an emphasis on the ideas of the payer can, under certain circumstances, result in considerable detraction from the quality of the services for the consumer. At the other end of the scale, over-emphasising the wishes of the target group, whilst failing to coordinate these with the intentions of the payer, can result in payments being stopped.

Hence, function splitting signifies a multiplication of the amount of interaction required. Although the service for the consumer (in this case the target group) is the primary service on which the main emphasis is placed, thereby also focusing attention on interaction with this consumer, it is evident that other secondary 'supporting' services are required. This means that secondary exchange relationships also have to be established and structured. Simple interaction in a relationship between two participants thus becomes multiple interaction within a network of relationships.

2.6 Conclusions

From what was said in the preceding sections, it becomes clear that the interaction between those involved in the provision of a service assumes a central role. Hence, the makeup of the 'exchange relationships' is an integral part of the very process of service provision.

Also, since non-commercial service provision implies in most cases that a larger number of service providers and recipients are involved, service management in this sector must be viewed as a form of network management. This means that many and various service relationships generally have to be considered, and 'shaped' and 'structured' more or less simultaneously.

Consequently, the analysis of services and service provision in development cooperation should include an identification and analysis of the different actors participating in the service provision process, the services offered and the respective quid pro quos, and finally the conditions under which the service delivery process takes place.

The analytical tools presented in the following chapters have been designed for this analysis:

1. The Service Interaction Analysis (SIA) facilitates the identification and visualisation of services and service relations in complex organisational networks. It also includes the analysis of individual services (chapter 3).

2. The analysis of institutional arrangements underlying the service provision, i.e. the analysis of 'governance modes', aims at identifying what structurally inhibits successful service provision, especially in situations where there is no governance through the market (chapter 4).
3. The Power and Interest Analysis (PIA) addresses the question of power and interests of different actors involved in the realisation of a development measure and provides a structured means to evaluate possible effects on the realisation of certain objectives (chapter 5).
4. Finally, the 'organisational analysis' approach presented in the final chapter focuses in particular on aspects relevant to service organisations, emphasising the analysis of client and interaction systems (chapter 6).

3. Analysing Services and Support Services in Delivery Networks: The 'Service Interaction Analysis'

Like most organisations in development cooperation, the organisations active in the irrigation sector provide services to recipients who are often themselves service providers. This means that, as a rule, the services are provided within a network of different participating actors.

In the irrigation sector, such a network might consist of an irrigation administration authority, a regional irrigation organisation, water users' associations, local cooperatives or other special-purpose associations, input suppliers, various non-governmental organisations etc., and also one or more external development cooperation organisations. The existence of such a network normally means that provision of the 'primary' services for the 'end user', e.g. for the water user in the irrigation sector, is only possible if the process of exchanging a large number of support services between various parties involved in the network actually works.

What, however, are the individual support services in question? Who provides whom with what services in this network context? Where do shortfalls exist? Where do overlaps, parallel services or even unnecessary services exist? Which services should be improved, which should be shifted or outsourced, and to whom?

In practice, clarity rarely prevails in a given development cooperation sector regarding what services are to be provided by whom and for whom, and how the exchange of services would be organised within a changed setting³. What is more, there is also a lack of suitable instruments to systematically identify and analyse services and service relationships within service networks.

In this section we will be looking at a range of tools - the Service Interaction Analysis - that offer a means of systematically identifying and analysing services provided for certain clients, and also the services that are necessary to support them (cf. Huppert/Urban 1994a). These tools can facilitate understanding of service delivery processes in complex organisational networks, and the initiation of concrete steps to improve the efficiency of such processes.

3 This was revealed by a series of workshops run as part of the GTZ 'interact' project on this question.

Although the tools described below are intended primarily for development cooperation, and are illustrated with examples from the irrigation sector, their usefulness is by no means confined to these fields. Service Interaction Analysis is recommended wherever services are provided within a network context, and hence especially in the context of non-commercial organisations.

3.1 Service Networks in Irrigation

Before looking more closely at the Service Interaction Analysis (SIA), it is worth considering some aspects of what is meant by services in the irrigation sector – as just one example of the various sectors of development cooperation. This would seem appropriate because – as mentioned above – the individual SIA tools explained below are largely illustrated by examples from the field of irrigation.

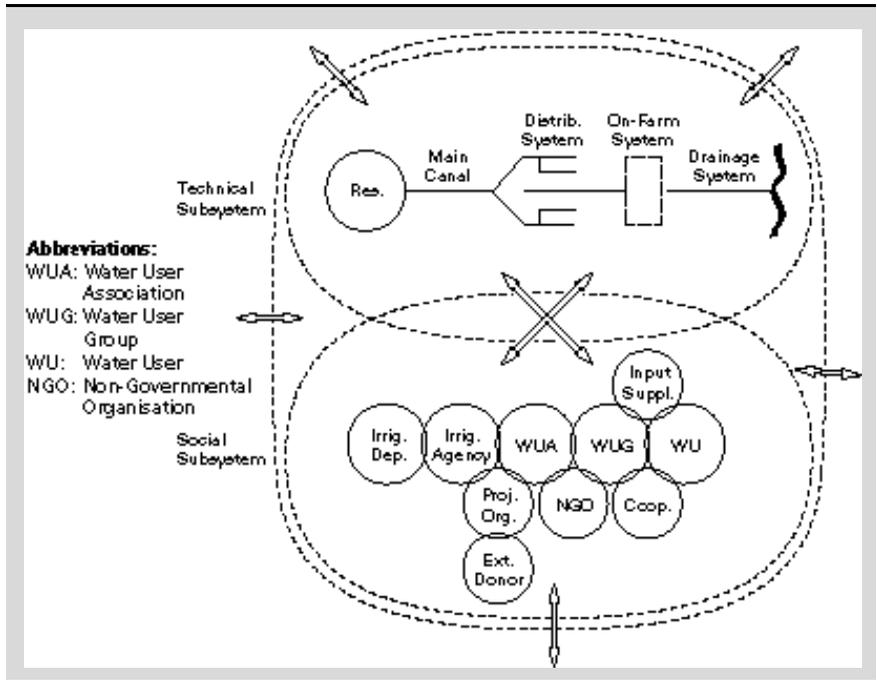
Until quite recently, ‘irrigation systems’ in agricultural development were conceived and designed essentially as hydraulic engineering infrastructure. The supposed purpose of this infrastructure was ‘to supply the right quantity of water to the right place at the right time’ for agricultural purposes. This view focused the attention of the professional community on the technical ways and means of implementing such projects.

The problems encountered in the irrigation sector in the past two decades of development have broadened our horizons: people have gradually become aware that irrigation systems are not purely technical, but rather ‘socio-technical’ systems (cf. Walker 1981; Huppert/Walker 1988; Uphoff 1991), i.e. irrigation systems are systems in which people seek by technical means to achieve certain – mostly economically oriented – objectives. Hence the technical ‘subsystem’ must be seen in relation to a social ‘subsystem’, and the interrelationships between the system and its setting⁴ must be taken into account (cf. Fig. 9).

Over the past decade a good deal of attention has been devoted to the issue of the social subsystem in irrigation. In spite of this fact, it is still often assumed that this subsystem is made up of two actors: the irrigation agency on the one hand, and the irrigation farmers or water users on the other. It is therefore common to speak of ‘farmer-managed irrigation systems’ (FMIS), ‘agency-managed systems’ or ‘jointly-managed irrigation

4 The term ‘setting’, as used here, is intended to embrace not only the economic and technological, the institutional and administrative, the legal and socio-cultural context, but also the ecological environment.

Fig. 9 The ‘Socio-Technical’ Irrigation System



systems'. The fact that both the development and design of new systems, and the operation of existing systems, usually involve interactions between a large number of organisations and groups, and that management aspects cannot be regarded from the viewpoint of a single organisation, but have to be seen in a network context, has received little attention to date.

3.2 The Service Interaction Analysis: A Brief Introduction

The Service Interaction Analysis is a set of tools designed to help identify as systematically as possible the services that are being or are to be provided, and the relevant service relationships within a service network. The tools can also make it easier to analyse the problems associated with the provision of services and with service relationships, in a way that takes into account the distinguishing features of services.

The SIA can be applied to suit the individual problem situation. Thus, performing an SIA is not a matter of following a fixed sequence of ope-

rations, but rather of focusing on different key areas in different situations.

Contexts in which the Service Interaction Analysis might be applied are settings where the service interactions between different role players in a multi-organisational context are unclear or problematic, or settings where the service programmes of individual service providers are unclear. This also includes situations where the service provided by individual organisations to others proves to be difficult.

The ideal way to apply the Service Interaction Analysis is within a workshop situation in which the most important role players participate. The central problem to be addressed by the workshop has to be identified beforehand together with the initiators of the workshop. This discussion generally reveals who the respective participants should be.

Initially, the Service Interaction Analysis was conceived as a step-by-step procedure with a predetermined sequence. However, experience in a wide variety of settings has shown that selection of the individual tools within the Service Interaction Analysis should be closely geared to the major problems identified when preparing and planning the workshop. This clearly requires some experience in applying the different tools.

The two examples presented below will illustrate the different focuses that SIA workshops may have, depending on the given situation. Due to limited space, only a selection of the tools available can be presented here.

3.3 Case Study: The Oruro Project in Bolivia

The 'Oruro' small-scale irrigation project in the department of Oruro in the Bolivian Andes was launched in the 1980s. Through a special project organisation 'Ayni', the regional development organisation 'Corporación de Desarrollo de Oruro' (CORDEOR) was helping traditional communities in selected areas of the department to improve and rehabilitate their irrigation schemes.

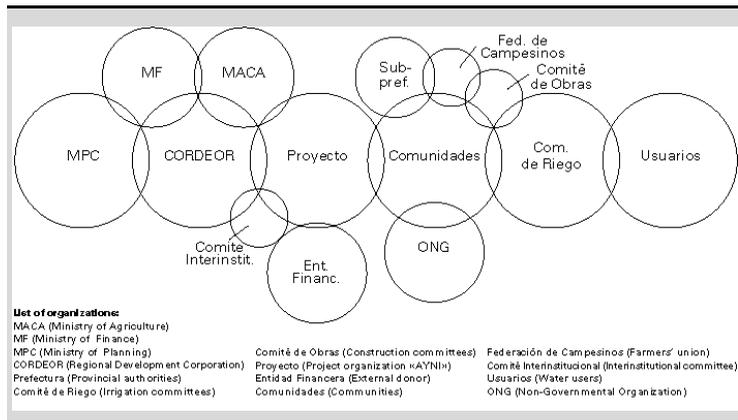
When the Bolivian Government turned to the German Government with a request to support this project, the documents indicated that at that time the project was suffering from a number of problems due to a lack of clearly defined roles for the participating actors. For this reason, and as an integral part of the project identification mission, a workshop on issues relating to the interorganisational set-up of the project was planned, and finally implemented in June 1992.

Of the twelve participants at the two-day workshop, six were represen-

tatives of traditional Andean villages. The rest of the participants represented the regional development corporation CORDEOR, the project organisation 'Ayni' and the GTZ.

At the beginning of the workshop, the major organisations involved in the implementation of the small-scale irrigation systems were identified, and an overview of the 'service network' was drawn up (cf. Fig. 10). This is usually the initial step in all Service Interaction Analysis workshops. This rough sketch helps to identify the main role players, and it can be used throughout the workshop as a frame of reference.

Fig. 10 Overview of the 'Service Network', Small-scale Irrigation Project, Oruro, Bolivia



Since the distribution of roles between the different actors had been identified as one of the main problems in the project, the second step was to discuss and work out with the participants a 'matrix of relations' (cf. Fig. 11). This matrix can be used to map all the relations between the different participants identified in the network. In this context it is important to be aware that exchange relationships between two partners or organisations may involve different levels.

Examples of important levels of relations are:

- *service relations*, i.e. the exchange of services, in some cases also the exchange of material goods

- *institutional relations* , i.e.norms,laws and agreements regulating the exchange of goods and services
- *power relations* , referring to the dominance of one of the partners within the exchange relationship
- *interpersonal relations* ,referring to the relations between people who come into contact at the organisational interfaces
- *information relations* ,accompanying all the above relations.

Fig. 11 Matrix of Relations/Oruro, Bolivia

	Project	Communities	Irrigation Committees (1)	Farmers' Association	Regional authority	NGOs	Users	Construction Committee
Project	—	RS + RJ (4) RI ** → *	RS + RI (4) → *	(2)	RI ** RJ **	RS + RJ (3) RI *	RS + RI + RJ * (4) → *	
Communities	RS + RJ + RI + ← *	—			RS RJ RI ←		RS + RJ →	
Irrigation Committees	RI + ← *		—				RS + RJ RI ** →	
Farmers' Association	— (2)			—				
Regional authority	RS + RJ ** RI **	RS + RJ + RI →			—			
NGOs	RS + RJ (3) RI + ←→					—		
Users	RS + RJ + RI + ← *	RS + RJ ← *	RS + RJ RI ** ← *				—	
Construction Committee								—

1. In some cases; only a water bailiff
2. Lack of collective representation and/or associations in the communities
3. Cooperation between the project and an NGO
4. Legal relationship shared with CORDEOR
RS = Service relationships; RJ = Legal relationships; RI = Information relationships; ←, → = Direction of influence;
+ To be improved; ** To be introduced

Obviously, time constraints mean that it is not always possible in a short workshop to completely map all relations. Mapping therefore has to be confined to the relations the participants consider most important. The mapping can be completed by the participants themselves at a later date.

The discussions involved in drawing up the matrix usually centre on the following questions: What kind of relations exist or ought to exist be-

tween the different participants, and which relations are problematic? The results are noted down (separately) and then incorporated into the matrix. In this way difficult or missing services are identified.

In our case, the 'exercise' was performed in two steps. The interrelations between the organisations at 'field level' were mapped first, followed by the interrelations at 'administrative level' (in Fig. 11 only the 'field level' matrix is shown as an example). The discussion focused on a large number of relevant services that did not exist. For example, there were no clearly established (legal) relations between project and district representatives in remote areas. Also - as a result - no information was exchanged between these two bodies. This was a major problem for the farmers, as they regarded the district representatives to be highly relevant participants. Not only did this 'omission' in the field give rise to adverse activities by district staff (because they saw themselves as being left out of the project), but it also failed to take advantage of potential 'synergy effects'. It was therefore decided that links should be established between the project and the district representative.

Another point of discussion which proved important was that relations between the regional development corporation (CORDEOR) and the project organisation 'Ayni' were not well defined. It became obvious that the roles of the two organisations and the services they were to provide were not clearly established, thus giving rise to problems. Not only were the service relations and information relations regarded as a major source of difficulties, but it also appeared that the legal relations (especially with regard to responsibilities) were not sufficiently well established.

As a result of this discussion, it was agreed that the problems of the two organisations should be dealt with on a separate day between the representatives of the two organisations. To facilitate the discussion, service provision programmes were drawn up for the two organisations and guided problem analyses were conducted (examples and explanations of these tools are presented in Section 3.4). It became apparent that the project manager did not have full authority over his staff, who were partly delegated to him by CORDEOR's 'agricultural' and 'water resources' departments. Since the heads of those two departments still had hierarchical authority over the delegated staff (and used this authority to demand work that was not project-related), project activities were seriously hampered. These problems were discussed by the representatives of the two parties. As a result, a common agreement was drawn up which defined the roles of the two parties and established the full authority of the project manager over his staff.

As to the general focus and outcome of the workshop, it emerged that the problems lay primarily in the interrelations between the many organisations involved. Thus, the discussions and instruments applied focused more on questions of the overall network and the relations between the different participants (though a number of topics not presented here were also dealt with).

3.4 Case Study: German Soil and Water Management Associations

The second case study presented here focused on a different aspect of service provision; therefore a different combination of tools was used.

The German Soil and Water Management Associations are currently involved in helping the former East German Länder (states) and Eastern European countries to establish new administrative structures in the water sector. In response to a request by the Director of the Bremen, Lower-Saxony and Saxony-Anhalt Federation of Water Associations, 'inter-act' assisted the Federation in identifying the typical set of services their Soil and Water Management Associations provide for their members. The object of this exercise was to identify typical service packages of the German Water User Associations, and, in addition, to analyse some problems affecting the provision of services. Even though the German Water User Associations have hundreds of years of experience, no written account of their management practices exists⁵.

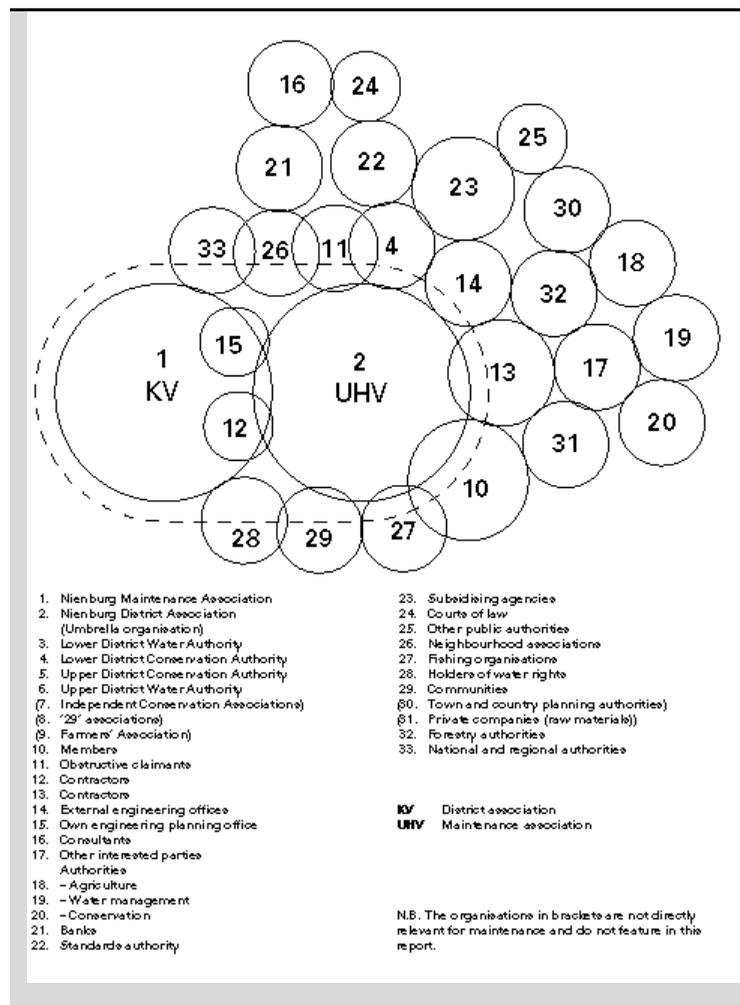
The focus of the workshop was therefore quite different from that of the Oruro workshop described above. Whereas the Oruro workshop concentrated more on questions of the interorganisational network, which was obviously not functioning well, the interorganisational network in this case was well established and was therefore not regarded as problematic. Thus the overview of the organisational network was prepared merely to serve as a guide for the steps that followed (cf. Fig. 12).

The discussions that followed concentrated directly on the identification of services provided by the German Maintenance Associations, taking the Nienburg-on-Weser Association as an example. One of the key tools of the Service Interaction Analysis is to draw up a 'Service Provision Programme' which illustrates the entire range of services provided by the

5 Some recent publications have addressed this topic (cf. e.g. Wolff/König 1997).

organisation or organisations under review for various bodies and/or individuals. To this end a list is drawn up of all the individual services the organisation provides, and the recipients of these services. The list is then broken down and categorised by type of service and beneficiary. This

Fig. 12 Overview of the ‘Service Network’ of the Maintenance Association Nienburg-on-Weser



tends to reveal a number of services which would otherwise often be glossed over or forgotten due to their intangible nature. These may be coordination inputs (liaising, clarifying legal issues) and information services (issuing circulars, organising information events), which although frequently time-consuming and complex, are often not accorded the consideration they deserve in planning work, in contrast to the 'primary' services (such as construction and repair work in the case of a soil and water association).

In this case, it soon became clear to all participants that work was organised to focus primarily on the central activities (active maintenance measures, i.e. clearance, maintenance, repair work) of the Nienburg Association.

The Association, however, provides a large number of support services, which are mostly not planned as systematically as the active maintenance measures. These include in particular the Association's very time-consuming and often difficult information and coordination work (cf. Fig. 13).

Fig. 13 Service Provision Programme of the Nienburg-on-Weser Maintenance Association

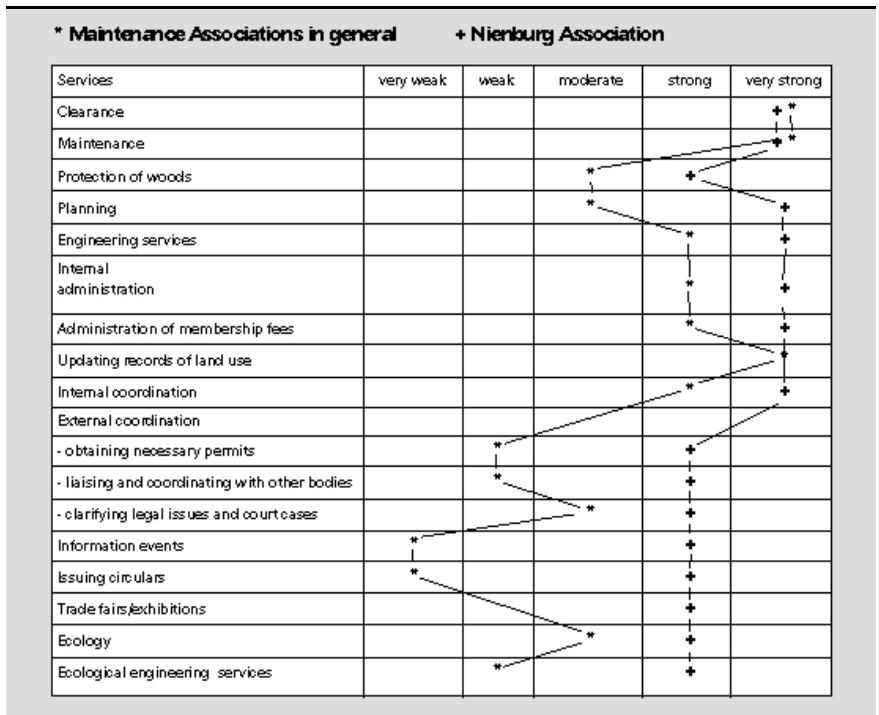
Services provided for	Members	Non-Members		
		Permit-issuing authorities	Other institutions	Social environment
1. Primary services	<ul style="list-style-type: none"> * Clearance * Repair * Maintenance 			<ul style="list-style-type: none"> * Ecology (clearance, repair, maintenance)
2. Internal services	<ul style="list-style-type: none"> * Planning / engineering services * Internal administration services * Administration of membership fees * Updating records of land use 			<ul style="list-style-type: none"> * Ecological engineering services
3. Coordination services	<ul style="list-style-type: none"> * Internal coordination 	<ul style="list-style-type: none"> * External coordination (obtaining necessary permits) 	<ul style="list-style-type: none"> * External coordination (liaising and coordinating with other bodies) * Clarifying legal issues and court cases 	
4. Information services	<ul style="list-style-type: none"> * Information events 		<ul style="list-style-type: none"> * Issuing circulars * Information events 	<ul style="list-style-type: none"> * Trade fairs / exhibitions * Information events

An analysis of the strengths and weaknesses of an organisation was included in the Service Interaction Analysis, in order to identify problems and difficult operations within the range of services provided.

To assess the quality of the services provided by the Nienburg Association, the workshop participants rated the services listed on a five-point scale from very weak to very strong. Participants based their evaluation on both the effectiveness and the efficiency of the services provided (cf. Fig. 14).

On the whole, participants gave the Association higher ratings for the work performed in the 'traditional' fields of clearance, repair, engineering services etc., than in the 'soft' sectors (coordination, information) – a result of particular interest to the Association's managers. Based on the analysis of strengths and weaknesses, two specific problem areas were selected for closer examination.

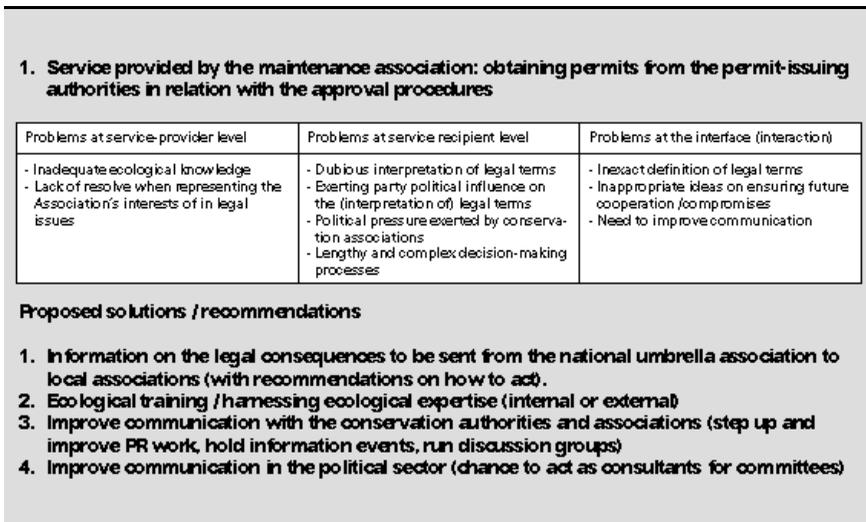
Fig. 14 Analysis of Strengths and Weaknesses of the Services Provided



The problem analysis conducted within the Service Interaction Analysis looks in more detail at those services which workshop participants classed as problem areas. The special nature of services, i.e. the fact that as a rule they can only be provided with the collaboration of the client, must be taken into account. Interaction with the client is especially important in the case of interpersonal services, such as consultancy. This means that the problems of providing services must be seen not only from the viewpoint of the provider, but also from the angle of the beneficiary and at the interface between these two parties, which is where interaction actually takes place. Thus the problem analysis looks at the problems identified at three separate levels: 1. Problems relating to the service provider; 2. Problems relating to the client; 3. Problems relating to the interface.

In the case in point, two areas were classed by participants as being particularly difficult: 1. Services provided by the Nienburg Association in conjunction with approval procedures (interface with the permit-issuing authorities) (cf. Fig. 15), and 2. Services provided by the Association vis-à-vis other institutions in the fields of external coordination, liaison, coordination with other legal entities (cf. Fig. 16).

Fig. 15 Problem Analysis 1
(External Coordination: obtaining permits)



The problem analysis allowed participants to identify weaknesses in the provision of services. It emerged, for example, that the inadequate ecological expertise of the Association's representatives ran counter to its efforts to obtain permits.

It was also possible to develop proposals for addressing the various problems with a view to improving services, tackling the problem operation directly (the solution proposed for the problem outlined above was to organise ecological training for the Association's staff, or harness external consultants' expertise). The problem analysis also allowed participants to distinguish between problems they could influence and those they could not influence (e.g. 'long and complex decision-making processes by service recipients' or 'political pressure from conservation groups').

Fig. 16 Problem Analysis 2
(External Coordination: liaising and coordinating with other bodies)

2. Service provided by the maintenance association: external coordination, liaison, coordination with other legal entities (conservation authorities, operators, utilities)

Problems at service provider level	Problems at service-recipient level	Problems at the interface (interaction)
<ul style="list-style-type: none"> - Inadequate knowledge of cable protection regulations - Failure to take into account of regulations governing utilities - Cooperation pursuant to „B5“ Conservation Act does not work 	<ul style="list-style-type: none"> - Different positions and interpretation of legislation within conservation associations → ditto + Overstretched authorities (deadlines) 	<ul style="list-style-type: none"> - No clear division of responsibility - Some communication problems with representatives of the conservation associations

Proposed solutions / recommendations

- 1. Transparent directives**
- 2. Establish a basis for discussion of ecological matters (impart knowledge, involve ecological experts)**
- 3. Improve communication with conservation associations (see problem analysis 1)**

All in all, the problem analysis made the decision-makers aware of the importance of 'soft' service issues (better legal training, improved communication with external organisations, marketing) for the Association's work.

3.5 Assessment of the Instrument

The Service Interaction Analysis has been applied in about twenty different project settings to date. The most astonishing finding was that virtually none of the projects visited had performed the simple exercise of making a complete list of who provides which service to whom. It is therefore not surprising that difficulties were encountered in managing the provision of scheduled services. By drawing up service provision programmes a shortfall was redressed, thus constituting a step forward in improving service provision.

Moreover, it became obvious that issues relating to the interorganisational set-up had been widely neglected in the past. In this respect the Service Interaction Analysis proved capable of making the complex network of interacting partners transparent, and of focusing discussion on interrelationship issues, and also of facilitating discussions on service interactions and the problems involved. The SIA tools also helped address such topics as choosing between alternative service providers, problems of overlapping service provision (for example in an irrigation system in the Nkomazi region in South Africa where three different organisations were offering the same extension services), and also helped determine whether projects delivered adequate services. In an irrigation project in Mali, for example, the exercise of drawing up a programme of (farmers') service expectations showed that the project was offering a number of services which the water users had not requested. Finally, it should be pointed out that the Service Interaction Analysis can easily be applied in other sectors of development cooperation. This has already been demonstrated by applying the instrument in the fields of rural water supply, erosion control and rural development.

As indicated in the introduction, infrastructure projects in general, and those in irrigation development in particular, have in the past widely neglected issues relating to the overall network of organisations providing services and the interactions between the different participants. By making use of recent innovations in the field of service management, a wide range of improvements can be achieved within the framework of infrastructure development.

4. Analysing the Institutional Arrangements for Service Delivery: ‘Governance Modes’ and ‘Governance Mechanisms’

When trying to understand the exchange of services within a network of participating actors, it might not be sufficient to simply make transparent the various services exchanged and the problems associated therewith, as can be done using the Service Interaction Analysis. When analysing service networks, it might prove equally important to study the underlying institutional arrangements, and especially, the ‘governance modes’ and the associated ‘governance mechanisms’, which largely determine how such networks function. The term ‘governance mode’ is derived from the literature on ‘new institutional economics’. It is thought of here as the institutional framework in which the integrity of a service interaction or a related set of service interactions is decided (cf. Williamson, 1996). Hence, it refers to the set of laws, procedures and common practices that determine the ability of exchange partners to take decisions with respect to their ‘exchange relationship’⁶.

4.1 Service Delivery in the Context of Different Governance Modes

Service delivery occurs in the context of different ‘governance modes’.⁷ In other words, there are different institutional arrangements that control and regulate interactions between the exchange partners. A predominant mode of governance, for example, is the market system and the main

6 It is to the credit of the ‘new political economy’ and its scholars that the diversity of possible governance modes has been brought to the fore. In the authors’ opinion, Herder-Dorneich is of special significance here, and the ideas developed in this chapter refer explicitly to his work. Also, the way of illustrating exchange relationships and settings of such relationships in diagrammatic form which is used in this chapter, was developed by Herder-Dorneich and exemplified in a great number of case studies, many of them in the German health sector (Herder-Dorneich, 1986; Herder-Dorneich and Wasem, 1986).

7 The same holds true for the delivery of material goods. However, since the provision of material goods can be understood in terms of delivery of ‘product-oriented services’, as shown in chapter 2, we refer here to service provision only.

mechanism that helps to organise relationships in this context is the 'price'. The opposite pole to organisation of service provision by the market is centralised control by the state, or by a directive authority, or in more general terms the governance mode of 'hierarchy'. The governance mechanisms here are plans, directives and other elements, by means of which a management level with directive management authority ensures that services are provided by (and also to) subordinate levels according to preset standards.

Besides these two, there are a number of further governance modes, together with their associated mechanisms, that may organise the exchange of services. Examples are governance modes that might be called 'political systems/membership systems'. These are institutional arrangements that organise the provision of services in membership-structured

Fig. 17 Major Governance Modes and Mechanisms

Governance Mode	Governance Mechanism	Important Aspects
Market	Variable Prices	'market failure' in situations lacking transparency and where dependencies are strong
Collective Bargaining	Negotiations, Agreements	prone to political influence
Hierarchy/Central Administration/ Bureaucracy	Plans Directives Control Application and Authorisation/ Licencing Procedures	subject particularly to principal-agent problems
Political System/ Membership System (based on elections)	Voting in / out Nomination Accession, Exit Agreement, Opposition Contribution Mechanisms	separation of legislative and of executive powers is important for proper functioning
Non-Market Exchange Systems Based on Solidarity	Solidarity Mechanisms ('Moral Persuasion') with - Exchange - (Re)allotment - Gifts - Queues etc.	confidence / trust as an important precondition
Charity Systems	Donations (Re)allotment	'gap of control' / lack of feed-back difficult to overcome ('you don't look a gift horse in the mouth')

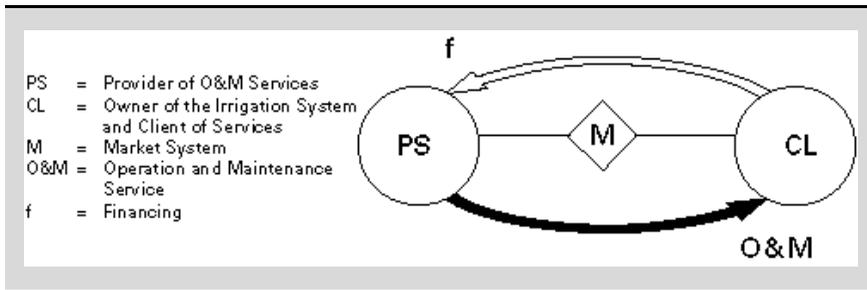
organisations such as associations and political parties. Here, the provision of services to the members of such organisations is governed by votes of the members as well as by a system of representatives and delegates, elected by the members to take decisions and actions on their behalf. Hence mechanisms by which the members can exert influence on service provision are elections, agreement or opposition with respect to certain decisions through votes and through payment of membership fees (or refusal to pay and thus 'exit' from the organisation). Other modes of governance are so-called 'non-market' modes based on solidarity, where the interchange of services is regulated through traditions and social rules (as can be found in kinship and neighbourhood groups and in many traditional communities). A selection of different governance modes and their respective governance mechanisms, is summarised in Fig. 17.

Obviously in many situations several governance modes and mechanisms are involved simultaneously when different services are provided. In a traditional Andean village, for example, the maintenance services for an irrigation system might be organised according to traditional rules and regulations based on solidarity mechanisms, whereas the interchange of goods is regulated through market and price. In some cases they might even overlap, meaning that social solidarity rules (e.g. complex forms of reciprocal family cooperation) might be working in a situation where there is basically a hierarchical control of the service delivery process. Generally, however, it is possible to identify the predominant governance mode and its respective mechanisms for every individual service delivery process.

Figs. 18 and 19 show closed service relationships with the provider and the client side, with the service provided and the quid pro quo, and with the dominant governance mode, indicated by the sign of a rectangle. Fig. 18 refers to the commercial provision of services to an individual irrigation farm as the client (CL). The services in question are operation and maintenance services (O&M), the quid pro quo is the price paid by the farmer (f) and the dominant governance mode is the market, where the farmer buys these services after choosing amongst several being offered.

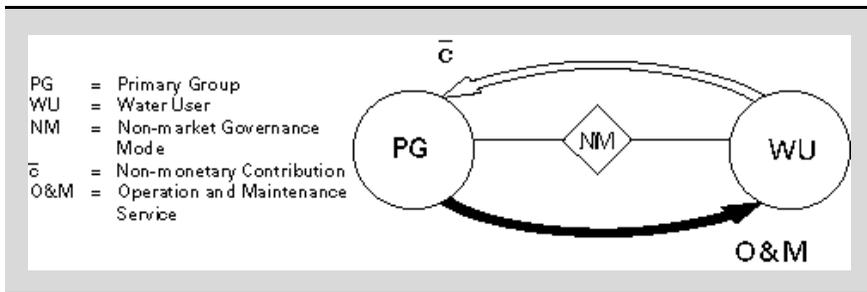
Fig. 19 represents for example the situation where a farmer gets help from a neighbourhood group - a so-called 'primary group' where everybody knows everybody - to do the operation and maintenance works in his part of the irrigation system. The service here is the support provided by the neighbours (O&M). The quid pro quo will be some equivalent

Fig. 18 Service Delivery in Irrigation: Governance Mode 'Market'



return in kind or service to be given back by the farmer (\bar{c}). The institutional framework that governs that relationship is a particular 'non-market governance structure based on solidarity' (NM). The latter may have the form of traditional village-based customs that prescribe more or less exactly what kind of quid pro quo has to be returned in what quantity and by what time.

Fig. 19 Service Delivery in Irrigation: Non-market Governance Mode Based on Solidarity



In chapter 2 we demonstrated that processes of non-commercial service provision seldom occur in the form of closed relationships such as those shown in Fig. 18 and 19. Instead, 'open relationships' predominate, in which more than two exchange partners are involved. This is because the usual functions of the client - to be demander, payer and consumer of the service at the same time - are split up in this case (cf. Fig. 8). Here, the institutional arrangements to ensure effective and efficient service deli-

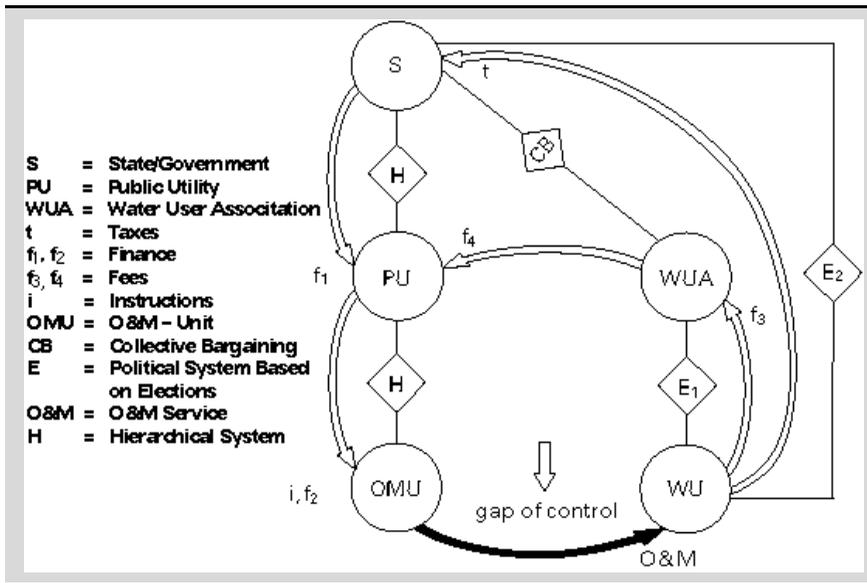
very are considerably more complex. The service delivery system may include several governance modes simultaneously. Here, the proper functioning of service delivery is subject to the functioning of such a composite governance structure.

Fig. 20 shows the structure of such a service delivery in irrigation with a composite governance structure. The diagram represents in a simplified form the institutional arrangement for operation and maintenance (O&M) of an irrigation system run by a public utility. In this case, a parastatal organisation makes irrigation water available 'on demand' to independent water users, who themselves have strong lobbies representing their interests:

In this case the state (S) has established the aforementioned public utility (PU) that is responsible for the operation and maintenance of the irrigation system. For the tasks assigned by the state (governance mode 'hierarchy') certain resources will be allocated (f1) to supplement the fees charged for the service. The public utility itself sets up an O&M unit (OMU) which receives certain directives (i) (governance mode 'hierarchy') and is provided with the necessary resources (f2). Here too there is no opportunity for the farmers and water users (WU) as the recipients of the service to exert a direct influence on the service provided by this O&M unit, should the service fail to meet their expectations. Here we therefore have to speak of a gap in service delivery control. The service recipients nevertheless do have 'mediate' access to specific control options. For one thing they belong to a water users' association (WUA) whose delegates and committee members were elected with their participation (governance mode 'political system E1, based on elections) and to which they pay contributions (f3). This association or the relevant umbrella organisation (which is not shown in Fig. 20) represents a strong lobby that can negotiate important questions with the state authorities (S) or with the public utility and settle them in the interests of the farmers (Governance mode 'collective bargaining'). Farmers who believe their interests are not being properly represented will of course try in future to elect other representatives to the bodies of the association. If this still does not result in an O&M service that is satisfactory to the farmers, they will have as a further means of influence the option of trying at the next local or regional elections to bring about a different constellation of political parties in the state decision-making organs (governance mode 'political system' E2, based on elections).

Fig. 20 shows just how complex institutional arrangements to organise service delivery can be. It also shows how many different modes of

**Fig. 20 Service Delivery in Irrigation:
Composite Governance Modes (Public Utility)**



governance can be involved, and thus how diverse the causes of a de-funct service delivery process are in reality likely to be.

Why might it be so important to analyse 'governance modes' and their way of functioning in development cooperation? The fact is that most services here are non-commercial services and that this is why there are in most cases no simple, closed service relationships between the provider and the client side. Usually, there are more than two actors involved in service provision and the challenge is to understand the existing (or the envisaged) service delivery system if service provision is to be improved. Designing service delivery means more than just designing the contents of the service itself. It means above all - as shown in chapter 2 - establishing functioning service relationships. Analysing complex institutional arrangements that govern such service relationships means opening the door to core problems of service delivery.

The following two case studies attempt to illustrate that point. They present a retrospective analysis of the problems encountered in two Technical Cooperation projects, one in Haiti and one in Bolivia⁸.

4.2 Operation and Maintenance in the St. Raphael Irrigation System (Haiti)

4.2.1 Background

The community of St. Raphael lies in the extreme north of the central plateau of Haiti and belongs administratively to the north-west district of the Northern Province (capital: Cap-Haïtien). The Bouyaha river, which flows directly past the community, carries water all the year round. The sharp variations in rainfall within and between the seasons, and the increasing erosion in the catchment area, lead to substantial fluctuations in the water supply and to high sediment loads in the river water.

In the 1950s a weir and a diversion structure were constructed with external finance to supply water to a main canal (design capacity 1.5 m³) with 16 outlets for a secondary system of semi-herringbone design (cf. Fig. 21). The irrigable area varies, depending on the water supply, between 700 and 1500 hectares. In the area around the irrigation system, in which rice and vegetables are cultivated, rain-fed farming is practised and pasture extending to marginal hillside areas.

During the colonial period many 'marons', or escaped slaves, settled in the mountains around St. Raphael. This may have contributed to the fact that the farmers in St. Raphael are staunchly individualistic, and no major farmers' organisations have evolved here. Moreover, the land ownership structure within the irrigation area is relatively heterogeneous. The size of the farms varies from 0.5 to 100 hectares, and about one-third of the irrigated land is cultivated on a lease or sharecropping basis.

One of the features of the operation and maintenance services in this system is that paid workers from the pertinent irrigation authority, the 'syndics', allocate water to the secondary canals, in accordance with an agreed scheme, by operating the sluices in the outlet structures. Important operation and maintenance (O&M) services also include maintenance of the main canal (unlined during the period considered here, i.e. until the early 1990s), with regular weeding of the banks on a routine

- 8 A more detailed presentation of the approach used to analyse the governance modes in the service delivery process in irrigation is currently being prepared in the course of a GTZ-assisted special project ('Maintain'). It is anticipated that the final report on this project will be published in 1998. The report will also contain case studies based on detailed problem analyses in on-going projects.

basis. Special maintenance work is necessary to keep the outlet gates and the various artificial structures of the main and secondary systems serviceable. At intervals of several years it has been necessary to clear the sand from the upper part of the main canal and to reprofile the main channel, as a kind of 'delayed maintenance'. There are also ad hoc repair jobs that have to be performed after peak run-off situations in the Bouyata River.

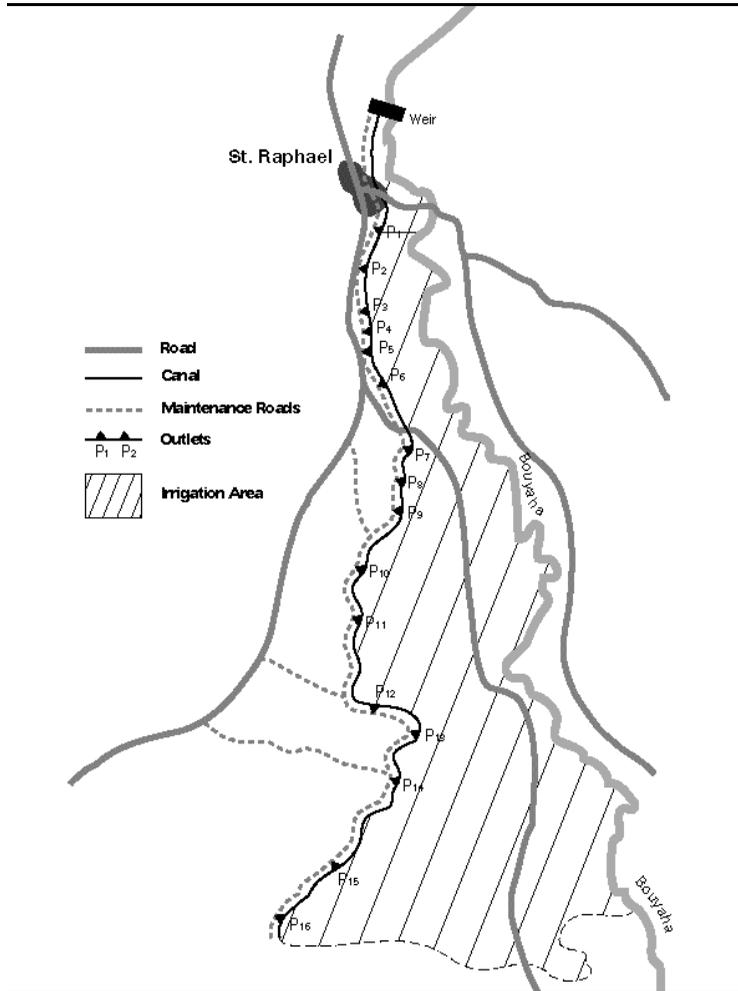
In the 1980s the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR), with financial assistance from the World Bank, had partially rehabilitated the previously unserviceable system through its regional development organisation 'Organisme de Développement du Nord' (ODN). The diversion structure had been put in order; and the unlined main canal, which was totally silted up in its upper reaches, was cleared and reprofiled.

The inlet structures to the secondary system were rehabilitated, and part of the secondary system was extended and lined. As in other irrigation systems in Haiti, the ownership of the irrigation infrastructure of the main system rests with the state. Various attempts to introduce water charges have met with little success.

At the beginning of the 1990s, against a background of democratisation and decentralisation tendencies in national policy (first free elections 1990, strengthening of local authority structures), MARNDR planned a gradual transfer of responsibility for operation and maintenance to the water users. In view of the Ministry's lack of resources and the economic significance of the irrigated area for the region, a rural development project (PDRS = Projet 'Développement Rural St. Raphael') was launched in 1990 with German assistance funds and an agency to represent the Ministry locally as project executing agency. This project set out to help bring about, through a variety of measures, especially the creation of appropriate organisational structures, improved and sustainable utilisation of the agricultural and especially irrigated farming potentials in St. Raphael.

With the election of a water user committee (WUC) made up of representatives of the water users from the various secondary systems within the irrigated area, a body was created for the first time that was to take and implement, jointly with the Ministry's agency (AG), important decisions on operation and maintenance of the irrigated area. During a transitional phase, joint decisions were to be taken both on the provisional form of joint management ('cogestion'), and on the use of the water charges. A process of establishing a system of self-management by the farmers was to be initiated.

Fig. 21 Sketch of the Irrigation System 'St. Raphael', Haiti



Implementation of the planned objectives ran into continuous problems, which were still unsolved when the project was discontinued early in 1992 as a result of political events (seizure of power by the military).

Analysing the institutional arrangements and especially the underlying 'governance structure', with respect to the service delivery system described above, the reasons for these problems are outlined below.

4.2.2 Elements of the 'Operation and Maintenance' Service System in St. Raphael

One fundamental problem lay in the role of the water users and their self-conception. Farmers who had hitherto seen themselves as the beneficiaries of O&M work carried out under state management, and had at most taken part in it as paid workers, found it hard to suddenly see themselves as serious and responsible decision-making members of a future organisation for self-management of the irrigated area. The rights of ownership over the main irrigation system that was to be operated, remained with the state. Whereas the project sought to engender a sense of 'ownership' among water users in relation to the operation and maintenance of the system, the users saw the state as the customer/client for such services, and saw themselves at best as suppliers of labour. The understanding of who was to provide the O&M services necessary to whom, and hence the understanding of the supplier/demander relationship, remained unclear and helped create fundamental confusion among the actors regarding their roles. This also meant that it remained de facto unclear what kind of service maintenance was supposed to represent. Whereas the water users saw such work as a service provided by them for the state agency, the latter wanted maintenance by the water users to be regarded as an internal service provided on a self-help basis for the members of the self-managed organisation.

The problems involved in arriving at a clear definition of roles were also linked to the fact that the changes in the overall setting were still new and uncertain. The radical political changes under President Aristide had not yet given rise to any effective legal institutions capable of securing democratic processes at local level. This uncertainty had direct repercussions on the governance modes for service delivery of O&M services (cf. Fig. 22).

The O&M service which – as the agency saw it – was to be provided for the water users (WU) as 'ultimate beneficiaries', was originally controlled entirely by the state, i.e. by MARNDR, on a centralised basis and thus via the governance mode 'hierarchy' (H). The water charges levied were paid directly to the state tax authorities, and did not benefit the operation and maintenance of the system in a manner perceptible to the farmers. In the context of the planned process of change, a water user committee (WUC) had now been set up. The water users were to delegate to this committee by means of a membership system based on elections (E) the individuals who they believed would best represent their interests.

1. Membership structures and processes as a governance mode for service relations between the heterogeneous water user groups and the representative committee WUC were not established practice at the beginning of the 1990s, either politically, legally or traditionally. As a result, the WUC was not a genuine representation of water users' interests, but largely a gathering of influential farmers.
2. Collective bargaining as a mode of governance between the agency and the water users committee had no legally binding foundation. This made it difficult to enforce decisions. The small committee's negotiating position vis-à-vis the 'all-powerful' state agency was generally very weak, and owing to the lack of higher-level regional and national bodies to represent their interests – such as water user federations – their chances were basically non-existent.
3. Hierarchical control of the agency by MARNDR as the higher authority was a basic problem in itself. The planned budget resources were not provided on time or on the necessary scale, and no functioning M&E system had been established which would have provided MARNDR with appropriate monitoring and control facilities. Even the employees' salaries were paid irregularly, and not always in full.
4. The governance mode between the agency and the water users was unclear. The agency officially, but not de facto, had sovereign rights to enforce collection of outstanding contributions to the operation and maintenance costs. Since operation and maintenance services at the level of the primary and secondary systems were collective goods, and the number of irrigators went far beyond the size of a primary group, there had from the start been a strong tendency towards free-riding. As a strategy to overcome these problems, the project finally attempted to arrange for the fees to be paid into a separate account that was to be available to the users for later work. In the actors' experience, however, the risk of such accounts being diverted into private channels is notorious.
5. Even the governance mode between project and agency was unclear. This was due to a lack of agreements on the terms of financial assistance by the project for operation and maintenance work. Moreover, staffing overlaps and individual interests of the personnel contributed to this lack of clarity. Owing to a shortage of the users' and MARNDR's own resources the project sporadically took on the role of paying for services vis-à-vis the users.

4.2.3 Conclusions

On the one hand the case study demonstrates the difficulties involved – particularly in a ‘turbulent’ context such as Haiti in the early 1990s – in making the transition from a centrally-controlled governance structure to an O&M system geared more closely to the needs and individual responsibility of the users. On the other hand the example provides a kind of ‘X-ray’, revealing key causes of existing problems affecting operation and maintenance. It is not surprising that these went undetected: problems of governance, unlike the technical symptoms of such problems, are neither tangible nor visible.

The example illustrates just how little an exclusive focus on the technical side of operation and maintenance problems – e.g. lining canals, compiling manuals, training technical personnel etc. – can contribute to solving the problems in their full complexity. It also demonstrates that approaching operation and maintenance as a system of service relationships involving a large number of parties, and with complex interaction and governance requirements, helps create a clearer picture of the dimensions of the operation and maintenance problems involved. It also helps achieve a more accurate assessment of the most important deficits. On this basis it will be possible to arrive at better problem-solving strategies, and reach a more accurate assessment of the necessary time-scales and the prospects of success. In St. Raphael, efforts to achieve this were overtaken by political events (military coup in 1991), which led to a discontinuation of German aid at the beginning of 1992. However, the analysis shows that necessary workable institutional arrangements will be difficult to establish under the present conditions in Haiti. Short-term projects geared to efficient and sustainable management of the system will stand little chance of success. It will therefore be essential to concentrate on efforts to develop those elements of civil society necessary for the establishment of functioning institutions in irrigation, such as water user associations. This would mean trying to develop functioning water user associations within the scope of comprehensive community development in St. Raphael. Such efforts, however, must be on a long-term basis and must be geared mainly to creating a capable local representation system – or to put it another way, to creating well functioning governance modes (political systems/membership systems). The traditional (culture-specific) ways of making decisions, as practised by the smaller farmers in their own irrigation perimeters in Haiti, could serve as a guide for future water user associations.

Whichever strategy will be chosen in St.Raphael,one thing is certain - a sustainable operation and maintenance depends on the existence of efficient governance modes and a functioning service delivery system. Technical rehabilitation measures alone will not be sufficient.

4.3 Operation and Maintenance (O&M) in the 'Upper Cochabamba Valley' in Bolivia

4.3.1 Background

The upper Cochabamba Valley is a region in the inter-Andean zone of central Bolivia that has been much neglected in the past, but which has considerable agricultural potential. This 'Valle Alto' lies about 40 km from the town of Cochabamba at an altitude of between 2300 and 3500 m above sea level. Infrastructural improvements in particular are imperative for more intensive use of the existing agricultural potential. Since the beginning of the 1980s, existing irrigation systems have therefore been modernised and extended with joint assistance by German Financial/Technical Cooperation. The technical improvement measures here involved improvement of existing dams to store natural runoff, conveyance channels of sometimes considerable length, the pitching of natural runoff channels, and the rehabilitation and extension of irrigation infrastructure. Some 85 village communities and their organisations were assisted in assuming self-responsibility for the operation and maintenance of these rehabilitated and extended systems. To this end two water user associations were founded, with considerable initiative on the part of the water users themselves. These associations became necessary because the task of managing the enlarged irrigation systems could not be handled at the level of the village communities themselves, and therefore called for higher-level coordination mechanisms. One of these new associations is the 'Asociación de Riego y Servicios Punata' (ARSP), made up of the farmers in the lower part of the irrigation system with an irrigated area of 3000 hectares. The other 'Asociación de Riego y Servicios Tiraque' (ARST) is responsible for the higher part with an irrigated area of 2400 hectares.

4.3.2 Analysis of the O&M Service System in the Valle Alto

Without going into the details of the very complex relationships between the two subsystems of Punata and Tiraque, the technical system around

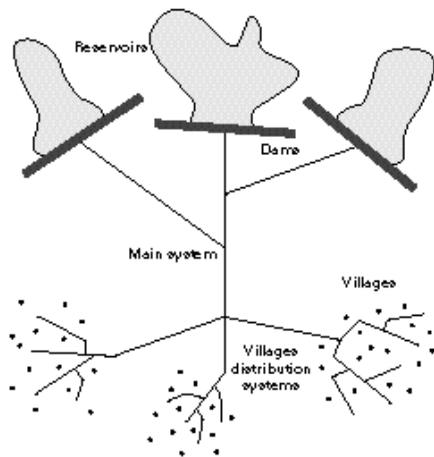
which the maintenance services of the water user association in Punata revolve are shown in a simplified form in Fig.23: on the one hand a 'primary system' of storage structures is operated and maintained along with a main conveyance system which largely follows natural run-off channels. On the other hand there are the distribution systems at village level, which are supplied with water by separate supply channels from a distribution structure ('Bocatoma Paracaya') and which are operated and maintained by the respective village communities.

The difficulty encountered by ARSP was that, whilst O&M of the 'village distribution systems' per se caused no problems, the fees and charges for the maintenance of the main system were very difficult to collect and were rarely collected in full.

A closer look at the service delivery system and its elements throws light on the causes of these problems: The water users are integrated into well functioning, democratically-organised village communities ('comunidades'), whose traditional organisation principles include the principle of 'socio-territorial control'. What this principle amounts to is that a village community must not exceed a critical size, either in terms of the number of members or with regard to its territorial extent. This is the reason why the large rural communities in Bolivia that were set up immediately following the agricultural reform in the 1950s, some of which comprised several thousand people, soon split up into smaller units which rarely consisted of more than 80 to 100. Even today, communities still split up if their numbers exceed this limit. The purpose of this 'control socio-territorial' is to avoid exceeding the size of a primary group in which it is easy to involve all group members in the decision-making processes of the (community) organisation.

As a result, O&M at village level is basically organised by the indivi-

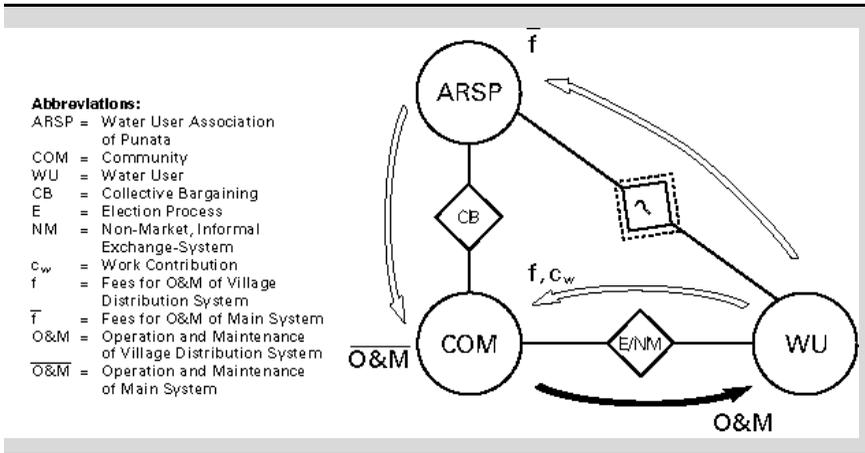
Fig. 23 Sketch of the Irrigation System 'Valle Alto', Cochabamba



dual communities and relies on traditional procedures that have developed over a long period of time and generally pose no problems.

With regard to O&M of the main system, the situation is rather different. Main system O&M is a service for all water users in all the communities. The difficulties arising in this context become clear on comparison with the O&M system at village level, and closer examination of the elements of the overall system. The situation is shown in Fig. 24.

Fig. 24 O&M Service Delivery Systems in Punata, Bolivia (1)



At village level, the role of the water users is that of customers/clients of the O&M services, and at the same time of decision-making members of the village community, which acts de facto as the provider of these services ('identity principle'). The water users see themselves as entitled to the rights of ownership over the irrigation facilities - including the primary system - although these rights have not yet been fully transferred to them by the state.

Regarding O&M of the village distribution systems, the above-mentioned principle of 'control socio-territorial', and the associated restriction of group size to primary groups, mean that it is from the outset virtually impossible here for discrepancies to arise between individual and community interests, which might for instance lead to free-riding. The strategy for dealing with such behaviour is already established in the 'control socio-territorial'.

In order to avoid situations where information, expertise and control of resources are concentrated in the hands of a few individuals, and thus prevent any lack of service transparency, members of different age groups are required to take on specific community tasks as a matter of principle. This means that everyone comes into contact with every kind of community work at some time or other, and will therefore understand what is involved. In O&M of the village distribution systems too, the work is traditionally allotted temporarily to certain members of the community. The service that this group provides for the individual water user is thus controlled, as it were, by a non-market governance mode based on traditional solidarity principles ('NM' in Fig. 24) for community work, and is thus rendered without any problem at all.

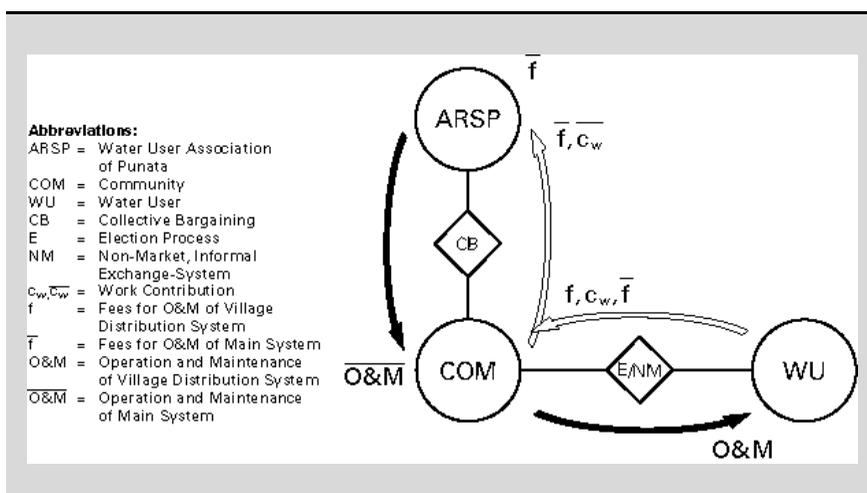
With regard to O&M of the main system, the situation is completely different: the service provider is the water user association ARSP, and the direct customers/clients are the village communities. The spectrum of services provided by ARSP includes in particular operation and maintenance of the primary irrigation system. The governance of this O&M service for the primary system initially involved two separate modes of governance: ARSP and the 'comunidades' - or their representatives - decided by 'collective bargaining' what O&M services were to be rendered when, and who was to pay what contributions of a monetary or non-monetary nature (governance mode 'CB' in Fig. 24). The monetary contributions themselves were to be collected by ARSP, which established an extensive fee collection and accounting system for this purpose. It kept lists of all water users, the area irrigated by them, the water allocation demanded and the resulting fee to be paid. ARSP was also responsible for collection of fees. With over 3000 water users, such a system naturally tended to be very susceptible to free-riding, as the 'small group' strategy - where everybody knows everybody and hence controls everybody - for overcoming this problem could not take effect here. The association was too big for appeals for solidarity to have any impact. Similarly, the ways and means effectively open to ARSP for imposing sanctions on defaulters were too small to overcome free-riding by coercion. The governance mode between ARSP and the individual water users was thus of only limited functionality (marked with a '?' in Fig. 24).

The consequences were foreseeable: a certain percentage of water users did not pay any water charges or were in arrears; the ARSP's efforts to collect the money proved to be extremely costly; the discussions on whether and how to persuade defaulters to pay their contributions began to erode morale and community spirit within ARSP.

The solution that was chosen by the water users, with the support of the German Technical Cooperation project, was the only one with any promise of success, given the existing modes of governance. They decided to make use of the well functioning traditional non-market governance mode at village level to organise service provision for O&M of the primary system as well. This was done as follows (cf. Fig. 25):

In collective bargaining between ARSP and the 'comunidades' (governance mode 'CB'), it was decided that in future the charges for operation and maintenance of the main system should no longer be paid by the individual water users, but by the village communities themselves. And this payment should be made in a lump sum before the start of a new irrigation cycle. It was agreed that any 'comunidad' that had not paid the full fees for all its water users to ARSP by one day before the start of the cycle, was to be excluded from water distribution. The effect was that the communities did everything in their power to ensure that fees were paid on time. Delays in payment by individual water users were dealt with by the relevant community advancing the money and subsequently reclaiming the missing contributions from its non-paying members. In view of the social pressure within the communities or, to put it another way, in view of the well functioning non-market governance mode (NM in Fig. 24), this arrangement always worked smoothly.

Fig. 25 O&M Service Delivery Systems in Punata, Bolivia (2)



4.3.3 Consequences for Service Delivery

The change to a different governance mode, and the use of existing effective governance mechanisms, has resulted in the emergence of an irrigation service system in Punata in which all fees are successfully collected in full – by no means a common occurrence in the irrigation sector. The good governance of operation and maintenance services has resulted in ARSP gaining so much trust from the farmers that it is now having to arrange the provision of other services (e.g. loans). The water users' conception of themselves as jointly responsible customers who enjoy rights of use with respect to the irrigation facilities, the service orientation of ARSP, the intact primary groups at village level and the establishment of a well functioning composition of two governance modes, have created a highly effective O&M system that is appropriate to the situation.

4.4 Assessment of the Instrument

The above case studies together with the general comments on governance modes hopefully make the following points clear:

- One key component of service delivery systems are the respective institutional arrangements that make such systems workable. Governance modes can be seen as the 'life lines' of a service system. They facilitate or hinder the flow of services and quid pro quos within the service system. It is important that the originally 'open service relationship' with its 'gap of control' is closed by means of closed feedback loops of services and quid pro quos, if the system is to be sustainable. This means that the operationality of governance arrangements must be a central point of focus in the analysis of and efforts to improve service systems.
- Fig. 16 presents several key governance modes in simplified form. In reality, governance modes of this kind are highly complex and are shaped by local, political and cultural conditions. Furthermore, more complex service systems, such as those which as a rule exist in conjunction with O&M services in irrigation, usually incorporate – as has been shown above – several modes of governance. The complexity of each of these governance modes means that the analysis of such modes in itself will be a highly sophisticated task and may require specialist know-how. (In-depth analysis of the weaknesses of a membership system such as those which exist in an association, for example, requires specialist know-how on association management, which is not often available in irrigation practice).

To sum up, it can be argued that in efforts to establish or to improve institutional arrangements for service delivery in general and for service delivery in development cooperation in particular, the analysis of governance modes should be seen as a vital step which needs to be given greater attention in the future.

5. Analysing Power and Interests in Service Networks: The 'Power and Interests Analysis'

The 'Power and Interests Analysis'(PIA) is an instrument designed to facilitate analysis of 'institutional arrangements'in terms of power and interests (cf. Urban 1994). It relates primarily to the power relations at the level of the overall system (e.g. in development cooperation projects), and not to the issue of power relations within individual organisations.It supplements the work on the 'Service Interaction Analysis' and the 'Analysis of the Institutional Arrangements for Service Delivery Systems' discussed in chapters 3 and 4.

5.1 Background and Origins of the Instrument

Analyses of service relationships conducted within organisational networks have revealed that disequitable or poorly transparent power relations and constellations of interests have a major impact on service delivery and acceptance. Not only do the power relations and in particular the individual interests of the organisations involved affect service interactions between individual participating organisations, but a 'positive' coalition of interests, and possibly even a 'strategic consensus' between major players, is often an important precondition for successful interaction. In this context we take 'positive' coalition of interests to mean a situation where the power relationships and the interests of the organisations involved are distinctly conducive to the achievement of objectives.

By addressing issues of power and interests,the PIA touches on issues that often cannot be addressed and discussed openly. However, problems relating to constellations of power and interests may have a very significant impact on the prospects for project success – especially such capital-intensive projects as irrigation.It is therefore important, for example for development cooperation organisations,to be able to assess in terms of power and interests the risks of their involvement,at least from their own point of view.The PIA is designed primarily for 'in-house' use of this kind (e.g. during the initial phases of a Technical Cooperation project appraisal).

Only in exceptional cases is the PIA likely to be suitable for use as an instrument for joint identification,discussion and examination of the consequences of disequitable power distribution among several organisations.This might be the case where the 'climate of trust' between the

organisations concerned is conducive to open discussion, or where no 'vital' interests or spheres of influence are threatened.

Finally, it should be noted that the PIA can only serve as a 'support' for qualitative appraisal of power and interest issues. Quantitative assessment of the 'parameters of power and interests' is neither necessary nor desirable. What we attempt to do here is to analyse the institutional arrangements on the basis of assessments and appraisals made by professionals familiar with the specific situation, and to visualise this analysis in graphic form.

The Power and Interests Analysis can be performed by individuals, by small groups, or in a workshop setting. It presupposes that the person or persons involved are familiar with and understand the interests of the actors in question.

5.2 Power and Interests Analysis: The Tools Available

This section explains briefly how a Power and Interests Analysis is carried out, before going on to illustrate its application taking two examples drawn from practical development cooperation work (Sections 5.3 and 5.4).

The individual steps of the PIA are:

Step 1: Identification and visualisation of the network of relationships

As in the Service Interaction Analysis, the main actors involved in the measure or activity in question are identified and either simply listed or, if this helps to shed light on the complex network of relationships, represented in a diagram. Important relationships that are readily apparent without resort to any formal methodology may also be discussed, and included in the diagram if appropriate. At the same time, this procedure familiarises the discussion participants with the situation.

Step 2: Identification and analysis of the interests of the organisations involved

This step analyses the interests of the participating organisations with respect to a specific objective.

To this end it is first necessary to agree on the objective to which the analysis should refer. This might be the objective of a (Technical Cooperation) project, or the objective of a single activity (e.g. within a project).

Next, the actors whose interests are to be analysed in relation to the objective thus defined, are selected from the list drawn up in Step 1. These should be those actors who, relative to others, have the greatest

influence on decisions whose outcome may be either favourable or unfavourable for achievement of the objective in question.

The interests of these actors are now discussed and evaluated in relation to the defined objective. The aim here is to establish as precisely as possible what the actual interests are, i.e. it is essential to consider both 'overt' and 'covert' interests.

Following this, the interests of the organisations examined are summarised by rating them on a seven-point scale (from 'very favourable' to 'very unfavourable'). This rating of interests relates expressly to the previously defined objective⁹.

Step 3: Assessing the potential influence of the organisations involved

In this phase of the discussion the participants are asked to reach a common assessment of the potential influence or power of the organisations involved. The point at issue is the influence of the organisations in question on decision-making processes whose outcome significantly affects the likelihood of the objective of the measure in question being achieved. The assessment should take into account not only the organisations' influence on the decision-making *per se*, but also their influence on the implementation of the decision reached. This assessment is made on a three-point scale from 'weak' to 'strong'. The result of this assessment of 'potential power' is expressed in the 'power and interests matrix' diagram (cf. Step 4) by the size of the dot (representing the relevant organisation).

Step 4: Assessing the viability of the institutional arrangements (power and interests matrix)

The results of Step 2 and Step 3 are now entered in the power and interests matrix (PIM). The viability of the institutional arrangements is then assessed and appraised as follows: the more organisations with strong potential power (as indicated by the size of the dot) are to be found on that half of the matrix representing interests favourable to the project objective, the more viable the institutional arrangement will - in all probability - be with regard to the defined objective.

9 It should be made clear to the participants that this assessment must not be seen as a rating of the 'quality' or 'legitimacy' of the interests. Indeed, it should be stressed that some of the organisations within the respective 'service network' may legitimately pursue interests that are not necessarily favourable for achievement of the objective under scrutiny.

Step 5: Discussion of consequences

Finally, the consequences of the PIA should be discussed. Clearly, it is as a rule very difficult to influence the interests of individual actors, especially when the actors in question are highly influential. This is particularly true in capital-intensive investments such as irrigation. Even a frank discussion of the individual interests of the organisations involved is generally no easy matter. On the other hand, (project) constellations are conceivable in which the likelihood of achieving the objective can be improved by specific measures. These may for example include: measures to reduce or increase the influence of individual organisations, measures to strengthen the 'favourable' interests of individual organisations (e.g. by balancing or harmonising interests), modifications to the project constellation and objectives designed to cater better for existing interests. In individual cases, however, the PIA may even raise the issue of whether it is in fact advisable to continue pursuing the measure under discussion.

5.3 Case Study: The Tinajones Project in Peru

The Tinajones irrigation system is located in the department of Lambayeque on the northern coast of Peru. In the 1960s the Peruvian Government, with support from the Federal Republic of Germany, launched a project to improve the irrigation system in the Chancay/Lambayeque valley. The primary objective was to improve the irrigation of the existing cultivated area of approx. 60,000 hectares, preventing the harvest losses that were occurring repeatedly as a result of the uneven distribution of precipitation. In 1967, a reservoir with a capacity of 300 million cubic metres went into operation (cf. Fig. 26).

Despite an initially satisfactory situation in the period 1968-75, one of the project's major objectives, that of balancing out the fluctuations in water availability during the growing seasons (by using the new reservoir), and thereby stabilising cropping on the irrigated land, was not achieved¹⁰.

There were several reasons for this: firstly, the total area of irrigated land in the valley was enlarged considerably following the agricultural reform of 1969. Some 20,000 hectares of additional land was distributed to

¹⁰ The following analysis is based on the data from a study which covered the period 1967 to 1987 (cf. Urban 1990).

hitherto landless peasants, at the same time as which the farmers were granted extensive water rights. Since water was plentiful in the first seven years after the completion of the main construction work, there was initially no problem in satisfying the needs of the water user population, which had increased substantially. The seven dry years that followed, however, clearly demonstrated how little the reservoir was able to secure the originally planned function of stabilisation. In each of these years the reservoir was more or less emptied at the beginning of the growing season (November - January), the water being used largely for the rice cultivation that had been extended considerably from 1969 onward. When the growing season proper (February - April) then failed - in contrast to previous years - to bring additional rainfall to replenish the water reserves, it was not unusual for large amounts of the crops to wither away, especially the rice.

It could be argued that this situation was ultimately due to the political decision that resulted in this extension of land under cultivation. Although this is indeed true to some extent, the devastating effects of the dry periods could have been prevented if crop planning had been harmonised with the needs of the reservoir system. Such crop planning, which would not only have reduced the impact of the dry periods (the original purpose of the reservoir), but would also have brought an appreciable increase in yields in normal and rainy years, would essentially have required two changes:

■ **A more balanced distribution of crops (especially a reduction in the areas devoted to the 'water-intensive' crops, rice and sugar) on the irrigated land**

Cropping in the valley was (in simplified terms) split more or less equally between three groups: a) state-promoted sugar cooperatives in the upper parts of the valley; b) 'medium-sized' rice-farmers in the middle part of the valley; and c) large numbers of small farmers in the lower part of the valley, who had grown chiefly maize, potatoes and vegetables before the reservoir started operating, and some of whom 'switched' to rice when the reservoir came into service.

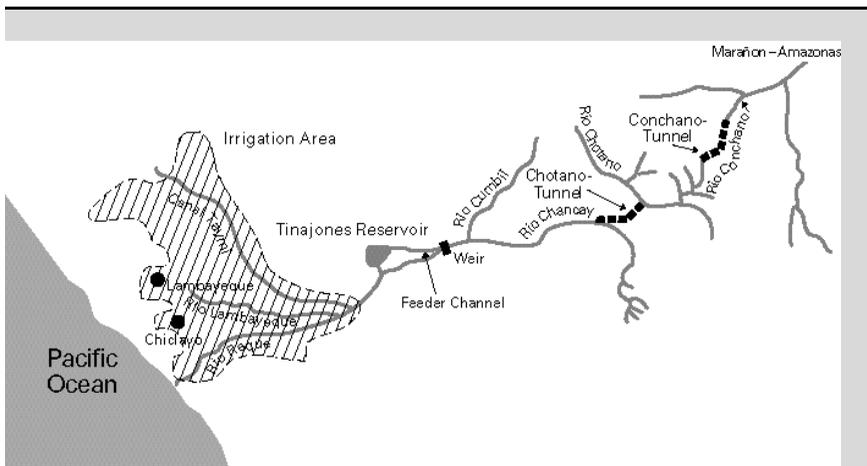
To be able to distribute the reservoir water for equalisation purposes all the year round, it would have been necessary to have a relatively balanced distribution of the areas growing crops with high water requirements (rice, sugar) and crops with low water requirements (maize, potatoes, beans).

■ **A reduction in cropping on extremely permeable soil.**

Another way of ensuring that the water authority was able to maintain maximum flexibility as regards the water quantity at its disposal in the reservoir, would have been to reduce cropping on extremely permeable soil. This could only have been enforced by means of pertinent regulations.

The fact that it was practically impossible during the period studied (1969-87) to operate the reservoir in line with the objective described above, i.e. to ensure equalisation of irrigation throughout the year in the Chancay/Lambayeque valley, was to a significant extent attributable to the interests of the actors involved. This will now be explained in more detail by applying a retrospective Power and Interests Analysis.

Fig. 26 Sketch of the Tinajones Irrigation System



■ **The actors and their roles (Step 1)**

The principal tasks in the management of the Tinajones system (as in the other major Peruvian irrigation systems) were divided between various bodies in the period under review. The construction work had been entrusted to DEPTI, a 'special project authority'. DEPTI was also responsible for the operation and maintenance of the primary and secondary irrigation system until such time as these tasks were handed over to local authorities or to the water users themselves - which was not yet the case in the period under review.

Technical operation of the system, in other words chiefly the opening and closing of sluices, was handled by DEPTI on the basis of specifications provided by the water authority. The water authority (ATDR) drew up the operating plans on the basis of the cropping preferences of the users, who had to apply, in line with the water rights granted them, for water for the entire season for the crops they wished to grow. Especially in view of the different water requirements of the various crops, the decision on what crops were approved for what land played an important part in the operation of the reservoir and the availability of water throughout the growing season.

The most important decisions concerning the distribution of cropland, and hence the important parameters for the operation of the system, were generally taken before the start of the growing season by a 'coordination committee' (comité de coordinación) composed of representatives of the water users, the producers' committee, the water authority and as chairman the Ministry of Agriculture's regional director. This committee discussed and decided on questions such as the distribution of cropping areas (including maximum limits for certain crops), and the start of water allocations. Essentially, these decisions were always based on a forecast - inevitably highly uncertain - of expected water availability, prepared by the water authority on the basis of the first rainfalls in the Andes.

■ **Interests of the actors (Step 2)**

This retrospective analysis of the individual interests of the actors involved was performed in relation to the above-mentioned objective: 'The operation of the Tinajones system has balanced out the fluctuations in water availability during the growing seasons, and thereby stabilised the cropping on the irrigated land'. This was an objective of the Peruvian water authority ATDR, which was also to be promoted by the German Technical Cooperation project.

The following actors who played an important part in decisions on the operation of the system were selected for analysis¹¹:

11 This selection takes account of the fact that the discussions to identify the actors in Step 1 had demonstrated that, when discussing the individual interests of the water users concerned, it was appropriate to distinguish between small farmers, medium and large farmers, and the sugar cooperatives.

1. DEPTI
2. Small farmers
3. Medium and large farmers
4. Water authority (ATDR)
5. Ministry of Agriculture (regional branch)
6. Sugar cooperatives.

The retrospective analysis of individual interests revealed that the only organisation which really had a major interest in achieving the above objective was the ATDR.

At the crucial meetings of the coordination committee which decided on the upper limits for water allocations to the individual crops, the great majority of water user representatives almost always opted for expansion of the rice-growing areas. Not only the medium and large rice farmers in the middle part of the valley, but also from 1969 onwards an increasing proportion of the small farmers in the lower valley, preferred to take advantage of the opportunity to secure above-average earnings in the short-term. Rice-growing offered such opportunities during this period owing to the general economic conditions (fixed price, guaranteed sales, state marketing), provided the growing season was 'successful'. This also meant that farmers consciously accepted the risk of losing a large proportion of their cropland if the rainfall in the latter half of the growing season failed. In effect, the farmers were playing 'vabanque'.

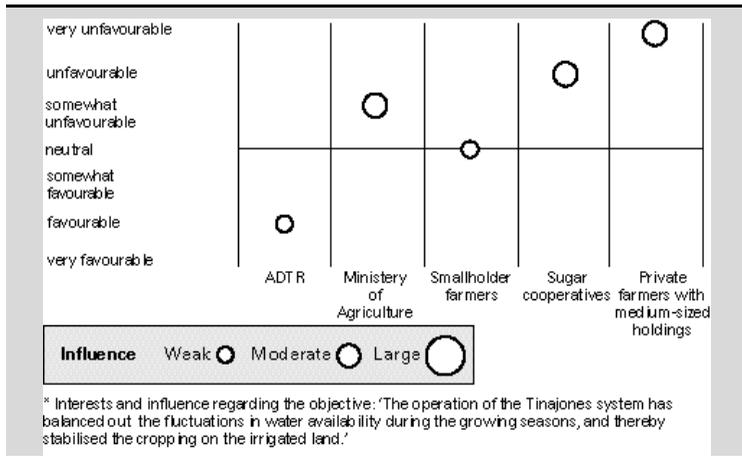
The Ministry of Agriculture representative, who was at the same time chairman of the coordination committee, had reasons not to be interested in limiting the rice-growing areas. On the contrary, even the Ministry of Agriculture was pursuing well-founded interests that ran counter to those of the water authority. In fact it was a major objective of the Ministry of Agriculture to obtain cheap supplies of food for the urban population. For this reason the Ministry of Agriculture pursued a veritable 'rice-promotion policy'. It guaranteed fixed prices for rice and ensured marketing of the rice by the state agency ECASA.

Thus the water authority's efforts to achieve more balanced cropping throughout the valley, especially by increasing the proportion of traditional crops such as maize and potatoes, were in conflict with major political aims of its own Ministry.

The situation regarding the interests of the sugar cooperatives was similar. They naturally had little interest in reducing the amount of 'water-intensive' sugar growing, but this did not present any problems, since there was never any question (politically) of reducing the sugar-growing areas.

Only a few of the small farmers, who essentially grew crops with low water requirements (as they could not expect to receive enough water for growing rice in any case), advocated – like the water authority representatives – a more balanced distribution of crops and water. Both, however, were among the groups with the least influence in the project context, as an assessment of their potential influence shows.

Fig. 27 Power and Interests Matrix (PIM) – Tinajones*



■ Assessment of potential influence of the organisations involved (Step 3)

No one actor had a much greater influence on important decision-making affecting the operation of the system than any other. Indeed, influence on major decisions concerning the operation of the system was spread among several actors. This was primarily because water distribution was ultimately dependent on the decisions concerning crop planning. On this issue the water users had a big say. This was manifested not only in the comité de coordinación, but also at the political or informal level, when the regionally influential farmers (mainly rice growers) in particular tried to exert pressure on the political decision-makers.

It was clear however that the water authority representatives had virtually no influence on major decisions, although strictly speaking theirs was the body that was statutorily responsible for water distribution. In fact its representatives tried unsuccessfully for many years to bring about

the introduction of 'organised' water distribution in the Tinajones system. Those small farmers who were also interested in balanced crop planning also had little say. By contrast, the rice farmers' representatives had greater 'potential power'. Some of these were very influential persons in the valley, and through their representatives in the producer committees and in the water user associations they succeeded in asserting their own interests. And finally, the Ministry of Agriculture was given a 'moderate' rating in this retrospective analysis.

■ **Assessing the viability of the institutional arrangement (Step 4)**

Against this background, the power and interests matrix revealed the following (cf. Fig. 23): Many of the important and influential actors had little or no interest in achieving the objective of balanced year-round operation of the Tinajones system. By contrast, the only organisation pursuing this objective as a matter of priority, the water authority ATDR, had very little influence within the power-politics framework of decision-making on water distribution in the Tinajones system. The power and interests matrix (PIM) shows clearly that the institutional arrangements were not viable in relation to the objective of the ATDR.

■ **Consequences (Step 5)**

In this example the PIA was undertaken retrospectively after the Technical Cooperation project supporting the ATDR had ended. Hence discussion of the consequences for further action by this specific Technical Cooperation project did not result in practical steps to be taken. The example described does, however, raise the issue of whether the risks of intervention by Technical Cooperation could have been identified if the relations of power and interests of the actors involved had been studied when preparing the project. In some respects the risk could indeed have been identified as early as the late sixties, i.e. at the beginning of the Technical Cooperation project. At that time the Peruvian Ministry of Agriculture was already pursuing a rice-promotion policy that was inconsistent with the stated objectives of water distribution in the Tinajones system. Even then, i.e. before the agricultural reform of 1969, important and influential actors, especially the rice farmers in the middle part of the valley, showed little willingness to accept any restrictions on rice growing. And even then, the water authority was - in terms of power politics - in barely any position to impose its cropping requirements on these actors on the grounds of 'overriding' interests, whether of an ecological, social or technical nature (cf. Fig. 27).

5.4 Case Study: 'Oruro small-scale irrigation' in Bolivia

As described already in chapter 3 the 'Oruro small-scale irrigation' project was run by the Bolivian regional development authority Corporación de Desarrollo de Oruro in the Oruro department. In the mid-1980s the regional development authority entrusted AYNI, a task force project organisation with the implementation of small-scale irrigation measures in Oruro. Until 1992, AYNI performed these measures with assistance from UNDP in more than 20 remote village communities in the department. Since 1992 the project, which is now being continued under a different name, has been assisted by German Technical Cooperation. The core function of this project is still to assist farmers in improving traditional irrigation systems.

As part of a project review, a workshop to identify and analyse services was held with representatives of all the organisations involved (cf. Section 3.3). In connection with this workshop a Power and Interests Analysis was conducted.

■ The actors and their roles (Step 1)

First of all the main parties involved were identified, and aspects of the relations between them discussed (for an overview of the main actors involved cf. Fig. 10). The following points were raised:

1. The demarcation lines between the project organisation AYNI and the departments and units of the regional development authority that supplied personnel for the project were not clearly defined. Members of the regional development authority's water resources unit 'Unidad de Recursos Hídricos' (URH) were assigned to the project, but still reported to the head of URH. The latter used them as needed, since he was himself faced with substantial scarcity of human resources, for tasks not related to the project. The AYNI project manager possessed neither hierarchical authority over the staff assigned to him, nor unlimited scope to deploy project resources, deployment of which was controlled by the regional development authority and hence not by the project itself.
2. The relationship between the project staff and the villagers was sometimes put under considerable strain: in several situations it was not possible for the AYNI staff to keep agreements they had made with the farmers. This adversely affected the target group's confidence in the reliability of the project.

3. The formally very important 'comité interinstitucional', composed of representatives of all the main parties concerned (regional development authority, AYNI, planning ministry, donor), had very little influence in practice on important project decisions.

The discussion thus yielded some findings which were later integrated into the 'Power and Interests Analysis'.

■ **Interests of the organisations involved (Step 2)**

In the present case, the objective on which the PIA focused was the project organisation **AYNI's formal objective** which was defined as: 'The traditional smallholder irrigation systems supported by the AYNI-project have been improved and are being operated on a sustainable basis'.

For the Power and Interests Analysis the following three most important actors were selected:

1. Regional Development Authority
2. AYNI
3. Small-holder Farmers

The individual interests of these actors were analysed and assessed as follows:

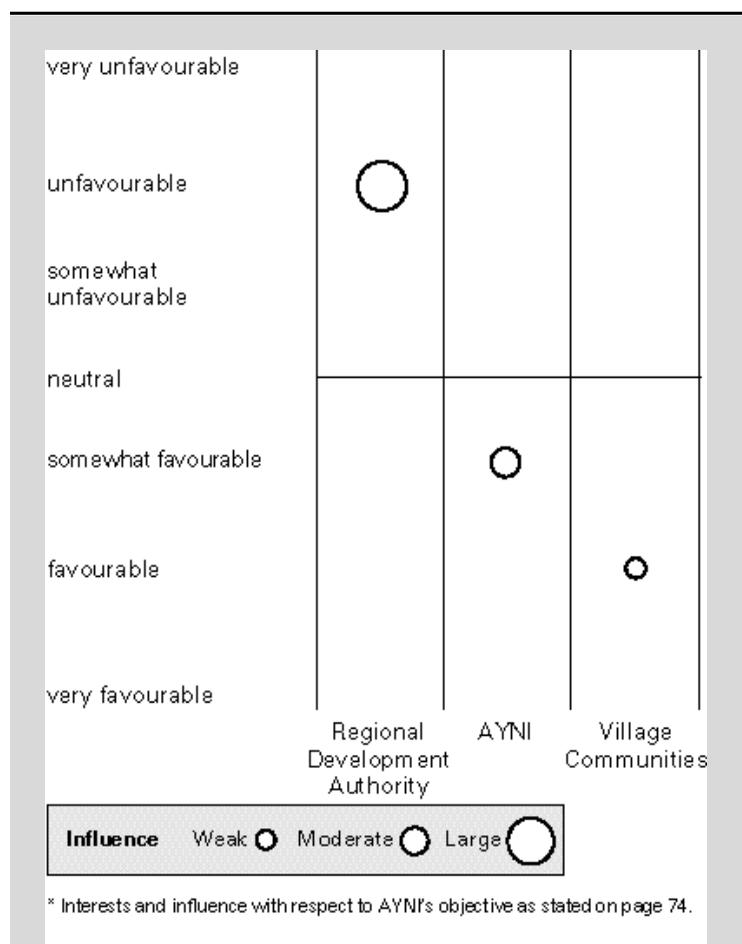
The interests of the regional development authority were on the whole rated as having a largely 'unfavourable' impact on achievement of the above-mentioned objective: although the regional development authority could certainly be credited with a number of well-founded interests that appeared conducive to the achievement of the project purpose (interest in further Technical Cooperation resources, interest in successful projects to promote its image in the region), in practice the interests of those organisational units which directly seconded personnel to the project proved rather unfavourable for the project's progress. These departments, by deploying project staff and materials elsewhere - which was from their point of view understandable in the regional context, given the scarcity of resources and the urgency of the tasks on hand - jeopardised achievement of the project objective.

With respect to the interests of the project organisation the favourable interests (professional interest in achieving satisfactory project results, interest in preserving jobs) contrasted with some rather 'unfavourable' interests. The latter included the staff's tendency to prefer projects and activities located not too far from the departmental capital Oruro itself,

which lead to a neglecting of projects in remote areas. Thus, even AYNi's interests could only be rated overall as 'somewhat favourable'.

In the case of the village communities it was clearly possible to speak of interests having a 'favourable' effect on the project objective: here it emerged clearly that the farmers' interest in sustainable irrigation systems was greater than the interest also displayed by some farmers' representatives in high-prestige projects of questionable benefit to the community.

Fig. 28 Power and Interests Matrix (PIM) – Oruro*



■ **Assessment of potential influence (Step 3)**

In the case of the 'Oruro small-scale irrigation' project the influence of the regional development authority was judged considerably greater by the participants in the discussion than that of the project organisation AYNI, which was rated 'moderate'. By contrast, in spite of the project's participatory approach the smallholder water users, the project's target group, had only very limited ways and means of influencing important project decisions and their implementation.

■ **Assessment of the viability of the institutional arrangements (Step 4)**

In the present case, the discussion concerning the viability of the institutional arrangements of the 'Oruro small-scale irrigation' project using the power and interests matrix (PIM) yielded the following results (cf. Fig. 28):

The most powerful actor in the organisational network was found to have only limited interest in pursuing the objective of the AYNI project. Also, it was striking that the group who had the greatest interest in achieving the project objective, namely the water users, proved in this project constellation to have the least influence on important project decisions and their implementation. A somewhat favourable impact also resulted from the interests of the project organisation AYNI. All in all, the balance of favourable and unfavourable interests in this context was rather delicate; moreover, it seemed reasonable to expect that the regional development authority would also seek to use project resources for non-project measures in the future, were the institutional set-up to remain unchanged.

■ **Consequences (Step 5)**

Based on the analysis of interests of the organisations involved, a number of consequences for the future running of the project were discussed with the Bolivian authorities: if possible, the influence of the water users, the group most affected by the project results, was to be increased. This could improve a number of deficits in the planning and implementation of the individual measures in the village communities. It also seemed sensible to assign to the project organisation responsible for achievement of the project objective, the competence it needed for this purpose (complete powers of disposal over financial and human resources). This at the same time amounted to a plea that the direct influence of the regional development authority should be reduced with respect to specific project decisions. One prerequisite

for this was a clear division of roles between the regional development authority and the project organisation.

These conclusions drawn from the PIA were discussed with the Bolivian authorities who then introduced a number of changes in the project structure. Since 1995 the project has had its 'own' project personnel, who are fully under the direction of the Bolivian project manager. The project's powers of disposal over financial resources have also been improved. Even if the measures have not succeeded in solving all the problems, they have set in motion a process of division of roles between the regional development authority and the project organisation which has resulted in greater transparency, and thereby brought about a marked increase in the likelihood of achieving the objective.

5.5 Assessment of the Instrument

The 'Power and Interests Analysis' provides a simple means of making transparent the relations of power and interests within institutional arrangements. It creates scope for dealing in a structured way with the problem of power relationships in (development) projects. In particular, the PIA yields important information which is helpful in assessing the viability of institutional arrangements, prior to taking a decision on project implementation.

As mentioned in the introduction, in our opinion the PIA is suitable primarily for an individual organisation wishing to assess the risks involved in its participation, for example in development projects, in terms of power and interests. In addition, it is in our opinion also conceivable that a PIA could in certain situations be undertaken with representatives of several organisations, for example if the 'climate of trust' between the organisations concerned were conducive to open discussion or if no 'vital' interests or spheres of influence were threatened. In such situations the instrument could also serve as a starting point for processes of change within organisational networks, where for example conflicts of interest between organisations could be brought into the open and possible solutions elaborated, though it must be borne in mind that no relevant experience has been gained as yet.

The risks involved in using the Power and Interests Analysis are obvious: by its very nature it interferes with power relations, and should therefore be employed with due care. It presupposes a sound understanding of the limits of the instrument on the part of the user.

6. Analysing Service Organisations – The Example of a Bolivian Water User Association

Analysis of service provision in organisational networks will often have to include the diagnosis of the service-providing organisations involved. This chapter will present a conceptual approach to the analysis of service organisations, designed to address the special features of services and service provision as set out in chapter 2. The approach is illustrated by an extract from an analysis of a Bolivian water user association – the ‘Asociación de Riegos y Servicios Punata’ (ARSP) in the Bolivian valley of Cochabamba – undertaken in autumn 1994 (cf. Huppert/Urban 1994c).

6.1 Special Features of the Analysis of Service Organisations

The analysis presented below attempts to focus attention on the service-providing character of the organisation under scrutiny – in this case the ARSP. Service provision – as illustrated exhaustively in the preceding chapters – follows different laws from the production of material goods. Many organisational analyses of service organisations to date have been implicitly based on the ‘model’ of production of material goods. The result is frequently that important aspects relevant to the process of service provision are overlooked, or receive only inadequate treatment. The present analysis attempts to remedy these deficits, with the aim of taking a first step towards better designing organisational analyses of service organisations.

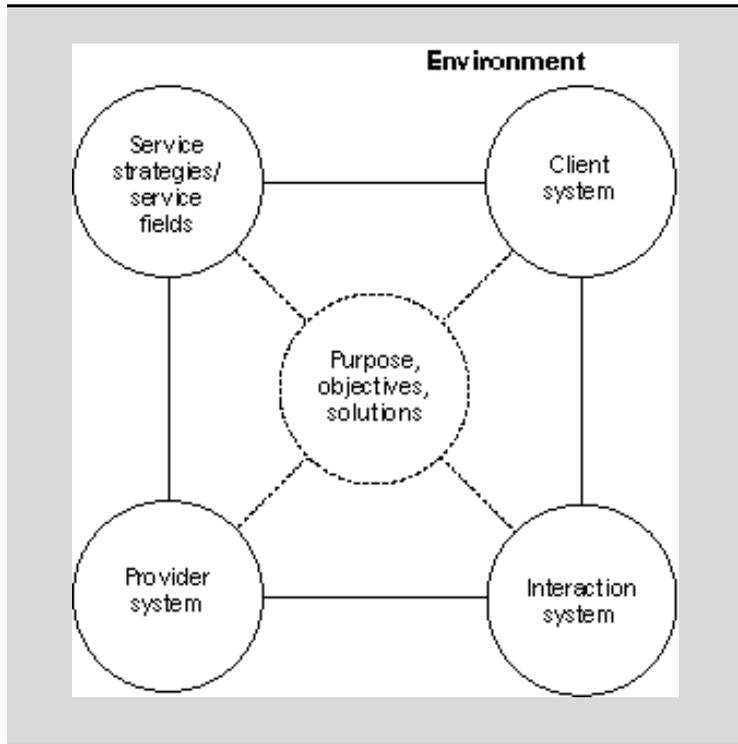
Water user associations like the ARSP in Bolivia are organisations that have two special features:

1. They are service organisations
2. They are organisations with a membership structure

As discussed in detail in chapter 2, what distinguishes the provision of services from the production of material goods is that the customers – to a greater or lesser extent – play a part in providing the services. Service provision depends on how willing and able clients are to cooperate, and is strongly influenced by the design of the interaction between provider and client. It is therefore important when analysing a service organisation to take special account of this aspect. It is a feature of service organisations providing high quality services that their own structure and pro-

cesses are geared to the interaction requirements and possibilities of their clients. Therefore, the organisational analysis of a service organisation should not concentrate solely on the 'provider system', but also devote special attention to the 'client system', its ability and readiness to play an active part, and the design of the 'interaction system'.

Fig. 29 Main Areas of Analysis for Service Organisations



The following are important areas that an organisational analysis of service organisations ought to cover (cf. Fig. 29):

- Purpose, objectives and problem-solving areas (to which the services are geared)
- Service fields and service strategies (i.e. those areas in which services are to be offered, and the strategies for service delivery)

- The client system (i.e. those aspects of organisation, management, resources and technology on the client side that are relevant to service provision)
- The provider system (i.e. especially organisation, management, resources and technology on the supply side)
- The interaction system (i.e. the system of individual services, quid pro quos and service relationships on which service provision is based)
- The environment (especially with regard to 'extraneous' influences on the interaction with the client)

Another important aspect in the present analysis arises from a special feature of service provision in organisations with a membership structure. This is that the members are part of both the provider system and the client system ('identity principle'). It is therefore important here to distinguish between internal and external services, i.e. between those that are provided for members and those that are rendered to other service recipients. The organisational analysis should therefore make a distinction between internal and external service interactions.

6.2 Analysis of the 'Asociación de Riegos y Servicios Punata' (ARSP)

6.2.1 Introduction

The 'Asociación de Riegos y Servicios Punata' (ARSP), on which this section focuses, is one of two water user associations that were established with the assistance of the Technical Cooperation project 'Proyecto de Riego Inter-Valles' (PRIV) in Cochabamba, Bolivia. The 'Upper Valley' irrigation system and the emergence of the two water user associations ARSP (Punata) and ARST (Tiraque) were briefly explained in section 4.3 where the institutional arrangements underlying the O&M service provision in the Punata area were analysed. In this chapter we will now focus on the service-providing character of the organisation as a whole.

As mentioned above, the following text presents an extract from an analysis of the ARSP undertaken in autumn 1994. The purpose of the analysis had been the following: Since its foundation in 1989 the ARSP received financial and logistical support from the PRIV project. The PRIV project ceased its activities in summer 1996, and the two water user associations have since then continued to provide important services for the operation and routine maintenance of the new irrigation systems.

Consequently, before the PRIV project ended, it seemed appropriate to examine whether the capacities of the water user associations were sufficient for the task.

The analysis of the 'Asociación de Riego y Servicios Punata'(ARSP) focused on two questions:

1. What services does the ARSP currently perform for its members, and how is the process of service provision organised?
2. What service provision problems arise, and does ARSP's organisational capacity appear adequate for rendering the services required to assure operation of the new irrigation system?

The following text highlights some of the main results of the analysis and attempts to illustrate where the 'comparative advantages' of the proposed approach lie. In line with the conceptual considerations outlined above, it concentrates on the following areas¹²:

- the purpose and objectives of the ARSP
- the main service fields of the ARSP
- ARSP's client system (i.e. regarding their ability and willingness to interact)
- ARSP's provider system (i.e. organisational structure)
- the interaction system (including an analysis of the main problems encountered)

6.2.2 ARSP's Objectives and Service Fields

The members of ARSP's directorate define the purpose of their organisation as follows: 'ARSP's objective is to provide services to support irrigation system management and (to support) production'.

A 'twin-track' formulation of objectives is already evident here. Originally the ARSP was founded to ensure operation and maintenance of the new primary irrigation system. For various reasons (which cannot be explained here in detail) the local organisations from which the two associations originally emerged (i.e. the so-called lagoon committees - who

¹² Because of the limited space available several aspects of the analysis that were treated with more detail in the original study (e.g. the planning and operating resource system of the ARSP, aspects related to the environment and also to the 'external client system') could not be included here.

had hitherto been responsible for the operation of the different lagoons – and the communities) maintained a certain number of functions in the operation and maintenance of the new system. Possibly because its responsibilities were more limited than originally planned the ARSP began to perform additional functions and services for its members, some of which were outside the irrigation sector.

Specifically, the ARSP has to date developed the following key service fields provided mainly for its ‘internal’ clients, i.e. its members, the village communities and the lagoon committees¹³ :

1. Economic services (e.g. sale of inputs, credit, improvement of canals)
2. Advisory services (above all for the committees and communities with respect to the operation and maintenance of the main system and the village distribution system)
3. Coordination and representation services (e.g. channelling technical and financial assistance)
4. Training courses (on irrigation and community management)

The services rendered to external clients are difficult to break down into individual service fields, since they are not very numerous. They include primarily information services (mainly for public sector organisations and PRIV), direct labour contributions or coordination of labour contributions for the regional development authorities, and information and advisory services for other water users in the region who wish to profit from ARSP’s experience.

6.2.3 ARSP’s Main Clients: The Village Communities

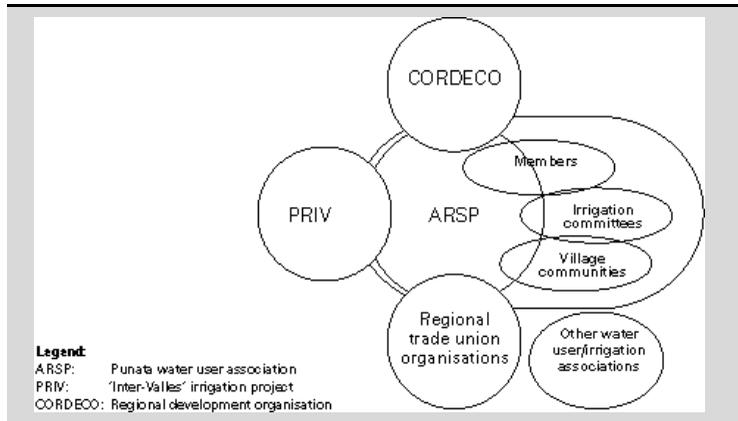
ARSP’s most important clients are the traditional village communities, their inhabitants, and the irrigation committees. This means that the key clients for the services provided by ARSP are those organisations from which the ARSP effectively emerged, but which continue to exist with only minor changes to their functions: the three ‘internal’ target groups of the comuneros, comunidades and comités (cf. Fig. 30).

To assess the performance capacity of service organisations such as the ARSP, it is necessary to investigate among other things how willing and able the clients are to play an active part in service delivery. Scope for

13 Cf. Section 6.2.5 for more details on ARSP’s services.

participation by the members is ensured not only by the formal organisational structure, but also by a number of informal organisational principles. Both are examined in more detail below.

Fig. 30 Recipients of ARSP's Services



Formal organisation in the communities and its emergence (representative structure)¹⁴

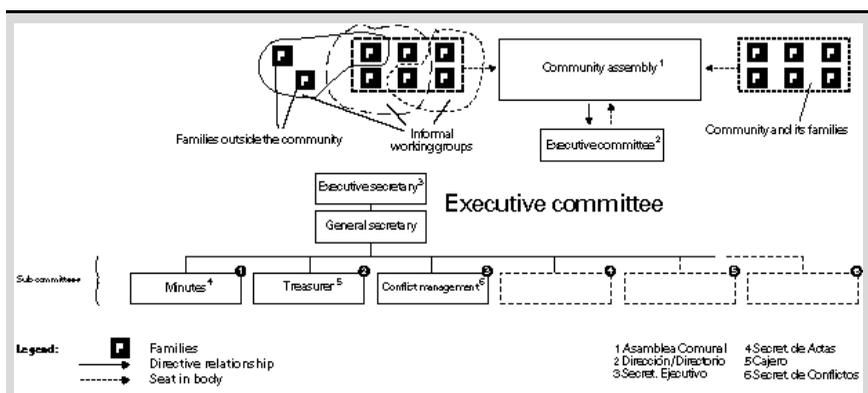
To understand the extent to which the communities are able, as clients of a water association, to participate in the provision of certain services, it is necessary to consider the main principles of their structure and policy-making processes. After all, the question of whether and to what extent the organisation of the water user associations is compatible with the traditional village forms of collective decision-making and consultation processes, is likely to be of crucial importance for the sustainability of such associations.

The formal organisational structure can be described as follows (cf. Fig. 31):

¹⁴ Since the most important (of the three 'internal') clients are the village communities – most services are provided directly to them – the following analysis will focus on the organisational structure and the informal organisational principles of the village communities (taking them as an example).

Each family sends a member to the community assembly (asamblea comunal). The assembly elects an executive committee (dirección or directorio) and a president who, depending on the region and his trade-union history, is known as ‘sindicato’, ‘directivo’, ‘hilacata’, ‘dirigente’ or ‘secretario ejecutivo’. The executive committee also includes the delegates (carteras), who as officials or subcommittees take care of up to 15 different administrative or specialised functions. Important administrative functions include keeping the minutes (actas), looking after finances (cajero), managing conflicts (secretario de conflictos), while sport, culture etc. are other typical ‘specialised’ functions.

Fig. 31 Structure of a ‘Comunidad’



The entire executive committee has seats and voting rights in the assembly. In the assembly all members have the same rights, with one vote per head.

Integration of traditional, ‘consensual-democracy’ organisation principles

Notwithstanding the formal structure of the communities outlined above, a number of typical Andean organisational principles have also been preserved, which are superimposed on the formal procedures and are of crucial importance for decision-making in the communities. To a certain extent the continued existence of these essentially traditional Andean organisation principles ensures ‘political equilibrium’ in the Andean communities, even though at first sight they appear to be at variance with the formal principles.

These typical Andean organisation principles can be summarised as follows:

- The principle of 'socio-territorial control' (control socio-territorial): This principle ensures that the community does not exceed a certain critical size as regards both number of members and territorial extent.
- The principle of 'ad-hoc' working groups: To cater for changing needs, 'ad-hoc' working groups involving several families can be formed on a reciprocal basis.
- The principle of 'latent organisation' (organización latente): Working groups and other organisational alliances can remain dormant for considerable periods, and then be revived at short notice if a specific need arises.
- The principle of 'rotating tasks' (cargos rotativos): Members of different age groups have to take on different community tasks. This age-dependent 'rotation' means that in the course of time everyone is familiarised with all the main tasks.
- Leadership functions as service to the community: Closely connected with the principle of 'cargos rotativos' is the attitude that the exercise of leadership functions within the community is to be understood as a service to the community.
- The possibility of a change in decision-making authority: There is de facto a great flexibility on the members' part about whether and to what extent they are in fact prepared to follow an elected person in authority.
- The principle of flexible consensus-building: Consensus is not arrived at primarily through rigid voting procedures, but through communication and respect for the rights and duties of the individual.
- The principle of flexible decision-making competence: On similar lines to the principle of flexible consensus-building, there is also a considerable degree of flexibility in the question of who has what competences in what decision-making situation.
- The principle of 'ad-hoc' planning: Advance planning of community tasks is kept to a minimum, as they are usually organised on an ad-hoc basis when needed.
- Forms of mutual assistance: There are a large number of forms of mutual assistance, which are usually based on the principle of symmetrical reciprocity.

Organisational structures reflect the principles by which the tasks within an organisation are divided and coordinated, with a view to achieving the

desired result. In this sense, the basic principles listed briefly represent the essence of Andean organisation as practised today in the communities of Bolivia. An essential feature here is the radical basic democracy model: every effort is made to avoid situations where concentration of power due to information or knowledge accumulation results in the formation of hierarchies, elites or centres of power that could undermine the status of the community members as the highest decision-making authority.

The critical question in the emergence of new organisational structures such as the ARSP will therefore be whether the community members succeed in reconciling the organisational demands of new and complex problems – such as water distribution in the Punata irrigation area – with the fundamental principles of their organisational system as described above.

6.2.4 The Service Provider: ARSP

As already described, an important feature of membership-structured organisations which essentially manage their members' own needs is that the members play a dual role: they are (internal) clients of the organisation and at the same time its responsible agents. Hence, when discussing these organisations in more detail below, the focus will be on their role as constituent groups for the water user association ARSP.

Let us now take a look at the organisational structure and the policy-making processes of the association¹⁵:

The formal body representing the members in the association and its supreme entity is the assembly of delegates (*asamblea*). Each community sends one delegate to the assembly for every 10 water users. The assembly usually meets once a year, and extraordinary meetings may also be called.

However, since the ARSP essentially renders services not to the individual members (*socios*), but to the communities and the irrigation committees, and since these bodies regulate water distribution and the levying of charges on their own responsibility, they function – as already indicated – *de facto* as regional or sectoral constituent groups.

15 The ARSP has more than 3000 members. Anyone can become a member if they (i) belong to one of the 53 communities that are 'served' by the ARSP, (ii) farm a piece of land, (iii) are older than 15, and (iv) possess water rights.

elf and one representative of each of the 53 communities belonging to the association. The junta usually discusses the decisions taken by the executive committee and - if it agrees - approves them.

Looking at the structure described here in the light of the structures and organisational principles at community level as outlined in section 6.2.3, the following comments can be made:

- The junta directiva, which receives only a brief mention in ARSP's articles of association and which was evidently only incorporated into the ARSP structure at a later stage, is the association's real management body. The fact that it always meets immediately after the executive committee and at the same intervals as the latter, means that to all intents and purposes the executive committee is only an apparent body and that the leadership functions of the association's management, as described in detail in Article 53 of the articles of association, are performed de facto by the junta.
- In the absence of a full-time executive secretariat, and apparatus, the executive committee's function is largely to ensure implementation of decisions, except where these are executed at the level of the members (socios), the communities or the lagoon committees. Members of the executive committee are present, for example, when water is distributed from a reservoir at the beginning of an irrigation cycle.

Looking at the basic principles of Andean organisation described above, it is hardly surprising that the communities have sought to introduce a junta of the kind described into the association's structure. The junta's composition stresses the association's federalist character and the special emphasis on decision-making underlines the communities' competence. The latter in turn essentially base their policy-making system on the basic principles of group consensus and rotation of functions (cf. the comments in section 6.2.3) This means that the junta, as established by ARSP (as frequently encountered in the Andean countries), represents an attempt to link the policy-making system of representative democracy with this traditional system of consensual democracy.

We can draw the following conclusions concerning ARSP's organisational structure and organisational development:

ARSP's formal representative-democracy structure, which suggests equal representation of the free will of all water users, is currently being 'redirected' in an impressive fashion by the junta and its close links with the community structures, which in the ARSP's catchment area are still

strongly consensually-democratic in character. As long as this continues to work, there should be no question about ARSP's future functionality and sustainability. As regards the expansion and further development of the ARSP, this means that any further institution building should aim to avoid upsetting this balance between formal structure and organic behaviour patterns based on consensual democracy, in a manner detrimental to the latter.

6.2.5 Services and Service Relations: The Interaction System

Analysis of the system of interactions in an organisation addresses the issues of what services the organisation performs for which recipients, and what special features and problems exist with regard to the individual service delivery processes and service relationships, and with regard to the organisation of service delivery.

As already mentioned, ARSP's most important clients are its own members and their organisations (comunidades and comités). In relation to these ARSP performs a large number of individual services in the above-mentioned service fields (cf. the ARSP service programme in Fig.33).

The core services of the ARSP include economic and advisory services in the operation and maintenance of irrigation systems, i.e.

- Collection of water fees
- Assistance with problem solving and conflict management in the operation and maintenance of irrigation systems
- Provision of logistics (especially vehicles) for operating the irrigation systems
- Organisation of maintenance of the superordinate irrigation infrastructure at the level of the irrigation zones
- Support for the communities in monitoring water use

The economic services also include various supply services. These include:

- Credit
- A revolving fund
- Sale of inputs (e.g. seed)

Whereas the supply services are provided to the individual members, the advisory and support services for the operation of the irrigation systems are provided to the three target groups, primarily to the comunidades and the irrigation committees. As a result the ARSP's contacts with the

Fig. 33 ARSP Service Programme (internal)

ARSP Services	To Members	To Communities	To Committees	To all Three
1. Economic services	Sale of inputs (**) Credit (**) Revolving funds (*) Cheese-making unit (**)	Expansion and improvement of canals and gates. (*) Channelling funds for small-scale agricultural projects to the community level.	Assistance with management of financial resources. (*) Facilitating mobility for opening and closing the reservoirs. (**)	Collecting and administrating contributions, regular items, non-recurring items. (*)
2. Advisory services	Technical assistance for agriculture. (*)	Assistance with irrigation monitoring (Tofora Khoocha) (**) Legal advisory services Assistance with community organisation. (**)	Administrative and supervisory assistance with problems relating to feeder canals, gates and reservoirs. (*) Legal advisory services	Assistance with solving problems of irrigators/committees etc. (**)
3. Coordination and representation services	Preparing list of members of the Tofora Khoocha committee. (**) Assistance with formalities relating to pumps for wells (USAID). (*) Assistance with rotation changes. (**)	Organising maintenance of irrigation area. (*) Coordination services vis-à-vis third parties. (**)	Assistance with formalities for infrastructure transfer. (**)	Drawing up irrigation plan. (**) Channelling technical and financial assistance from PRIV. Establishing and maintaining relations with national and international institutions. (*)
4. Training and others	Training courses. (*) Assistance with solving personal problems. (**)	Courses for community leaders. (*)	Training courses. (*)	

** Manageable without difficulty ** Manageable with difficulty
 * Manageable * Not manageable

bodies representing the water users, and with the representatives of the irrigation committees, which are still responsible for the operation of the traditional lagoon irrigation system, are very close. Cooperation between them is so well established that the lagoon committees have no hesitation in requesting the above support services from the ARSP. There is no sense of competition between the two organisations, simply because the members of the ARSP's directive are appointed by the representatives of the lagoon committees themselves. Cooperation with the three target groups has therefore been characterised by a spirit of mutual trust.

In addition to the above services, ARSP's programme of services also includes a number of coordination and representation services, such as

- drawing up the water distribution plan (rol de riego)
- establishing contacts with national and international institutions
- organisation of maintenance in the irrigation zones

which have been gaining in importance in the recent past. This includes in particular representing the water users vis-à-vis the state authorities, e.g. PRIV, and regional authorities. In this connection, in the near future the ARSP will perform an important function in the transfer of the 'usufruct' of the irrigation systems to the farmers' organisations. The ARSP's assumption of the representation function has also contributed to

expanding the above-mentioned supply services (credit fund, inputs) for members. In doing this, the ARSP has to a considerable extent taken on services that can clearly no longer be directly classified as irrigation. These services are nevertheless very highly rated by the members – indeed there are moves to expand such services. Finally the (4) training courses organised and run by the ARSP are also of considerable importance. In addition to various courses in operating the irrigation systems (water distribution and maintenance aspects, administration), these also include courses in which elected political representatives from the communities are familiarised with the fundamental functions of the bodies representing the comunidad and the ‘carteras’.

6.2.6 Analysis of ARSP’s Capacity to Maintain its Service Programme

To assess ARSP’s capacity to maintain the services described above in the long term after completion of the PRIV project, it was first necessary to identify those services that are still being provided by the project, not only to the ARSP itself, but also to the communities and lagoon committees. To this end a ‘service programme’ was drawn up for the PRIV project (cf. Fig. 34).

Both ARSP’s and PRIV’s service programmes were then examined to determine the extent to which the ARSP was in a position to provide these services on its own after the PRIV project had finished (cf. Figs. 33 and 34)¹⁶. This led to important conclusions. It transpired that the ARSP representatives saw themselves as being in a position to provide almost all essential services necessary to maintain the operation of the irrigation systems on a long-term basis, even without PRIV’s support. These include, for example, services such as support for the lagoon committees and communities in irrigation planning (elaboración del rol de riego), in managing conflicts between users or between the individual lagoon committees, in monitoring water use, in collecting fees and in monitoring the technical serviceability of the irrigation infrastructure (cf. Fig. 33).

It also emerged, however, that ARSP was unable to maintain some of its services on a long-term basis. This applied to a) services that had so far

16 The results of the discussion were included in the tables in the form of ratings ranging from “manageable without difficulty” to “not manageable”

been partially provided by PRIV or in which ARSP was still receiving assistance from PRIV.

Fig. 34 PRIV Service Programme

EPRIV Services	Communities	Committees	Association	All Three
1. Technical services	Promoting better utilisation of water and soil. (▲)	Technical assistance with emergency maintenance. (▲) Advice on operation of systems. (▲) Technical assistance with maintenance and construction of infrastructure. (▲)	Advice on operation of systems. (▲) Technical assistance with maintenance and construction of infrastructure. (▲) Preparing plans and manuals for operation and maintenance. (▲)	Planning work. (▲)
2. Economic services		Logistical assistance with emergency maintenance. (■) Logistical support for routine work and maintenance. (▲)	Logistical assistance with emergency maintenance. (■) Logistical support for routine work and maintenance. (▲) Payment of grants towards third-party services. (▲) Financial support for training: (▲) - Clients - Leaders	
3. Other services		Support for relations with Tiraque. (▲) Training courses and trips. (▲) Assistance with channelling technical and financial assistance from other institutions. (▲)	Support for relations with Tiraque. (▲) Training courses and trips. (▲) Assistance with channelling technical and financial assistance from other institutions. (▲) Administrative support. (▲) Assistance with formalities for transfer of infrastructure. (▲) Assistance with management of services for the promotion of agricultural production. (▲)	Assistance with management and strengthening of organisation. (▲)

●● Manageable without difficulty ■ Manageable with difficulty ▲ To be dealt with by project
● Manageable ■ Not manageable

These included:

- Technical and logistical support for the lagoon committees in case of severe damages to the infrastructure (mantenimiento de emergencia)
- Payment of subsidies for services by third parties
- Technical planning of construction measures
- Support for measures to promote agricultural production

It also applied to b) services that were provided by ARSP without assistance from PRIV, such as a cheese-making unit, or services that were currently provided with the assistance of the technicians and advisors cofinanced by PRIV as employees of the asociación.

Special problem analyses were conducted of some services considered to be important or problematical in ARSP's future, most of them however

not being vital to its survival. The most critical aspect was probably technical and logistical support for the lagoon committees in emergencies (landslides, storm damage to technical systems). Before its closure in 1996 PRIV had been responsible for repairing such damage. ARSP did not see itself as being either financially or logistically in a position to guarantee such services in future. For this reason the ARSP's representatives were demanding that the hand-over agreement (contrato de transferencia) specify a state (partner) organisation which could be contacted in cases of emergency damage and should also be responsible for the necessary support services.

All in all, there was agreement that in future it would be possible for ARSP and the other bodies representing the water users to provide the main services essential to maintaining the operation of the irrigation systems even without support from PRIV.

6.3. Conclusions and Assessment of the Conceptual Approach

The case study was presented to demonstrate an approach especially designed for the analysis of service providing organisations. Above all this meant a change of focus compared to analyses of organisations outside the service sector. This was accomplished through the inclusion of different aspects relevant to the service provision process such as, the analysis of the 'client system' and the 'interaction process' itself. Both these aspects are frequently overlooked or not treated with the necessary depth in organisational analyses that are based on concepts developed in the context of 'material goods production'.

In our opinion, the advantage of this approach was that it allowed us to identify important arrangements and procedures underlying the organisation of service provision and, more specifically, the interaction process with the clients, all of which are crucial to the success of a service-providing organisation. In our case, the comparison of the client system with the provider system helped to identify the reasons for the 'success' of the ARSP. It showed that ARSP's present strength is to a considerable extent based on the fact that the water users have succeeded in shaping policy-making processes in the ARSP in a way that has enabled them to integrate the consensual democracy procedures customary in the region. This has in particular been achieved by establishing a 'junta' with one representative from each of the village communities in Punata. This means that, *de facto*, the water users have, as it were, superimposed their own traditional structures on the organisation structure required by the state.

The ARSP has thus developed into a representative body accepted by all concerned.

Furthermore, the application of a service-oriented approach included the use of several of the instruments presented in the preceding chapters. The analysis of the interaction process and the problems involved in providing the services based on the elaboration of special service programs (cf. chapter 3) brought out the close ties between the provider and the clients (to a large extent due to the organisational principles underlying the functioning of the two systems as analysed in sections 6.2.3 and 6.2.4) and helped to identify some areas where the sustainability of ARSP's service provision might not be guaranteed and which should therefore be monitored carefully (some of the services in question have, as a matter of fact, since been dropped by ARSP). In general, however, it may be assumed that the ARSP will continue to provide its clients with reliable services, provided this equilibrium between traditional decision-making patterns and official structural forms is maintained.

7. Summary and Outlook: Service Orientation and Service Analysis in Development Cooperation

In the private sector, and increasingly also in the public sector, greater 'customer orientation' is one of the key imperatives of management today. Development cooperation has kept pace with this trend in its efforts to achieve greater 'demand orientation'. The endeavour to increasingly gear development projects to the desires, needs and preferences of the 'target groups' has been one of the key requirements of recent development cooperation.

If we consider the ideas outlined in the preceding chapters, it is clear that for the non-commercial sector in general and development cooperation in particular, the kind of demand orientation or customer orientation that is pursued in the commercial sector, is – on its own – not sufficient. The special features of service provision in the non-commercial sector, as described above in various contexts, call for a specific understanding of demand orientation or rather 'service orientation', which – in the particular context of development cooperation – should be understood as follows:

1. The term service orientation as used in this book means first of all that the intra- and inter-organisational activities of the actors involved in a development project or programme are geared to the needs of the target groups, understood as the 'ultimate beneficiaries' of the measure in question.¹⁷
2. Service orientation which adopts the methods and instruments described here starts from a more in-depth understanding of the characteristics and special features of services and of the different types of services. Service orientation of this kind seeks to take account of the fact that the interaction between service provider and client is an important feature of service provision.

¹⁷ This orientation, however – unlike commercial demand orientation – goes hand-in-hand with an awareness that in the non-commercial sector of development cooperation there is in many cases no such thing as 'effective demand' – in the sense of demand associated with an ability and willingness to pay. Here the end users are in many cases – especially in emergency and disaster relief situations – unable either to articulate their needs with sufficient clarity or to pay for the satisfaction of a specific demand.

3. The service orientation pursued here emphasises the fact that many of the actors involved in service delivery in development cooperation are non-commercial organisations. Managers must therefore take account of the special features of managing non-commercial service organisations. This also means that special attention will have to be paid to the interaction of commercial and non-commercial actors, and the differences in thinking which that entails.
4. Service orientation as understood here combines the above-mentioned orientation of organisational behaviour to the needs of the target groups with an orientation towards the needs and interests of the stakeholders involved in the service provision. Service orientation in development cooperation involves harmonising these two perspectives.
5. Service orientation as described above also involves a change from a mono-organisational view to a multi-organisational understanding of social 'subsystems'. In the non-commercial sector there is usually a need for cooperation between several actors of a different nature (e.g. public organisations, cooperatives, private companies). This means that service orientation in development cooperation calls for the project management approach to be complemented by a management approach geared to sustainable functioning of organisational networks, and hence to service delivery systems.

With respect to project work in development cooperation, service orientation means first and foremost that an awareness of the multi-organisational framework needs to be created among all actors. It must be clear during all phases of project work who is to provide which services to whom, within the project's sphere of influence. This is the only way of avoiding a situation, which to date has often given rise to criticism, where projects of Technical Cooperation themselves offer services which are already being provided to a sufficient standard of quality by local providers. The Service Interaction Analysis tools, presented in chapter 3, are especially suitable for identifying intersections and overlaps of services within multi-organisational networks, and highlighting possible 'gaps' in service provision. Using these tools, cooperations can be initiated, and specific problems in service provision can be analysed more precisely.

Since there is no such thing as a 'solely responsible manager' to assume responsibility for service control in the multi-organisational context of development cooperation, it is fundamentally important to submit the institutional framework on which the service provision is based to

thorough analysis. Operational 'governance modes' - there are a number of relevant intermediate forms between the two extremes of 'market system' and 'centrally-controlled economy', such as collective bargaining (for instance in wage negotiations), or neighbourhood help (in traditional village communities) - play an important role in service provision. Consequently, analyses of the functionality of existing institutional arrangements (as shown in chapter 4) can yield important conclusions on the self-regulating capabilities of service systems.

Issues of power and interests have also been addressed only very marginally to date in the context of development projects. Whilst the importance of these issues has often been noted, as a rule these problems have not been systematically taken into account in project planning. The 'Power and Interests Analysis' contained in chapter 5 takes a first step in this direction. It can serve as a tool to help analyse actors' interests within a project context, and evaluate them using a matrix. The individual applying the tool is then called upon to pass a verdict on the prospects of success of an intervention, and specifically so, against the background of the relations of power and interests within the project environment.

Finally, chapter 6 puts forward a proposal for structuring the analysis of service organisations, with reference to the example of a Bolivian water users' association. Methods of analysis and diagnosis which have hitherto been common do not do sufficient justice to the nature of service organisations, as they focus solely on the performance capacity of the provider organisations. The 'willingness' and 'ability to participate' on the client side, and the nature of the interactions involved, receive only insufficient attention when applying these methods. However, if organisational analyses are to do justice to the special nature of service organisations, they must address these issues systematically. In the context of development cooperation in particular, the design of the interaction with the service recipient is especially problematic, as this is often the interface at which different cultures meet. To guarantee genuine participation by the recipient in the service provision process, the particular features of the client system's organisational processes must be understood, and the processes of service provision harmonised with them.

The principles of service orientation, and methods to analyse and control services described above, have for a number of years been systematically integrated into the GTZ's project work, especially in the irrigation sector. The experiences gained in this connection are promising, and demonstrate that the approaches pursued are suitable for, above and beyond analysing particular issues of service provision, providing teams

on the ground with an overarching theoretical and conceptual frame of reference for project work.

In the PRIV irrigation project in the Cochabamba Valle Alto in Bolivia, referred to on several occasions above, the service-oriented approach pursued, even significantly helped a project, which had at times looked less promising than it might, to get back on the road to success. In 1989, following explicit demands of the rural population, the team decided to pursue a service-oriented approach. This meant that the project team deliberately swapped roles: Decision-making power on all important issues affecting management of the irrigation system was left to the farmers' organisations, from which point on the team viewed themselves as 'service providers' to the local water user organisations. The experiences gained since then demonstrate that the water users not only wanted this role, but that there was no alternative to their claiming it. The farmers were not willing to leave decision-making power to the project; they considered it to be their right by definition.

In addition, concepts and methods of various kinds have been integrated into several irrigation projects, chiefly in the Andean region, as well as into numerous projects outside the irrigation sector, and even outside the agricultural sector. For instance, service analyses have been carried out in a natural resource management project in Tanzania, in the South Indian cement sector, and in rural water supply in South Africa. Power and interests analyses have shed light on the situation of the 'Undersecretaryship for Technical Cooperation' in Peru, and the prospects of success of cooperative associations in the agricultural sector of Kazakhstan. Conceptual activities on service orientation even formed the basis for development of a new evaluation procedure for assessment of highly interactive training programmes of the German Foundation for International Development (DSE) in Southeast Asia.

All these experiences have demonstrated that the approaches and methods presented here can be applied without any problem in other sectors of development cooperation.

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