



The Understanding of Institutions and their Link to Resource Management from a New Institutionalism Perspective

IP 6 Institutional Change and Livelihood Strategies

Working Paper No. 1

Tobias Haller

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Objective of IP6

IP6 of the NCCR focuses on institutional change and livelihood strategies: A key linkage issue in the analysis of "syndromes of global change" is the interface between local livelihoods and state policies. Understanding how the micro- and macro-levels interact is of vital importance for developing sustainable local natural resource management. State policies and, in a wider sense, regional and international institutions – which are exposed to and embedded in national economies and processes of globalisation and global change – have an impact on rural people's livelihood practices and strategies as well as on institutions developed by the people themselves. On the other hand, these institutionally shaped livelihood activities have an impact on the sustainability of resource use. Therefore, the key theme of IP6 is "institutional change and livelihood strategies".

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This IP6 Working Paper Series presents preliminary research emerging from IP6 for discussion and critical comment.

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Cover Photo

*A jirga (council of elders) in Northwest Pakistan
(Photo: Urs Geiser)*

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Abstract

This paper looks at the theory of the New Institutionalism and how it helps to understand livelihood strategies and institutional change in regard to resource management. This economic theory makes use of methodological individualism and looks at the role formal and informal institutions (rules, norms, values and laws) play in lowering or rising transaction costs in resource management. The paper argues that this approach is a useful tool in order to discuss livelihood strategies. The New Institutionalism looks at historic changes and at power questions (bargaining power of individuals or groups) that are so crucial in the debate on natural resource management. One of the themes useful to illustrate the position of the New Institutionalism is the debate on common property resource management where the notion of the Tragedy of the Commons can be critically questioned. This is done by showing cases where institutions work in order to regulate a sustainable use of common property resources and cases where such rules are absent or do not work (Ostrom 1990). The approach is interesting because it also focuses on the role of the state and external economic, political, demographic and technical changes and how these influence prices for goods and the terms of trade (changes in relative prices). These prices then have an influence on the local level and lead to changes in informal, local institutions, organisation, ideology and bargaining power (Ensminger 1992). In order to illustrate the approach and its use an illustrative example on the institutional changes in African floodplain wetlands is given in the paper.

1 Introduction

When environmental issues are at stake, analysis often focuses on the way renewable resources are managed or mismanaged by local people. As shown by Adams (1990), the respective discussion centred in the past on the issue of mismanagement and led to first approaches of environmental conservation, approaches that were biased by the view that local inhabitants in so-called Third World countries are at the centre of the problem. Or to put it polemically: While the white men in Africa were hunters, the Africans were regarded as poachers (ibid). Other work on Africa illustrates as well the view that for example forests are being chopped down by a growing population extending their agricultural production (see Fairhead and Leach 1996). Most of these works draw the attention on the colonial bias, which was still very dominant among resource use planners until the 1990ies.

Perhaps one of the most important contributions to the view of local inhabitants ruining their resource base was the article of Garret Hardin called the “Tragedy of the Commons” published in 1968. In this work the link between resource management and institutions is important, for the article focuses on a crucial issue regarding sustainable resource management, i.e. property rights. Hardin attacked the property rights regime which he called common property, a regime mostly found in Third World countries. For Hardin, common property resources were free or open access resources: No one feels responsible to look after the regeneration of such a resource as a pasture (or a fishing ground, or a forest, or a wildlife population etc.) as long as it does not belong to him or her. Even more problematic was for Hardin the fact that a person restraining himself or herself from the maximum use of a resource in order to let it regenerate, will be at the losing side: There will always be other users taking away as much resources as they can and the “conservationists” will be left with nothing. This constellation can be viewed as game theoretical prisoners dilemma in which even the ones wanting to conserve the resource base would go for the maximum use. This is what Hardin called the tragedy for he did not see a way out for local users. They are “viewed” by him as being unable to create rules – institutions – to regulate the resource use at a level that does not lead to its destruction. For Hardin, the only solution was the control of common property resources by a central government or – as pushed more by neoclassical economists – the transformation of the commons into private property (Acheson 1989, Feeney et al. 1990). The tragedy bias was already there in the colonial discourse and was actually bundled by Hardin. But it led many governments to take the resource rights and responsibilities out of the hands of local groups and to legitimise this by pointing out that existing overuse of forests, wildlife, fisheries and pastures were the result of this tragedy.

However, afterwards many authors showed that Hardin was misinterpreting common property as an open access system and they showed that cases of resources not being in any property system (i.e. open access) are indeed very rare. Most of the time resources that are scattered over wide ranges, and not concentrated on a spot, are owned by a local groups, village groups, lineage or kinship groups. Such resources do or did not belong to nobody but to the members of a particular group (Acheson 1989). Access was allowed only for members of a particular group and strangers who did ask for

permission could get access or would be denied access. Anthropological research also shows that inside such a group of users there are mostly rules and norms regulating the amount of off-take of such a resource (time scales, quotas, technical regulations etc). Additionally, there are monitoring and sanctioning boards (council of elders, priests, young men, i.e. warrior age classes). The close face-to-face interaction in a small-scale society, where social control is everywhere can be regarded as working as a monitoring and sanctioning device as well.

It is then an important and very interesting task to figure out in a particular community how local resources were and still are governed by what is in this paper called *institutions* – regulative devices, which define who is allowed to use what kind of resource at what time and under what circumstances.

But development research has also to deal with the challenge that “overuse syndromes” exist, although one is able to prove that institutions are operating in a community or on a larger societal level. It is then the task to show historically – and this mostly in societies with no written records – what kind of rules operated for example to govern the use of pastures and why these institutions do not work anymore today. There are demographic, technological, economic and political aspects to be introduced into this analysis. The expansion of the Western World in its different stages is one of the most important marks in this analysis. A second mark has to be made at the time when the colonies became so-called independent. The newly governed entities had to face during colonial and in post-colonial times new institutions written down and being therefore formalised by state laws and controlled by governments. This superposition or dual existence of so-called customary law and government laws and regulations is at the heart of ambivalence and insecurities where theories of institutions, and particularly the New Institutionalism can give insights in the analysis and help mitigate syndromes of resource overuse.

2 **New Institutionalism: Methodological individualism and the role of transaction costs**

When we speak of “New” Institutionalism, this implies that there is an “Old” school of thought. This is mostly brought in connection with economists such as Veblen, Commons and Mitchell. Especially Veblen’s position (see Veblen 1919) was that institutions have generally an important role for economic actions taken but what kind of role this was, was never clearly defined by him. It is more the assumption that rules in a society are important for economic decisions and that the picture of the individual “Economic Man” has to be rejected for it did not explain economic evolution and technological transformation. Generally the individual’s conduct is being shaped by relations of institutional nature and by this Veblen suggested an alternative to the theory of the rational individual being able to calculate everything (Hodgson 1993). But what kind of role institutions play for the decisions of actors was never systematically presented by the old school of institutionalism.

A first step towards a new approach of institutions can be found in Ronald Coase’s theory of the firm (Coase 1937). He tried to show why this form of capitalist economic organisation was important: in the organisation of the firm transactions were organized by rules at lower costs than if each and every individual working force would have to be hired separately (the role transaction costs play in the new theory will be discussed later).

To put the New Institutionalism in a general theoretical position on how to explain resource use pattern, one has to focus on two important points: Methodological individualism and the role of transaction costs:

Platteau’s (Platteau 2000) explanations to the first point are useful and put the New Institutionalism into a wider perspective: When Karl Marx was looking at the issue of institutions by referring to the dialectical interplay of the productive forces and the production relation, producing in the latter property arrangements such as institutional rules of property rights assignments, he placed them at a societal level. With the contradiction between the productive forces and these institutional relations, adjustment is made in a ruptures process, by which change is taking place in the form of a revolution. By this way social rules are newly defined but based on material ground as a productive force. Esther Boserup (1965) puts emphasis on population growths as well by showing that even in pre-capitalist societies growth did not lead to a decline in the agrarian output. In the contrary, she argues, this led to the use of intensified techniques and new institutional arrangements. With population growth, more intensive patterns of land use are employed even under pre-capitalist systems. It is then for example no surprise that in a agrarian system with annual cropping, private property rights in land are found while in long fallow agriculture this is not the case (Boserup 1965, Platteau 2000).

For Marx and as well for Boserup, the view is on collectives, but this is not the case with the New Institutional Economics (NIE) as one exponent of the New Institutionalism thought: Platteau states that NIE provides “bourgeois” answers to Marxist questions. The NIE shares with Marx the view that institutions are useful at one point in time but come into conflict during future developments. But the NIE assumes that it is not the supra-individual level which is important but that the level of analysis needs to be at the individual level: So for NIE and as well for other New Institutionalists the basic assumption is that the individual is rational, sometimes rationally bounded and a self-interested actor who attempts to secure his/her outcome. However, with this we are not back to the old neo-classical economists view: What is of interest in the action-choice framework of the NIE is the idea that individuals seek the best possible outcome and institutional change comes about by the aggregation of decisions taken by bounded rational actors (North 1990, Ensminger 1992, Gibson 1999, Platteau 2000). Because of the microeconomic foundation of Boserup, she is closer to the NIE than Marx (Platteau 2000).

The way how such institutions evolve and change and what influence they have on the economic strategies of individuals and groups of actors, are issues debated by different theories in economic history, political science and anthropology. Different approaches can be subsumed under the label of New Institutionalism (Olson 1965, North and Thomas 1973, North, 1981, 1990, Ostrom 1990, Ensminger 1992, 1998, Broomley 1992, Becker and Ostrom 1995, Ruttan 1998, Gibson 1999). Institutions are seen here as formal and informal “rules of the game”, such as constraints, norms, values and rules. These give incentives to groups and individuals, and also structure human action and interaction, especially in economic activities, in collective action and in sustainable resource use. They help individuals form expectations about the others’ conduct and thereby enabling co-ordination and cooperation. Institutions such as property rights systems or laws are developed by the state (formal institutions) or by local communities, where they are embedded in their culture (informal institutions; North 1990, Ostrom 1990, Ensminger 1992, 1998).

An important aspect of explaining how institutions operate is illustrated by the work of economists such as Douglass North (1990). He not only states that institutions matter for economic activities (see Old Institutionalism) but that if institutions work properly they reduce *transaction costs*. These are the costs that arise when two people engage in an economic transaction, which is, as Ronald Coase (1937) has shown, costly. To make a transaction, one has to have information about product quality and about the other actors’ behaviour. One also has to monitor trading partners and sanction them when they cheat. All these activities are costly because they consume time and resources (North 1990).

In the case of the management of common property resources (CPR), Ruttan (1998) shows another interesting aspect by focussing on the gains enabled by co-operative institutions: She is establishing the hypothesis that CPR institutions follow the principle of “restraint for gain”. If users are able to agree on what rules should be operative, it becomes possible to take advantage of such renewable resources such as fish stocks when they are well developed and, therefore, most profitable. Because of this, very good fish-catches can be enjoyed at low costs. The primary condition for this is the

efficient functioning of rules. Two forms are principally responsible for the development of such co-operative rules, as seen in CPR-institutions: CPR-institutions can develop under the rule of reciprocity (“reciprocal altruism”) or under a form of asymmetrical power relations (“asymmetric reciprocity”). In “reciprocal altruism” the different actors can profit from co-operation, for example, if they allow access of foreign users to the resource, because in a later time they may be able to profit from the resources of those foreign users. With “asymmetrical altruism”, co-operation in an unbalanced situation of power relation is understood. In this situation, there may be co-operation from the side with lesser power, even when he or she enjoys taking lesser profits than the stronger side, because this profit is still greater than if he or she would not co-operate at all. In this context, power relationships are focused on. As a result of this context, power-relations are a major research issue.

The interesting thing about looking at this theory in analysing CPR-management is the fact that it raises questions about other theories thought to be true for a long time. In the debate on common property and sustainability, the notion of Garret Hardin’s “Tragedy of the Commons” paradigm shown above (Hardin 1968) can actually be undermined by taking a close look at how CPR-institutions are operating. Elinor Ostrom’s work illustrates this by analysing different CPR institutions and their management by local communities all over the world. By looking at successfully operating, locally developed institutions that showed sustainable use of natural resources such as forests, irrigation water, fisheries, pastures, eight *design principles* (DPs) for effective institutions have been developed (see Box):

<p>Clearly Defined Boundaries The boundaries of resource systems (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined.</p> <p>Proportional Equivalence Between Benefits and Costs Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials and/or money inputs.</p> <p>Collective-Choice Arrangements Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.</p> <p>Monitoring Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are users themselves.</p> <p>Graduated Sanctions Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these users, or from both.</p> <p>Conflict-Resolution Mechanisms Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.</p> <p>Minimal Recognition of Rights to Organise The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have a long-term tenure rights to the resource.</p> <p>Nested Enterprises (For resources that are part of larger systems) Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organised in multiple layers of nested enterprises.</p>
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Table 1: (Becker and Ostrom 1995:119 from Ostrom 1990:56f.)

One can see that all these design principles can actually be included in the notion of transaction costs. If CPR-institutions operate properly, they in fact reduce these costs.

But Ostrom clearly shows that the DPs are not universal rules, which guarantee success in all situations. Moreover, these are principles to be adapted to local conditions. In an article published with Dustin Becker (Becker and Ostrom 1995), Ostrom argues that institutional diversity found among local communities is often better adapted to the variability and insecurities in chaotic ecosystems (e.g. change in fish stock population) than strategies based on biological-mathematical models.¹

Additionally, two of Becker and Ostrom's eight aspects (regarded as important for the building up of new institutions) are particularly relevant:

- Do the actors involved have common or different interests? (Homogeneity or heterogeneity of interests)
- How do actors value the future in respect to the resource in question? Or asked differently, is the current use of the resource more important than the use in the future? (Low or high discounting rate of the future).

Economic heterogeneity and high rates of discounting the future make it very difficult to establish long-term CPR institutions for sustainable use, as it is much more difficult to act collectively and to develop rules for sustainable resource use in situations where everyone follows own interests. Additionally, when there are high rates of discounting the future, rational resource users seek to use up the resource as fast as possible, because the remains are immediately taken by others. In this situation, the value of keeping resources for later use is close to zero. These are two aspects, which lead to an overuse of renewable resources (Becker and Ostrom 1995).

There has been some critique of this approach centring especially on the methodological individualism, its formalistic aspect and its blindness to historical and social context. This critique comes from scientist dealing with evolutionary economics (Nelson 1995) and development studies discussing problems of participation as the "New Tyranny" (see Cleaver 2001).

Cleaver points out that the rational choice theorem of methodological individualism is not suited for an analysis which shall help to solve problems faced with participation in development. This point seems unjustified as Cleaver's work and indeed the well addressed critique on participatory approaches show: The critical factor in development projects is the incentive (be this economic, political, social, psychological or so called

¹ There is much debate on the concept of maximum sustainable yield in fisheries, because it is extremely difficult to define the maximum catch without overusing the fish stock. This is due to the fact that one is unable to predict the exact fish population size, as this depends on the complex interactions in ecosystems (Becker and Ostrom 1995). Ostrom and Becker argue that it is, therefore, much better to analyse local strategies of resource use before making recommendations to local people (ibid.).

“cultural”) an individual has in reference to his/her position in the community or society. To study this carefully is one of the aims of the New Institutionalism.

Secondly, it is difficult to grasp Cleaver's critique of Ostrom's approach to institutions. As Cleaver understands it, Ostrom opts for a formalisation of institutions, which can have negative effects for example by excluding those who are financially or from the working force of their household not able to participate in a development project. Additionally it is criticised that only formal institutions (by the state or by a development corporation) is the solution to the problem. However, Ostrom does only draw lessons from successful cases all over the world, which not at all only rely on the “formal” side of institutions. On the contrary she stresses that so-called informal institutions embedded in a specific culture are as successful as formal ones or even more successful. Additionally she opts for the recognition of the local and indigenous knowledge of resource flows. Where Cleaver is right is the fact that regarding of the first principle -clear boundaries - these sometimes cannot be as clearly cut as Ostrom's work suggests, especially when considering changes in resource flows from one season to another. But this can be well incorporated in the approach as will be demonstrated with the example of African floodplain wetlands (see further below). Additionally, it is clear that to distinguish between “formal” and “informal” institutions is a delicate thing; traditional (and some would say informal) institutions can be as formalised or even more formalised than the institutions build up by the state. But also this critique is already incorporated in the analysis of examples (see below).

Thirdly, I do not agree with the critique that the approach does not make reference to historical and social processes. As demonstrated in the next chapter, one major contribution to the approach draws on a historical analysis: The New Institutional Economics (NIE) as developed by Douglass North (1990) has definitely a historic approach for North is known for his work in economic history. This is then the basis for the important work of the US-anthropologist Jean Ensminger, who tries to define a new institutional economic anthropology where institutional change is the major focus.

It must be stressed here however that Cleaver does not go into these theories for only Ostrom is cited but the approach criticised has definitely more to offer. While I do agree strongly with the points Cleaver makes against a simplistic participatory approach in development - for example a meeting is not yet a real sign for participation in a development project and so is not the frequency of speaking up in a meeting - a well understood New Institutionalism can actually provide answers to the pitfalls of participation as a “New Tyranny” (the title of the reader where one finds Cleaver's article). There is much interesting research done using this approach; see e.g. the article by Benjaminsen (1997) on decentralisation in Mali, and the reader of Venema and van den Breemer (1999) on negotiated co-management of natural resources in Africa. In these publications cases of successful development and unsuccessful cases leading to overuse of natural resources are given.

3 Theories of institutional change

In her book "Making a Market", Ensminger gives analytical tools for discussing constellations of overuse of resources and of conflicts from a NIE perspective. Ensminger has worked among the Orma, a semi-sedentarized pastoralist group in Kenya (Ensminger 1992). She looks at changes which were (and still are) taking place among the Orma as a group and deals with the incentives of the different families and individuals due to market economy and the change of the political, economic and social institutions. When analysing change, Ensminger states that one has to look at the individual motivations of different actors, and to go into the social constraints and incentives, which influence what people are striving for.

There is, for Ensminger, an interaction between the *endogenous aspects* of a society in which the individuals are living, composed of *institutions, ideology, organisation and bargaining power* (see Diagram). Ideology is the way people explain the world and how they value things. Institutions, as North (1990) sees it, are the "rules of the game" in a society, the formal and informal rules, values, norms and constraints, which give incentives for individual action and reliability. Institutions enable co-operation. Organisation refers to a body in which people organise themselves and act collectively. Bargaining power means the ability of an actor to get something they want from someone. But this is a bargaining process. The bargaining power of individuals can come from social status, wealth or the ability to manipulate ideology (Ensminger 1992: 5-7). These four endogenous spheres (ideology, institutions, organisation and bargaining power) influence one another and are themselves influenced by external factors. These *external factors* are the *social and physical environment* (changes in the socio-political structure and natural environment), *population* (demographic changes) and *technology* (technological changes), which together influence so called "*relative prices*". By this term Ensminger means external influenced changes of prices for goods in relation to other goods (for example rise in cattle or fish prices compared to other goods). In the case of the Orma, lowered transportation and communication costs have increased the possibilities to trade cattle due to closer markets and slaughter-houses, as well as higher prices for cattle. Ensminger speaks of relative prices because the decision taken by an individual depends on the value of a good in relation to another good.

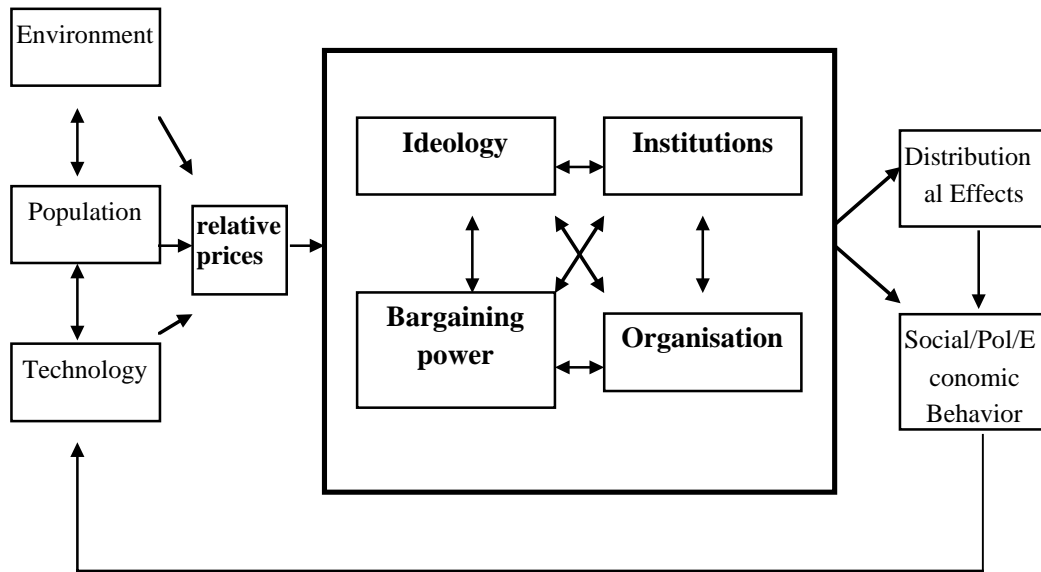


Diagram: Modelling change (Ensminger 1992:10)

But as well, on a bigger scale, I would incorporate in this notion changes in the political and economic environment (pacification, new urban centres and new markets, monetarisation), in state control (laws, police, administrators), in infrastructure and transport systems (lowering costs for marketing or access by other groups) etc.).

In discussing these processes, economists and anthropologists differ. Economists tend to regard institutions as constant while concentrating on the aspect of change on the exogenous factors such as the relative prices and the outcome for the individual behaviour. But anthropologists, if referring to change, tend to see the relative prices as given and focus on institutions when explaining economic action. Ensminger suggests alternating between the two poles, where both sides influence each other. The demographic-environmental-technological variables influence the relative prices, which change the endogenous variables. These variables influence aspects of distribution and the individual socio-economical behaviour, which leads back to the exogenous variables by way of a feedback loop. One needs to see where the individual stands and which structures influence his/her motivation, and his/her relative bargaining power from case to case. Ensminger shows in her work, that those individuals which gain more bargaining power in a changed situation, also change the institutions, eradicate them or create new ones (Ensminger 1992, Ensminger and Knight 1997). In agreement with North, she does not argue that the best institutions are always selected, but rather that those that survive, are those which usually serve the people with the most bargaining power.

Ensminger shows how pastures held in common property among the Orma are being transformed into private property. Before this process of "dismantling a pastoral commons" (Ensminger) happened, the council of elders and the sedentary local population were unable to restrict the pastures from being used by nomadic pastoralists

(nomadic Orma and Somali with their cattle). The reason for this was that there was heterogeneity of interests among the sedentary village group due to different economic interests. Some of the villagers profited from the nomadic people by getting cattle and milk, while others did not. The village group was thus unable to come to an agreement or to monitor the pasture collectively. In this situation, pastures were more and more privatised and the power to exclude outsiders was taken from the council of elders and given to the government-selected chief, who had good contact with the state and its forces and, therefore, had much more bargaining power than the elders (Ensminger 1992).

It is this last aspect which is very important for research on resource management issues using New Institutionalism. How is bargaining power changed or newly distributed by changes in relative prices in a specific area of resource use such as in CPR situations? Is it true that users with more bargaining power stemming from their political or financial power (locally or through the governmental institutions) are able to privatise former CPRs or manipulate the institutions governing access to CPRs? Additionally, it will be interesting to see what kind of strategies those former users who lost their CPRs, will pursue. According to our hypothesis, they will either go after scarcer resources, overuse, or act violently against the outsiders in order to gain more bargaining power (Moorehead 1989, Thomas 1996).

4 **An illustrative example: Institutions and institutional change in African floodplains**

In order to illustrate the theoretical approach of the New Institutionalism, an example of a research project on African Floodplain wetlands, started under NCCR/IP6 (Livelihood strategies and institutions) is given here. The project incorporates research and analysis of five floodplain wetland examples in Africa (Mali, Cameroon, Tanzania, Zambia and Botswana) from which two research areas are included in this NCCR (Northern Cameroon; Waza-Logone-Area and Tanzania; Pangani and Rufiji River areas). For the purpose of this paper, examples are drawn from cases in Mali and Nigeria:

Traditional institutions in African floodplain wetlands

Several IUCN-reports regard African wetlands as ecosystems of major importance for protection and conservation. Wetlands offer very important resources for a large number of ethnic groups, that are differentiated by their economies. This project focuses on the so-called inland wetlands in semi-arid areas (Stevenson and Frazier 1999:12), which are found in floodplains (Hughes and Hughes 1992). Regions like the Internal Niger Delta in Mali, the Okavango Delta in Botswana, but also floodplains like the Hadejia-Jama'ra in Nigeria, the Logone-and Chari floodplains in Northern Cameroon, the Pangani and Rufiji Rivers in Tanzania and the Kafue Flats in Zambia, all offer a very diversified resource base for local communities.

The Internal Delta of the Niger in Mali, for example, is used differently by peasants, agro-pastoralists, nomadic pastoralists, sedentary and transhumant fishermen alike (Moorehead 1989). The critical ecological variables are the seasonal rains that occur partly locally, and partly in remoter mountainous areas, and feed the rivers and lead to the rise of these river-systems. As a consequence, big areas adjacent to the rivers are inundated. These floodings, as well as the receding of floods give the local people different access to renewable natural resources such as fish, pastures, wildlife, gathering products, fertile soils and water for irrigation. The accessibility of these resources, which are held in common property of a local group most of the time, can vary from year to year.

Ethnic groups have developed institutions to manage the CPRs in these areas (Moorehead 1989). Depending on the season, there are rules through which decisions are made, e.g.: who can have access to what CPRs; who is excluded (*rules of access*), etc.. Those who are allowed access are able to use an amount of the resource, at a certain time and under certain circumstances (*rules of use*). These rules were developed long before the time of the Fulbe ethnic group's hegemony in the 19th century, although they were formalised by them. Central to the issue of who is allowed to use these CPRs, is the question, who are the "indigenous people" to an area and to whom it is possible to give or to deny resource access (ibid. 263). Still today the first users of these areas are said to be the masters of the earth or the masters of the water. Apart from

conducting rituals for local spirits of the land and the water, they have the duty to organise the resource allocation for different user groups and individuals. This often happens in co-operation with a council of elders (ibid.: 264f.).

Due to the seasonal variability of the resources in these regions, different tenure systems governing the use of resources are important. As mentioned above, most of the time these resources are held in common and the use is regulated by common property institutions of a local community. But there are situations – like the flooding of a very large area during the rainy season – when resources such as fish are open access. In this situation, all users can fish without restriction. It is only when the floods recede and the water returns to the river bed and only remains in ponds, little lakes and swamps, that the fish are again a CPR of neighbouring villages. Those wetlands that are too small and dry up, become private property. The same is the case with individually owned fish traps such as differently sized baskets (Thomas 1996).

These different tenure systems, which match the seasonal variation and the accessibility of the resources, can be best explained by the so called "*economic defendability*"-model developed by Dyson–Hudson and Smith (1978). This model predicts that those resources are used in an open access tenure, which cannot be defended or do not have to be defended because they are a) too scarce or b) too abundant to be monopolised by a group of people collectively. But if the resources can be found locally in a more concentrated form, they get scarcer and so it is possible to restrain the access of other users. Therefore, CPRs are resources with a specific accessibility that make more economic sense for local actors to bear the defence costs collectively, than to leave them in private property tenure. Private property would be too expensive due to defence costs. This tenure only makes sense if the resources are available in very high concentration. But rules of tenure must also be seen in respect to risk and insecurity. Risks in a hazardous ecosystem can be addressed by local communities with a CPR-tenure system. These systems offer the users a wide range of access to resources, which can minimise the risk of being without resources (so called *minimax-strategy*, in which profit is not maximised, but instead a secure level of food production for subsistence needs). Moreover, rules governing the access of foreign user groups can be seen as a minimax-strategy in order to reduce risk - these rules offer access to CPRs on the bases of reciprocity for some foreign groups. If in times of disaster, foreign groups can gain access to a local user groups' CPRs profiting from the CPRs of the former host in times of need (Thomas 1996).

Institutional change in African floodplain wetlands

Moorehead (1989) and Thomas (1996) show the changes taking place in the African floodplain areas. During colonial and during post-colonial times, the control over, and the responsibility for, resource management were increasingly taken out of the hands of local user groups by the state. In most cases the state is now defining the rules of access to the CPRs. It decides who, when, and how access to resources is given by distributing licences and permits to those who are able to pay the highest price. The state is also responsible for the most significant impacts on the floodplain ecosystems with mostly negative consequences for the natural resources and the local population: In many African river systems, dams were, or are being, constructed in order to produce

electricity for the cities and to facilitate large irrigation programmes. These activities reduce the water flow into the plains normally inundated by the rivers. It is argued that the drastic reduction of resources such as fish, are connected with low water levels (Loimeier 1986, Moorehead 1989, Chabwela 1992, Hollis 1992, Thomas 1996).¹

But there are also other reasons for the massive overuse of CPRs in floodplain wetlands and deltas. Monetisation and commercialisation of resources, as well as institutional rules changed by the state or influenced by powerful local and national actors with capital, have led to monopoly constellations and the overuse of former CPRs. There are massive conflicts between users, too, which could be shaped by ethnicity. These conflicts develop because new users from the cities are gaining access to CPRs. This is possible due to their financial and political capital that helps them gain exclusive rights of access often guaranteed by the state. As a consequence, overuse of resources occurs due to newcomers operating with better fishing technology (motor boats, tighter mesh nets etc.), better guns or bigger cattle herds. Fish and wildlife are then being sold at markets and the big cattle herds, which are also sold, then overgraze the pastures. These resources are then no longer available for local communities, making it more and more difficult for them to cover their subsistence needs. Mostly, local people do not have the money to buy food at the local or at the regional markets. They are forced to switch over to more marginal resources, which are then overexploited in order to make a living. Under these circumstances the anger among local CPR users rises. They become willing to use violence against the new comers and against one another in the fight over resources, which are becoming increasingly scarcer (for cases in Northern Nigeria see Thomas 1996, for Mali see Morehead 1989 and Fay 1994, 2000).

Tension is also rising within local communities because the adoption of new technologies and the possibilities of new market options have led to the erosion of the traditional monitoring structures and organisations which once ruled the use of the CPRs. Young Somono and Bozo-fishermen in Mali, for example, who now fish

¹ There are also authors who focus on some of the positive consequences of large dams, like the improved regulation of water flows which reduces variability (Machena 1992, Massinga 1992). But it is important to underline that this kind of regulation of the flooding does not seem to correspond with the reproductive activities of some fish species, that depend on the specific time of the flooding of the low areas of the floodplains in order to spawn. Through the regulated flooding all year long, the biological cycle – adapted to some variability – gets out of order, which may result in a lower reproduction rate (Beeler and Frei, personal communication 2001). Additionally, Chabwela argues that in the Kafue Flats the two hydroelectric dams of Kafue Gorge (1972) and Itezhi-tezhi (1977) have been causing many problems and social costs for local inhabitants. Parts of the grazing ground have been lost to weeds. Therefore, cattle herders are now obliged to travel long distances to the rivers. Most inhabitants living inside the Kafue Flats have been displaced far away and have difficulties coping with artificially regulated water regimes. Moreover, they are not profiting from the hydroelectric power, which is directed to the urban areas (Chabwela 1992: 13-14).

individually with motor boats and nylon nets, are no longer forced to co-operate with other people from their fishing communities. The lighter nylon nets have made them independent, because no co-operative work is needed, compared with the older nets in the past, which were heavier. The motor-boats enable them to travel faster anywhere they want to and also to where they can sell their catch on the market beyond the control of their village communities or elders (Fay 1994, 2000).

Persistence and change of old institutions

But the change of institutions does not always operate in the sense of the eradication of the older rules and values: “old” traditions can continue to exist under certain circumstances while others vanish totally. But the ones that do not vanish are not necessarily unchanged:

The process of change briefly outlined above from Mali and Nigeria illustrates that locally developed institutions that were working 40 years ago are not working anymore. The reasons are that they have been altered by the powerful, and because of the monetarising process (a significant change in relative prices) that changed the institutional setting in a specific way. The hypotheses which will be tested in the project on African floodplain wetlands suggest that those traditional institutions that can be monetarized will stay in place, while those that impede or hinder the adaptation of the local users to earn cash with these resources, will be selected against. Cash is needed not only for consumer goods of the globalized world, but also for the construction of social networks (marriage etc., see also Elwert 1985, 1989, Berry 1989, 1993, Haller 2001).

I would like to finish with an illustration of this process - the Bozo fishermen in Mali and monetarisation of the so called *manga ji* – institution: The traditional meaning of *manga ji* is that this offering to the Master of the Water in the Bozo group from outside fishermen (a third of their catch, literally translated as „part of the water“), was a compensation for the Master of the Water, who dealt with the water spirits to maintain order. This idea of the traditional institution has been transformed completely. It remains in name, but is becoming a monetary rent for a lot of people claiming to be related to this right traditionally. This is not only true for the Masters of the Water, but also for other individuals and groups, and even the administrators who deal with this notion in order to obtain cash. The notion of the *manga ji* as a monetary rent gives way to a stricter idea of territoriality as well, which had not been the case in pre-colonial times. This notion is fostered by those who are able to gain most from the commercialisation of the fisheries, and therefore, those with the bargaining power, namely some of the Masters of the Water, traders and administrators.

Competition is taking place on all levels to secure funding, which can be obtained by making references to traditional institutions or to the changed versions of these institutions. The change in the traditional meaning of *manga ji*, clearly illustrates this tendency. All that remains of the traditional institutions is the monetary aspect. The original content and purpose has been erased completely (Fay 1994, 2000). Transformations and losses of older institutions can be shown as well from other very different examples such as pastoralism in Kenya (Little 1985) or traditional intensive

peasantry in the Mandara Mountains of Northern Cameroon (Haller 1999, 2000, 2001). In these examples, institutions ruling access to pastures, maintenance of terraced fields preventing soil erosion and storage of staple crop sorghum for hazard times – sometimes embedded in religious beliefs – are given up for short term monetary interests which are now essential for social life (for example cash for pride price, school fees for children, health stations cloth etc.). What is striking with these examples is the fact that other traditional institutional rules, which favour individuals with more bargaining power in order to get access to cash income, are kept in spite of the negative impact they have on sustainable resource use (Haller 2002).

Last but not least it is important to have a close look at the institutional “portfolio” which is available to local actors. It is not only the fact that formal institutions override the traditional ones but they can, of course mostly transformed, stay at the same level side by side, being used depending on the situation. As Fay (1994, 2000) shows in Mali, people can play on the governmental institutions as a reference if they claim resource rights as citizens of a district while in another situation they refer to their rights as a relative of the Master of the Water of an area. Similarly Lund (1998) shows among peasants in Niger that Islamic state and traditional kinship institutions are chosen by individuals depending on the strategic situation in order to claim rights to land before court or on a local level. All these aspects involve the notion of ideology brought into the theoretical framework of the New Institutionalism by Jean Ensminger (1992).

5 Conclusions

This paper gives a summary of the New Institutionalism with regard to questions of sustainable resource use and to illustrate this with some examples. The paper is far from outlining completely the issue and has to be used as a sketchy try to enable researchers in the NCCR to learn more about this approach. First, from a perspective of the New Institutionalism, it is important to analyse the historic context in which institutions evolved locally. Secondly, it should be able with this approach to determine the forces at an individual level which then – aggregated – lead to changes in institutions. Thirdly, the important contribution from economists is the fact that they have drawn attention on the factor of transaction costs and changes in relative prices. From politologists attention is drawn on the interaction between the state and local actors and the fact that local level enforcement, homogeneity of interests and recognition of the traditional knowledge is crucial in designing new institutions for the sustainable use of resources. Anthropologists however show the role of bargaining power and ideology such as religion or social norms play. They see bargaining power as a possibility to shape the institutional design by the more powerful as well because of changes in relative prices. Ideology then plays a major role in seeing the new opportunities of legitimising claims of access to resources and enable people to switch between different ideological settings provided for example by competing religions (Islam, Christianity, Animism; see Ensminger 1992, Ensminger, J. and Knight J. 1997). The same is true with “informal” customary and “formalised” state law (see Lund 1998).

My own contribution to the issue is the following hypothesis: Some old institutions persist because they are adaptive to monetary needs. Others, that could play a positive role in a sustainable use of natural resources, get eradicated completely because they hinder the individual access to cash for the powerful in a group and outside a group (Haller 2001, 2002).

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