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Working Paper

Institutions and forest management: A case study from Swat, Pakistan

Nota di Lavoro, No. 2008,42

Provided in Cooperation with:

Fondazione Eni Enrico Mattei (FEEM)

Suggested Citation: Kruseman, Gideon; Pellegrini, Lorenzo (2008) : Institutions and forest management: A case study from Swat, Pakistan, Nota di Lavoro, No. 2008,42, Fondazione Eni Enrico Mattei (FEEM), Milano

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Fondazione Eni Enrico Mattei

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Management: A Case Study from
Swat, Pakistan**

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NOTA DI LAVORO 42.2008

MAY 2008

NRM – Natural Resources Management

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Institutions and Forest Management: A Case Study from Swat, Pakistan

Summary

Deforestation in the North western part of Pakistan is a long standing problem. The Forestry Department, as formal managers of the forest resources, has been undergoing a long reform process aimed at improving its performance. This reform process has not resulted in less deforestation. From the policy perspective this has been leading to stated intentions to further reform the Forestry Department, the question is whether organizational reform is the answer. We think there are more limiting bottlenecks to sustainable forest management in Pakistan. De facto property rights are not as simple as denoted by statutory law. In this article we explore the mechanisms behind the deforestation and try to uncover mechanisms to reverse the process. Although our conclusions are not very optimistic, we provide a framework for determining the bottlenecks in the management of common resources from the perspective of institutions. We show that in circumstances where institutional change is necessary we are faced with a trade-off between the transaction costs related to the enforcement of “improved” institutional arrangements and the transaction costs improving enforceable institutional arrangements. Incurring these transaction costs only makes sense if the benefits from improved institutional arrangements outweigh them and the transition costs. When we relate this dilemma to the management regime of the forest in North west Pakistan, we identify at the one end of the spectrum the ideal forest management system; at the other end we see the spontaneous evolution of self organization. The current situation is an intermediate form with an incoherent set of external interventions and strategic reactions by different agents in the local communities. The emergent system of management is the one producing the present dismal outcome.

Keywords: New institutional Economics, Corruption, Forestry, Swat

JEL Classification: Q23, Q58

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1. Introduction

Deforestation in the North western part of Pakistan is a long standing problem. Forest cover was 5% in 1996 compared to 20-25% in 1850 (Sungi, 1996). In the district of Swat where the research was focussed there is a gap (regrowth minus timbercuttings) of over 300 000 m³ for fuel wood alone (Shaheen et al., 2000). Historical accounts tell us that forests have always been an important source of income within the livelihood strategies of local population (Barth, 1985; Sultan-i-Rome, 2005). Where in the past the vast expanses of forests could support these demands, high levels of population growth (doubling of the population every 15-20 years) coupled by deforestation have drastically altered the picture. Today, the local population faces ever decreasing forest stocks with increasing threats to both the local communities (land slides, erosion) and down stream beneficiaries of the watersheds as well as increasing threat to biodiversity.

In a broader perspective, Angelsen and Wunder (2003) distinguish five dimensions in which poor people benefit from forests and forest products: the type of beneficiaries, types of forest products and services provided, the role of forest benefits within the households strategy (subsistence versus commercial use), type of natural resource management (ranging from pure natural forest extraction to (re)planted forests, and high or low return products.

Management of forest resources, especially sustainable management thereof, seems to be suffering from severe shortcomings. In Pakistan the management of forest resources is generally considered the exclusive domain of the Forestry Department, especially since the state is the formal owner of all forest resources. However the actual situation reveals an amalgam of perceived property rights concerning the forest and its resources, and a situation where institutions are ill-defined.

Traveling through Swat we see lush green hills and mountains with snow capped peaks in the distance. The impression is of paradise. On second sight we notice that most of the lush green areas are not the virgin forests that once covered the hillsides in a not so distant past. There are only isolated spots of forest left. On the road there is a steady stream of trucks, pick-up trucks, donkeys and human beings transporting timber and fuel wood from the forests to the lower, more densely populated areas.

A large land-owner living in the valley indicates that he has attempted to manage the forested areas of his land holding by devolving the management to a local community living there and paying them in forestry extraction rights, but to no avail, "the smugglers are stronger and the local communities are not dependable". In one such community on the forest edge an impoverished villager indicates that for them it is cut trees or die. Forest royalties from official lumber extraction pass them by 60% is for the large landowners in the valley and 40% for the Forestry Department. Protecting the forest

against local people is feasible but it is impossible to protect the forest from influential outsiders in collusion with the Forestry Department.

The Forestry Department has the sole mandate for the management of the forests, which cannot be left to the local population as indicated by senior Forestry Department officials because they are the root cause of the deforestation. The Forestry Department is undergoing a reform process including the devolution of control to lower administrative levels. The problem is that the Forestry Department is under-funded and under-staffed. Donors have pulled out of the reform process after the 9/11 terrorist attacks.

A donor representative on the other hand put forward that lack of real commitment to the reform process was the reason for the drying up of funds from the donor-community. NGOs indicate that the people's perspective is lacking in forest affairs. A lawyer in Swat adds that the judiciary plays havoc in the process because there are no possibilities of redress and corruption is rampant.

Devolution is fine, a manager of joint forestry management projects notes, but there are political fetters: policy and practice are not in line. A Historian adds that social institutions have eroded since the accession of Swat in the Pakistan state in 1969, "Finding no legal redress and no redress in social orders leads to illicit use of natural resources that has become so widespread that it is now the norm."

The Forestry Department as formal managers of the forest resources has been undergoing a long reform process aimed at improving its performance. The effects of this reform process have not resulted in less deforestation. From the policy perspective this has been leading to stated intentions to further reform the Forestry Department, the question is whether organizational reform is the answer. We think there are more limiting bottlenecks to sustainable forest management in Pakistan.

Our research question is therefore to determine the main bottlenecks to halting the current deforestation trends in North West Pakistan taking an institutional economics perspective. We believe that such a perspective sheds valuable insights on the mechanisms of resource degradation and provides a background for evaluating policies aimed at sustainable forest management.

In this article we explore the mechanisms behind the deforestation and try to uncover mechanisms to reverse the process. Although our conclusions are not very optimistic, we provide a framework for determining the bottlenecks in the management of common resources from the perspective of institutions.

The structure of the article is as follows in section 2 we provide the theoretical background used in the analysis focusing on property rights, and the historical perspective and the issue of transaction costs. In section 3 we highlight the results of our analyses. These analyses are mostly based on qualitative research. The results are related to high transaction costs, corruption, vested interests and the reform process in the Forest

Department. Our results paint a very grim picture of the institutional settings surrounding the management of forest resources. Although the evidence is thin and mostly anecdotal there is some indication that there are possibilities for sustainable forest management despite the odds. This evidence is also provided in section 3. In our last section we provide some conclusions regarding the institutional aspects of forest management.

2. Methods and analysis

2.1. *New Institutional theory of property rights*

In discussions on environmental degradation the issue of property rights plays an important role. The central thesis is that inappropriate property rights regimes impede sustainable management of natural resources. A strong message from the seminal paper “The Tragedy of the Commons” by Hardin (1968) has echoed through the literature. The message that Common Pool Resources cannot be managed in a sustainable manner lead the push towards private or state ownership of resources. Actually what Hardin describes is not Common Property but lack of any property rights regime. This notion has become common understanding with the publication of seminal papers on this issue (Bromley, 1991; Schlager and Ostrom, 1992; Von Benda-Beckmann, 2001). Following Von Benda-Beckmann (2001) we distinguish between categorical and concretised rights. Categorical rights are “typified legal concepts that construct a general relationship of rights and options between categories of persons or groups with respect to categories of resources” (ibid, p. 299). Examples are constructs such as ownership, inheritance rights. In concretised rights we are dealing with the rights relationship of actual persons or groups and a resource.

The rules that define property rights –requiring, prohibiting or permitting certain actions– are effective when they are generally recognised and respected by the other economic agents. The rules governing property rights can be divided into operational level, and collective choice. The former relates to the possibility to access and withdraw from the resource; the latter relates to the possibility to change management rules, exclusion rights and alienation rights (Schlager and Ostrom, 1992).

We follow up on this discussion with a brief presentation of the idea of bundles of property rights adding onto this idea the notion of bundles of property duties. The concept of bundles of property rights has been very clearly addressed by Schlager and Ostrom (1992). In their paper they distinguish between five types of rights that are bundled in a property rights regime, namely:

1. Access rights: the right to enter a defined physical property;
2. Withdrawal rights: the right to obtain the “products” of a resource, both in terms of goods and (environmental) services;

3. Management rights: the right to regulate the internal pattern of usage and the transformation of the resource;
4. Exclusion rights: the right to determine who will and who will not have access, withdrawal and management rights, and how those rights can and cannot be transferred;
5. Alienation rights: the rights to sell, lease, give-away or bequeath any or all of the above.

The first two components are the basic operational level rights. The last one is what is often seen as property rights in a very narrow sense. In the case of common-pool resources the last three can be considered collective choice property rights. This way of presenting property rights has proven very powerful to disentangle the complexity of common property regimes. Applying this theoretical concept to forestry resources provides us with the following picture in the case of North-West Pakistan.

At the lowest level we have access rights, this means that a person or group is allowed physical access to a resource. The next right is the right of usufruct, implying the right to extract certain or all proceeds from the resource. Most forests can be accessed freely, but the right to withdraw products (timber and non-timber forestry products) is limited by statutory and customary law. We distinguish management rights from usufruct rights. Management rights relate to the long-term management of the resource itself not to the extraction of the proceeds. Often it is impossible to distinguish between the two, since extraction technology and land management practices are interwoven (even in terms of semantics). However, there are cases in which a third party has a say in the way the land is managed. At present the management of forests is the exclusive domain of the Forestry Department despite efforts over the past decade to devolve some of the management tasks to local communities. Exclusion rights refer to the possibility of determining who is and who isn't allowed access, extraction rights and management rights. According to statutory law, the forests of Pakistan are State owned, hence exclusion and alienation rights are officially in the hands of the Forestry Department. As we will argue in the next section this current state of affairs is quite different from the historical context of forestry management in North West Pakistan.

In Northern Pakistan two sets of *de jure* institutions exist next to each other. The first is statutory law, the second customary law including the customary means of enforcement as is the case with Pukhtun Society (Barth, 1968) An important aspect of the relationship between property rights and the way the land resource is utilised is the time horizon of the property holders. The time horizon depends on the subjective time preference of the rights holders and on the perception of the duration of the rights at stake. We are now moving into the characterisation of the rights. The rights besides their content are characterised by duration and assurance. Duration of rights is the time horizon over which the rights are

defined. This can be a finite period or an indefinite time-span. The assurance refers to the perception of how certain it is that the rights holder can ascertain those rights during the period over which the rights are defined.

These property rights are embedded in institutions. The notion of institutions needs a little explanation. Since the central concept of this paper is institutions, and especially economic institutions, it is necessary to provide a clear definition of this concept at this point. Following North (Ahmed, 1980), we define institutions as the formal rules and informal constraints guiding human behaviour and the means to ensure adherence to these rules of the game, in order to reduce uncertainty in the transfer of goods and services between individuals and/or groups. Formal rules are usually defined as those rules laid down statutory law, also known as *de jure* institutions. However if well defined customary law exists including the customary means of enforcement as is the case with Pukhtun Society (Barth, 1968 ; Ahmed, 1980) this too should be considered as *de jure* institutions.

In Northern Pakistan two sets of *de jure* institutions exist next to each other. The first is statutory law, the second customary law. To some extent the rules these two sets of institutions lay down complement each other, but more often they contradict each other. In the undefined space created by the competing *de jure* institutions, *de facto* property rights regimes embedded in informal institutions can exist.

Informal *de facto* institutions also entail culturally accepted norms and modes of behavior. The institutions themselves shape the process of updating the expectations with regard to the rules of the game according to actual experience. Hence, the natural dynamics of institutions is a slow process of gradual adaptation to changing circumstances. This process follows different speeds. Some institutional arrangements are deeply embedded in culture and tend to change only very slowly, while other evolve more quickly.

The common hypothesis is that institutions matter when talking about poverty reduction and resource conservation (Barrett *et al.*, 2006). If there is uncertainty or lack of information about property rights and the way they are enforced, this can give rise to conflicts over those resources that are detrimental for their conservation, (see for instance Angelsen and Kaimowitz, 1999; Haro *et al.* 2005; Amman and Duraiappah 2004; and Kabubo-Mariara 2004). The key issue is that it does not really matter which rules are adopted by a community or country, rather it does matters how well they are embedded and how well they are enforced (Barret *et al.*, 2006).

Following Williamson (2000) embeddedness refers to the spontaneous, noncalculative informal institutions anchored in customs, traditions, norms and religion. These institutions only evolve very slowly. Slightly quicker is the evolution of the formal institutional environment. These are the formal rules of the game especially related to

formal property rights and anchored in policy, bureaucracy and the judiciary system. Whilst the institutional environment tends to remain stable over decades, the play of the game itself is prone to more rapid change. We are referring to the actual governance structures that shape the actual marginal conditions. These marginal conditions shape resource allocation and day-to-day management of common pool resources.

Even when property rights are well defined, enforcement of the property rights may well entail substantial costs. These costs are part of a larger set of costs commonly known as transaction costs. The notion that transactions are costly has important theoretical ramifications. It is a reasonable assumption that individuals or organizations have to use time and resources to secure information and have limited ability to process data and formulate appropriate action.

From a theoretical point of view, the fact that decision-makers have neither perfect knowledge, nor foresight, and may make errors implies that they will always function inefficiently compared to the hypothetical decision-makers in mainstream neoclassical economic theory.

A transaction can be defined as something that occurs when a good or service is transferred across a technologically separable interface. One stage of activity ends and another begins (Williamson, 1985). Transaction costs entail the transfer of resources, either physically or legally.

In the enforcement of property rights, transaction costs play an important role. Successful institutions can be characterized as those institutions where on the one hand the rules and regulations are strongly embedded in the mind-set of the stakeholders in order to keep the transaction costs linked to the enforcement to a minimum, while on the other hand the institution offers a locally optimal solution to complex coordination issues that without the institution would lead to insurmountable transaction costs in various fields.

The rules and regulations governing the interactions between individuals and / or groups where it concerns property are usually presented in terms of property rights. However besides the notion of rights there are also obligations or duties concerning the property. These duties can be placed along side the rights as the flip side of a coin. The main difference however is that obligations are related primarily to the level above the basic operational level.

This implies that we can now also distinguish the following duties:

1. Management duties: the obligation to regulate the internal pattern of usage and / or the transformation of the resource in such a way that certain preconditions are met, including basic notions about sustainability;
2. Exclusion duties: the obligation to exclude or grant rights to certain groups or individuals under certain circumstances;

3. Alienation duties: the obligation to pass on any of the other rights and / or duties to another party under certain circumstances.

So we have only marginally into consideration that rights and may not be in hands of a single stakeholder. Obviously with common pool resources, those exploiting the resource are often individuals or households, while those managing the resource are communities. In principal each right and / or duty can be attributed to one or more stakeholders. If there are more stakeholders, there are grounds for conflict. If there is conflict there is a need for means to mediate in the conflict, either in a formal (courts) or informal (village councils) sense.

There is another issue that plays an important role when more than one stakeholder is concerned. This is the issue of monitoring and control. A stakeholder may have certain rights and obligations vis à vis other stakeholders, but if there are but limited possibilities to have checks and balances in place the rights and obligations will have little meaning. Extraction rights may be limited to a few selected stakeholders, but if there is no control possible over “illegal” extraction, those extraction rights are of limited value especially if rights are combined with restricting obligations that do not hold for those who extract outside the framework of the property rights regime.

An important concept in relation to monitoring and control is that of transaction costs. The transaction costs are the costs that have to be incurred to effectuate the monitoring and control of the property rights regime. Very often failure of property rights regimes to deliver the desired results regarding common pool resources can be attributed to high transaction costs for monitoring and control when many stakeholders exist.

Transaction costs are very important in understanding institutional aspects of economic behavior (Furubotn and Richter, 1997) since it relates not only to the issues of monitoring and control, but also to the cost of information in general. When property rights regimes are unclear, the costs of action and inaction can be very great.

Especially when poor households in affected rural communities depend critically on the natural resources for their livelihoods, well-defined rules and regulations governing the use of those natural resources, whether *de facto* or *de jure*, are indispensable. This is a necessary but not sufficient precondition as we have just argued. It is also important to have the means to enforce the rights and obligations related to the property rights regime and to have a system for monitoring and control with transaction costs that are not prohibitive.

Following the notions put forward by Williamson, we argue that lower transaction costs in complex settings are associated with well-embedded institutions. Well-embedded institutions imply that stakeholders will be less willing to infract the rules, and

other stakeholders will be more willing to monitor and control the adherence to the rules. Strong customary law can be very instrumental.

2.2. *History of Swat*

History matters for entitlements because it is at the root of the *status quo* and, as such, it shapes expectations (claims and rights). The history of Swat has a bearing on current land tenure and forest management. Historical developments are at the origin of the right holding of heirs of the most important families allied to the local dictator. In this section we will outline the historical evolution leading to the modern management regime.

Swat has a distinct history in relation to Pakistan and the rest of the Indian sub-continent. While the rest of the area was colonised by the British crown, Swat succeeded in conserving its autonomy and, once Pakistan became independent in 1947, it did not fully access Pakistan until 1969.¹

2.2.1 Pre accession

The earlier history of Swat (from the end of the 19th century) was marked by the emergence of a political structure centred on an autocrat. The dictator, called *Wali*, was leading a rebellious country and needed the support of allies from the powerful families of Swat in order to defend the Princely State of Swat (as the state was officially called before the accession to Pakistan). Challenges to the state came from external powers (the British and the neighbouring Kalam state) and from internal ones (other local leaders trying to seize power) (Sultan-i-Rome, 2005). As a result, the rulers were under continuous threat and built alliances with wealthy local lords.

The history of the *Wali* is especially important for the management of the forest, because natural resources were valuable assets used for building and keeping alliances, thus their exploitation was crucial to the survival of the regime. The management system compounded harsh punishments to those who illegally encroached the forest, while allowing favoritism and smuggling to the *Wali*'s –and his allies'– benefit. The decision power, with respect to logging and forest exploitation, was centralised and rested in the hands of the *Wali*.²

¹ For an account of Swat's resistance to outsiders occupation and interference see Lindholm, 1990.

² For a detailed historical account of the autocratic rule of the *Wali* of Swat, the strictness of the application of the law to the commoners, the importance that forestry had under his rule, and the illegal cutting and favours for his allies (the *Khans*) see Sultan-i-Rome, 2005. For an altogether different version of the *Wali*'s rule see his autobiography (Barth, 1985).

2.2.2 Post accession

The accession to Pakistan of the Princely State of Swat, brought a breakdown of the existing institutional setting: the national state, formally, took under its control the management and exploitation of forests. The law provided only for a minute disbursement of royalties (10% of the total net revenues) to be paid to the legal right holders and established some extraction rights for local communities (to meet consumption needs of the residents).

Pakistani state's management, from the moment it took over the forest sector in Swat, was characterized by a command and control approach whose effective enforcement was beyond state's capability.³ The post accession regime implied that most of the forests were declared reserved or protected, i.e. the management regimes strictly constrained exploitation rights.⁴ In both systems property and management rested in the hands of the state, through the Forest Department, but locals and former owners' rights are different under the two management regimes. In the reserve forest, no cutting is allowed and members of the local community have limited rights for extracting dry wood and non timber forest products. In protected forest, the Forest Department is in charge of the management plan and at times when there are cuttings, the forest development corporation is in charge of the cutting of marked timber and shares of the net sales revenues are given to right holders (Steimann, 2004). Moreover, the "local quota" of timber is reserved to local residents for their needs and there is an "emergency quota" that can be used under special circumstances (e.g. to rebuild a house after a fire).⁵

The shares of revenues from wood sales directed to right holders have been increasing over time, from 10% at the time of accession, to 60% nowadays. Those entitled to shares of the royalties of the forest are the land owners (mostly *Khans* families—the former allies of the *Wali*) that reside far away from the forest, or local communities, depending on the property situation of the forest at the time it was taken over by the state.⁶ The incapability of the state to implement its policies, together with the dismantlement of the previous regime of property rights, gave rise to an open access regime.

Additionally, the gap between *de jure* and *de facto* management of the forest created multiple bases for claiming rights on the forest: the statutory law, custom, and the *de*

³ Pakistan was not the only state that tried to control the forest sector without the necessary resources to implement its own rules on the face of high transaction costs. For comparison see Ostrom (1990) on Nepal.

⁴ A third category of forests are the *guzara* forests. They are those whose property was left to the communities, even though relevant management responsibilities were taken over by the Forest Department. *Guzara* forest is an institutional setup that characterized almost no forest in our study area.

⁵ For a detailed description of legal status and management provisions in the forest of the whole of the North West Frontier Province see Steimann, 2004.

⁶ Property rights over the forest are contested and contention over property rights is a source of endless litigations that are dealt by Pakistan's corrupt and inefficient judiciary system.

facto regime. In such a situation, some agents chose to refer to competing legal structures to justify their claims according to their interests and other agents preferred to operate altogether outside of the legal framework (Meinzen-Dick and Pradhan, 2002).

The open access regime on the forest implied that land owners and local residents were exploiting the forest restrained only by local power relations. Since the Forest Department started operations in Swat (along with the rest of the Pakistani public administration), the gap between the regulatory framework and the actual management practices was not bridged. Encroachments and illegal cuttings continued. Furthermore, legal disputes over the cuttings' royalties began and court decisions settling them were long awaited (at times for decades), and, in many cases, court decisions are still pending.

With respect to the Forest Department, we collected information through focused group discussions and interviews during the fieldwork. It appeared that corruption widely affects all the operations of the Forest Department and of the Forest Development Corporation (who is in charge of exploitative operations). Forest guards are paid salaries cannot satisfy the needs of families (Steimann, 2004) and they are lacking the support of the other enforcement agencies (which are themselves inefficient and plagued by corruption). The overall enforcement system seems more geared to make ends meet for forest officials, rather than protect the forest. Also, the manning of numerous check-posts along the roads going down the Swat Valley, serve little purpose apart from extracting bribes in exchange for turning a blind eye on timber smugglers.⁷

2.3. Transaction costs

Management and controlled extraction of products from natural resources not only requires clearly defined property rights but also some system for monitoring and evaluation of the state of the resource.

Within institutional economics measuring these indicators is classified under the term transaction costs. In short, transaction costs include contact, contract & control (North, 1990, p28-33).

This entails the cost of measuring the valuable attributes of what is being managed. This may be difficult, because of asymmetric information: resource managers on one side of the market have much better information than those on the other side. Moreover there are the costs of policing and enforcing agreements. Enforcement poses no problems when it is in the interests of the other party to live up to agreements. But without institutional constraints, self-interested behaviour will exclude complex exchange because of the uncertainty that the other party will find it in his or her interest to live up to the

⁷ This was confirmed by numerous interviews and by our own witnessing the ease of movement of truckloads of illegal logs in thorough the valley.

agreement. This problem is particularly relevant for agreements in which there are conflicting interests. Policing and enforcing agreements (or rules, laws etc) may involve substantial costs.

3. Forest Management in Swat

The present situation in Swat can be seen as the result of historic processes described above. While the overall goal of the Forest Department and the local communities may not differ that much: sustainable management of the forest resources to ensure a stable stream of revenues and services, the outcome of the strategic actions of the actual stakeholders is quite the opposite.

Let us start by disentangling the different stakeholders to then relate them to the different aspects of the current property rights regimes. The main stakeholders are as can be gathered from the historic perspective described above: the Forestry Department, the local communities on the fringe of the forest, large land owners who are not themselves part of the afore mentioned local communities, besides these main stakeholders there are also those who have a vested interest in a steady supply of timber from the forests of NWFP, often referred to as the Timber Mafia.

Extraction rights and obligations related to those rights are handled somewhat differently under statutory and customary law. Under statutory law, the Forest Department is the sole entity with extraction and management rights related to timber. The ban on logging that has been in effect over the past decade or so, implies a very strong restriction on extraction. Extraction rights are limited to local needs for construction and firewood purposes. The Forestry Department has the duty to pay royalties to the rightful stakeholders in the forest.

Under customary law, the owner of the forest has the disposal of the extraction rights. He can lease out those rights to individual loggers. Under the rule of the Wali, commercial logging did not take place on a large scale, and extraction was mainly for domestic purposes. There was no royalty system.

Over time overall land tenure systems have changed. The traditional system of rotating land ownership amongst large land owners with whole communities as tenants has given way to a mixed system of large landholdings alongside small holdings of individuals and communities. With the mixed system regarding agricultural land an unclear situation regarding rights to forestry royalties has arisen. It is unclear to which owners of agricultural land, certain forestry lots are related.

3.1. *High transaction costs of sustainable forestry*

Management of the forest resources used to be the domain of the local land owners or their tenants. With state ownership of forest resources, management is the exclusive domain of the Forestry Department. However monitoring and control of the forests and the activities therein is costly and hence transgression of formal rules is usually not punished.

What we need to keep in mind is that there are a number of conflicting goals and aspirations of different stakeholders vis-à-vis the natural resource base. Where local communities will often regard the forest as a source of revenues especially in the absence of other sources of income, the state will often have a more general perspective by viewing the forest as a continuing source of ecological service provision, in terms of biodiversity, watershed management, etc. The benefits of these ecological services do not accrue to the local communities but to beneficiaries elsewhere. Sustainable management of forest resources implies that the conflicting goals are somehow resolved.

In order to ensure sustainable management of natural resources a number of criteria have to be met that are not met in NWFP. The first is clear property rights, especially in relation to the management of the forest resources. The second is the realisation that the management costs and the benefits of the ecological services are not linked to the same stakeholders. Some sort of compensation mechanism should be in place if non-benefiting stakeholders are supposed to provide management inputs, see the growing literature on Payments for Environmental Services. If management of the forest resources is not effectuated through working economic instruments, the alternative is a system of command and control. This entails the definition of clear indicators for management and a costly system of monitoring. These costs are generally considered transaction costs of the management scheme. Even under systems of communal management (with and without outside payment) there are costly systems of monitoring necessary to ensure that the flow of ecological services is safeguarded.

People facing moderate, credible environmental threats are more likely to be willing manage the forest resources in a sustainable manner than those who do not face those threats but just exercise those threats. This former group may need small economic incentives to get involved in sustainable forest management, more so than those living in relative harmony with nature. Although paying the latter may be perceived as 'fair', it does not create additional ecological service provision. The transaction costs involved in ensuring sustainable forest management increase with the decrease in felt environmental threats.

Transaction costs for monitoring sustainable forest management also increase with disarticulated organisational structures. If the organisational structures at local level are not recognized by formal authorities or not taken seriously, it becomes difficult to set up a

system of joint monitoring. Trust is an important element in transactions. With unclear property rights the level of distrust between various stakeholders tends to be high.

3.2. *Corruption*

Corruption plays an important role in illegal logging operations that take place across Swat. The enforcement agencies (first of all, the Forest Department) whose official goal is protecting the forest have in many occasions turned into the main culprits. In practice, the main purpose of many agents that are supposed to watch over the management and protection of the forest is to gain the maximum personal advantage from the power that they hold. The extraction of personal gains through the exercise of public power is the very definition of corruption (Transparency International, 2004) and in the enforcement agencies of Swat it takes the shape of bribe extraction. Inducements are disbursed throughout the illegal logging process: when logs are felled, and when they are transported.⁸

Forest guards patrolling the forest are generally ready to demand a bribe for turning a blind eye on illegal activities.⁹ When agreement on illegal payments cannot be made, possibly because of some incorruptible employees of the Forest Department, confrontations among smugglers and forest guards can escalate into violence.¹⁰ Furthermore, forest officials artificially create occasions for bribes extraction because they create bureaucratic obstacles to members of the local community who have a right to extract wood for self-consumption (e.g. they delay the issue of extraction permits). Indeed, some of the most common complaint of locals is that they are harassed when they exercise their rights and when villagers are been involved in participatory projects they required changes to the procedure for emitting logging permits (Suleri, 2002).

Corruption and the related enforcement problem in the forestry sector are well known across the country and are often reported by the press.¹¹ Reform attempts do recognise the

⁸ Information on corruption and forestry has been accumulated during the fieldwork. The source of such information is, in most of the cases, are group interviews with members of the local communities, with students of history, lawyers, and employees of the Forest Department (of different ranks).

⁹ The situation of bribes extraction is not as clear-cut as it could seem at first. Forest guards themselves are not aware of the rules that should be applied if someone is caught breaching the law. In such a confused situation the difference between a bribe and a fine (whose proceeds are used to complement a meagre salary) becomes blurred. Steimann (Steimann, 2004) illustrates different perceptions -within the Forest Department- of the *de jure* management regime with respect to enforcement.

¹⁰ Honest forest officials are reported to be the victims of violence, but given the fact that there are discordant reports it is difficult to say a final word on who the victim or the assailant in these confrontations.

¹¹ For a few examples see October 17, 2003 of *Dawn* (internet edition) at www.dawn.com/2003/10/17/nat28.htm.

shortcoming of the present management regime and suggest changes to the enforcement mechanisms. These reform attempts are often focused on increasing the likelihood of catching those involved in illegal activities and increasing the penalties ('crime and punishment' approach), or require radical reforms at the state level. The crime and punishment approach focuses on the improving the enforcement of existing legal arrangements. The problem with this approach is that it requires that the control agencies are not corrupt, while in Pakistan the judiciary and the police (that is those who should coerce forest official to respect the law and resist the temptation of colluding with illegal loggers) are very corrupted agencies themselves (Transparency International, 2002). Thus the controller cannot be relied upon. National reforms such as the ones that are requested by international NGOs that focus on fighting corruption, require major changes in the institutional framework and meet the opposition of powerful vested interests. The transition away from a status where corruption is so pervasive need to be embedded in other interests in order to be successful and the use of textbook rules for achieving such transition is commonly resulting in a failure (Johnston, 2005). This is witnessed by the fact that only seldom countries do manage to sensibly decrease the amount of corruption they are affected in a short period of time (Kaufmann, Kraay *et al.*, 2005). While radical reforms like introducing guarantees for free mass-medias, democratising the political process, encourage citizens scrutiny of politicians are initiatives that deserve encouragement and are valuable objectives (*per se*, beyond their implications for corruption), their achievement in the short run seems unlikely and improving management in the forestry sector cannot wait for ideal conditions.

Moreover the successful enforcement of existing property rights, even if possible, would run the risk of cementing historical injustices: above we highlighted the origins of skewed rights distribution towards large land owners. Historical developments with respect to land holdings are still determining skewed land distribution since land reforms' implementation failed (see Naqvi, Khan *et al.*, 1987 and Social Policy and Development Centre (SPDC), 2001). The effective enforcement of rules based on existing rights would deprive members of the local communities of large shares of their income and, ultimately, of their necessary means of survival.¹²

Finally, reforms that focus on enforcement end up giving increasing power to forest officials. When confronted with opportunities to extract bribes, these officials are predictably going to use their powers to increase their share of rents. Forest officials would find that the easiest way to extract rents is using their increased powers against

¹² The poor, especially those living in the more marginal areas, depend on resources that would not be available to them if the law would be successfully enforced (Rafi Khan, Yusuf *et al.*, 2006). In particular, such decrease on the availability of resources would be problematic if –as it seems most probable– the interpretation of the law and the resolution of disputes on property rights would be biased in favour of large land owners.

those agents that are not in the condition to resist. As a result the most corrupt members of the Forest Department are most likely going to increase their revenues at the expense of villagers who are in trouble with meeting their own basic needs.

3.3. *Vested interests*

Economic agents coordinate themselves in order to take advantage of profit opportunities offered by the existing institutional setting. Over time, the selection of successful organizations will create wealthy interests who have a stake in the same institutions that allowed them to operate and enrich (North, 1990). In the forest sector of Swat the opportunities offered by the open access situation, following the breakdown of earlier institutions that characterised accession to Pakistan, were seized by a constellation of economic agents and gave rise to a new *de facto* institutional setting. Those who have gained the most from these institutions have large stakes in the *status quo* and have the resources to defend these interests. In this section we will identify the stakeholders in the management of forests in Swat and highlight the vested interests that need to be tackled in order to achieve institutional reform.

The main actors, with stakes in the forestry sector, are: federal and provincial governments, the Forest Department, the forest development corporation, local communities (differentiated among themselves mostly because of right-holding issues), NGOs, and international donors who all have some qualified interest in forest conservation. Additionally, there are the interests involved in illegal logging for commercial purposes (the timber mafia), since the forest has been put under such strain by over-extraction that in the medium run only logging for local consumption would be possible. These agents -thanks to corruption- are able to unduly influence some of the other actors.

The vested interests that will resist most changes from the current situation are those that profit from illegal logging. These include the smugglers, the wood processing industry, and the economic agents involved in activities induced by timber trade. All of these actors depend -to a different degree- on the continuation of unsustainable logs extraction.

The Forest Department, though not in its entirety, is among the vested interests opposed to change. The current regime is giving to the Forest Department demanding tasks (beyond feasible reach), but also granting it political and economic power. Some members of the Forest Department, at different levels from the top to the ground, have become accustomed to receiving bribes to complement their meagre salaries. These illegal disbursement are dependent on the power that the department can wield. Apart from the economic incentives related to bribes it also appears that the Department

developed its own routines and it is unwilling to give up part of its responsibilities even though it lacks the resources to fulfil the tasks related to them.¹³

The provincial government is the recipient of 40% of royalties on commercial logging and, more importantly, members of it are also collecting bribes in relation to illegal extraction, or are linked to the illegal logging industry. The reluctance of the provincial government to give away the power on and part of the revenues from the forestry sector were –as we will see– some of the main reasons for the failure of previous reform attempts aiming at introducing participatory forestry in Swat.

The current institutional regime is embedded in these interests and successful reform can be achieved only when the reform process will be equally embedded in a coalition of potential winners. Furthermore, once institutional change is in order, the resistance to change of vested interests can be diluted by external resources. Such resources could be used for creating a win-win solution for insiders.

3.4. Reform attempts: from the Forest Sector Policy initiative to the latest developments

The unsustainability of *de facto* management practices and the environmental, social, and economic shortcomings of current deforestation rates in most of the NWFP is apparent and some steps have been undertaken in order to reform the forestry sector. For the Swat district the most relevant reform effort was the Forest Sector Strategy, whose incept was supported by a loan of the Asian Development Bank and by technical assistance to the program provided by the Dutch Royal Embassy.

The main task of this donor-driven program was to move the management of the forest from a state of command and control (and the related coercive practices and the social outcome thereof) towards co-management. In the intentions of the donors, the reform would have strengthened the local capabilities and the emphasis of the operations of the Forest Department, with respect to local communities, would have moved from punishment towards partnership.

The process is characterized by contradicting steps. On the one hand, local committees¹⁴ have been established in several villages, so that they could be an interlocutor of the Forest Department and, most importantly, contribute to the village land use plan. On the other hand, the process seems to have been controlled at the local level by the most influential members of the community (so that the committees over-represent the wealthy) and the Forest Department has been unwilling to give up part of its powers

¹³ The widespread of this attitude was confirmed by more progressive members of the Forest Department in several meetings.

¹⁴ The committees are the Village Development Committee (composed by men) and the Women Organization (composed by women).

and enter in a real partnership with the locals. Eventually, due to implementation slowness and especially because of the resistance at the provincial level to undertake the necessary steps to support the reform in due time, the support of donor agencies have been withdrawn in 2004. This was a mayor setback, especially in the few places where the reform started to yield benefits (see Suleri, 2002). Now trust in this type of interventions is lost and it will be even more difficult for new projects to build confidence.

The Forest Ordinance of 2002 confirmed that the reform process was proceeding in contradicting ways. The incept of the ordinance was admirable -geared towards setting co-management and partnership in a stable regulatory framework-, but under the insistence of more conservative powers in the Forest Department the final result was only a compromise. Even Sungi, a Pakistani grass root NGO working for the empowerment of the most marginal members of the society, which from the beginning was supportive of the reform process, eventually rejected the Forest Ordinance. Of special importance in determining Sungi's stance were the punitive powers that the ordinance gave to the Forest Department and that can be used against local communities.

Since the donors' support to the reform process was stopped, the whole process halted. The latest development were, if needed, and additional proof of the resistance that there was to the reform process. The latest initiatives are towards the strengthening of the Forest Department control of the forest and -in accordance to the 2002 Forest Ordinance- the forest force has been instituted.¹⁵ Now a 500 men-strong armed force will patrol the forest of the North West Frontier Province. The Forest Department itself estimates that at least 3000 would be required in order to patrol effectively the forest of the province.¹⁶ It appears that the insufficient number of men involved in the force will be in the future an excuse for another failure of the 'crime and punishment' approach.

It is also worth noting that if the existing force would be effective much less than 500 armed men would be necessary in order to control extraction activities in the area. Few roads run along the valley and functioning check-posts should be sufficient to stop a large part of the smuggling. If the guards manning the check posts are colluding with the smugglers, is arming the very same guards going to help to halt deforestation? Is having armed guards patrolling the forest, even more removed from detection possibility, going to stop illegal cuttings? Such questions should be addressed if the resources devoted to the reform process have to produce the intended environmental, economic and social dividend.

¹⁵ See <http://www.ttjonline.com/story.asp?sc=35057>, retrieved on the 01/08/2005.

¹⁶ The expected cost of equipping such a force would be of 60m Pakistani Rupees (or around 825,000 euros). See <http://www.dawn.com/2004/06/16/local23.htm>

3.5. *Virtuous examples of forest management*

So far we have depicted a very grim image of the forestry sector of North West Pakistan with rampant deforestation due to unclear property rights and obligations and very few means to enforce them. However there are a few isolated examples of initiatives that rein in deforestation. These examples do shed a light on the way property rights regimes at a local level can be used for sustainable forest management.

Local groups of citizens at various times have been organizing themselves in order to defend some stretches of forest from exploitation. The most effective way that has been found to enforce extraction restrictions was with limits on the transport of logs: community-manned check posts have been set-up and timber loads have been blocked along the roads (Killeen and Khan, 2001; Rafi Khan, Bokhari *et al.*, 2004). These check posts are operated independently from the Forestry department's check posts (Rafi Khan, Bokhari *et al.*, 2005) which is a clear indication of the level of mistrust between local communities and the state organisations.

Other efforts to protect the forest involved local communities in concert with the forest department. The ones that were initiated under the donor-sponsored initiatives include community manned check posts, patrols from the local community guarding the forests, joint patrols of community and forest department members and have been associated with improvements in forest cover (Steimann, 2004; Suleri, 2002).

In NWFP a forest sector reform was initiated with the help of the Asian Development Bank and bilateral foreign donors (mainly the Dutch). As part of this initiative people belonging to the forested areas of NWFP set up a platform, named Sarhad Awami Forestry Ittehad (SAFI) to raise their voice to make the process of reforms more democratic, transparent and people friendly. Although there is a voiced opposition to the way the forestry reform is progressing which is not promising for joint management by state and local communities, there is at least the beginning of focussed organisation (SAFI, 2002).

Donor funded pilot projects of community managed forests in neighbouring Dir District, were quite promising for a while but have encountered severe difficulties after funding stopped. Joint forest management seems to have scope for success but depends critically on the willingness to endorse such a process by the Forestry Department (Sungi, 1996).

4. Conclusions

Institutional change is costly. Let us examine two types of institutional change. The first type is institutional change that originates from within the confines of the stakeholder group that adheres to the original institutional arrangement. The second is institutional change that is enforced on stakeholders by an “overlord”. Obviously actual institutional change takes place on a spectrum between the two extremes.

Institutional change that originates from within can be characterized as an adaptation to changing circumstances. The changing circumstances can be autonomous processes, such as population growth (demographic pressure), integration into the outside world (market access), changes in the resource base (agro-ecological potential) and the knowledge base (technological innovation). If the change in circumstances facing the decision-makers is gradual, then institutions can evolve alongside in order to deal with the new situations. Information is costly; hence institutional change from within reflects the trial-and-error adaptation and may well not coincide with the theoretically most efficient solution. However, institutions that evolve from within tend to be robust.

Costs associated with collective action tend to be lower if groups are small (Olson, 1965) and homogenous (Baland and Platteau, 1997; 1998). This implies that small special interest groups have disproportionate power compared to large amorphous groups.

Institutional change that originates from outside the original stakeholder confines, may depart from traditional rules in order to address issues that local institutions cannot deal with because the changing outside circumstances have become too overwhelming. The solutions offered by this exogenous institutional change may be theoretically more efficient (especially in the long-run), however the institutions are less (or even not) embedded in the local communities, which implies that the enforcement costs of the institutional arrangements can become very high.

When the institutional arrangements are not firmly embedded in the local community the principal stakeholder implementing the institutional arrangements is faced with a series of managerial and political transaction costs. These include costs for setting up, maintaining or changing the organizational design; costs (information, physical transfer) of running the organization; the costs of running the polity.

In summary we can say that in circumstances where institutional change is necessary we are faced with a trade-off between the transaction costs related to the enforcement of “improved” institutional arrangements and the transaction costs improving enforceable institutional arrangements. Incurring these transaction costs only makes sense if the benefits from improved institutional arrangements outweigh the transition costs.

When we relate this dilemma to the management regime of the forest in Swat, we identify at the one end of the spectrum the ideal forest management system; at the other end we see the spontaneous evolution of self organization. Different stakeholders in Swat have their own ideal management system to put forward. This is private property rights for the local large landowners. Alternatively, state ownership (effectively enforced by the Forest Department) can be identified as the goal of the government, and by the Forest Department. The management by local communities (guaranteeing socially and environmentally sustainable outcomes) as common pool resources is identified by the local communities characterised by higher level of trust and most NGOs and donors.¹⁷ Obviously the division of ideal management regimes will not relate so clearly to each class of actors; most notably the most progressive elements of the Forest Department will also identify community based management as an ideal. The current situation is an in between with an incoherent set of external interventions and strategic reactions by different agents in the local communities. The emergent system of management is the one producing the present dismal outcome.

The role of donors and external interventions, in order to be effective, should not go on the opposite direction with respect to embedded evolutionary processes. The role of these interventions could be complementary to local process and contribute to guarantee that their evolution will respect social and environmental objectives. In this perspective, external actors could provide the additional funds so to orient locally evolved institutional change can produce desired outcomes (low transaction costs, equity and sustainable management of the natural resource base) and providing incentives so that no spoilers' coalition arises in order to stop the process. In this framework, external agencies would be directing some of the final goals, but leaving the organizational issues to local actors who can behave according to their preferential knowledge and produce locally embedded institutional change.

Joint forest management seems to have possibilities given the scattered positive signals highlighted earlier. However we argue that the preconditions in terms of well-defined institutional arrangements regarding property rights, control and financial remuneration for management activities should be addressed prior to embracing any scheme that is considered some sort of silver-bullet.

5. Bibliography

¹⁷ During some public meetings, in communities marked by social conflict, several participants claimed that their desire was not community based management, but improved management by the Forest Department.

- Ahmed, A. S. (1980). *Pukhtun economy and society: traditional structure and economic development in a tribal society*. London ; Boston, Routledge & Kegan Paul.
- Baland, J. M. and J. P. Platteau (1997). "Coordination Problems in Local-Level Resource Management." *Journal of Development Economics* 53(1): 197-210.
- Baland, J. M. and J. P. Platteau (1998). "Wealth Inequality and Efficiency in the Commons, Part II: The Regulated Case." *Oxford Economic Papers* 50(1): 1-22.
- Barth, F. (1985). *The last Wali of Swat*. Bangkok, White Orchid Press.
- Bromley, D. W. (1991). *Environment and economy: Property rights and public policy*. Oxford and Cambridge, Blackwell.
- Furubotn, E. G. and R. Richter (1997). *Institutions and economic theory: The contribution of the new institutional economics*. Ann Arbor, University of Michigan Press.
- Hardin, G. (1968). "Tragedy of the Commons." *Science* 162(3859): 1243-1248.
- Johnston, M. (2005). *Syndromes of corruption: wealth, power, and democracy*. Cambridge, UK; New York, Cambridge University Press.
- Kaufmann, D., A. Kraay and M. Mastruzzi (2005). Governance Matters IV: Governance Indicators for 1996-2004. *World Bank Policy Research Working Paper Series*. World Bank. Washington DC.
- Killeen, D. and S. R. Khan (2001). Poverty and Environment. *Opinion: World Summit on Sustainable Development*. International Institute for Environment and Development. London.
- Meinzen-Dick, R. and R. Pradhan (2002). Legal Pluralism and Dynamic Property Rights. *CAPRI Working Paper, no. 22*. International Food Policy Research Institute (IFPRI). Washington, DC.
- Naqvi, S. N. H., M. H. Khan and M. G. Chaudhry (1987). *Land reforms in Pakistan: a historical perspective*. Islamabad, Pakistan Institute of Development Economics.
- North, D. C. (1990). *Institutions, institutional change, and economic performance*. Cambridge, New York, Cambridge University Press.
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. New York, Cambridge University Press.

- Rafi Khan, S., S. Bokhari and M. A. Cheema (2004). Resource rights and sustainable livelihoods: a case study of Pakistan's Dir-Kohistan forests. International Union for the Conservation of Nature and Natural Resources (IUCN). Islamabad.
- Rafi Khan, S., S. Bokhari, M. Yusuf, *et al.* (2005). Sarhad Awami Forestry Ittehad (SAFI): Anatomy of a peoples Rights movement. Sustainable Development Policy Institute. Islamabad.
- Rafi Khan, S., M. Yusuf, I. u. Haq, *et al.* (2006). Assessing the Poverty-Environment Nexus: Evidence from Swat. Poverty Reduction and Environmental Management Program (PREM). Amsterdam.
- Schlager, E. and E. Ostrom (1992). "Property-Rights Regimes and Natural-Resources - a Conceptual Analysis." *Land Economics* 68(3): 249-262.
- Social Policy and Development Centre (SPDC) (2001). *Social development in Pakistan : annual review 2000*. Oxford; Karachi, Oxford University Press.
- Steimann, B. (2004). Decentralization and participation in the forestry sector of NWFP, Pakistan- the role of the state. *IP6 Working Paper*. Swiss National Centre for Competence in Research. Islamabad.
- Suleri, A. Q. (2002). Regional study on forest policy and institutional reforms: final report of the Pakistan case study. Asian Development Bank.
- Sultan-i-Rome (2005). Forestry in the princely state of Swat and Kalam (North-West Pakistan). *IP6 Working Paper*. Swiss National Centre for Competence in Research. Islamabad.
- Sungi (1996). Forests, laws and people: a focus on Hazara. Sungi Development Foundation. Peshawar.
- Transparency International (2002). Corruption in South Asia: Insights & Benchmarks from Citizen Feedback Surveys in Five Countries. Transparency International. Berlin.
- Transparency International (2004). Corruption Perceptions Index 2004. Transparency International. Berlin.
- Williamson, O. E. (1985). *The economic institutions of capitalism: firms, markets, relational contracting*. New York, London, Free Press, Collier Macmillan.
- Williamson, O. E. (2000). "The New Institutional Economics: Taking Stock, Looking ahead." *Journal of Economic Literature* 38(3): 595-613.

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(lxxxiv) This paper was presented at the 13th Coalition Theory Network Workshop organised by the Fondazione Eni Enrico Mattei (FEEM), held in Venice, Italy on 24-25 January 2008.

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