

Property Rights Theory and the Reform of Artisanal and Small-Scale Mining in Developing Countries

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Abstract

Artisanal and Small-Scale Mining (ASM) is a global economic phenomenon that is widespread especially in developing countries. It provides livelihoods for millions of people, yet is often primarily associated with environmental and social problems. A key obstacle to reforming this sector is the fact that most ASM takes place in the informal sector, outside legal regimes. This paper discusses creation and reform of legal regimes governing ASM from the perspective of property rights theory. The particularly relevant *law and economics*- justification of property rights is revisited in detail and the strengths and weaknesses of this theory are highlighted in the context of development. The application of other theoretical justifications of property law provides further valuable insights into how the formalization of the sector could be approached.

Keywords: Small-scale mining, Formalization, Property law, Legal theory, Law and Economics, Development, Legal reform, Developing countries

Property rights serve human values. They are recognized to that end, and are limited by it.(Note 1)

1. Introduction

How does the theoretical justification of property rights influence attempts to formalize informal economies? Or, more specifically: how can property rights theory influence the drafting of a legal regime regulating the access of a hitherto informal economic sector to a natural resource? This paper provides some thoughts on this question in the context of Artisanal and Small-scale Mining (ASM) in developing countries.

Basically, property is a legal institution that governs the use of things (Barnes, 2009). While it is often only seen in a private context, it also has social and public dimensions: it provides a means to achieve social order and represents a mode of public and economic organisation (Singer, 2000). The structure of a property system influences how societies are shaped and how people interact. Consequently, the theory behind property rights (its theoretical "justification") is of great practical significance. How one understands and justifies the existence of property determines, for example, what forms of property are perceived to be valid to manage certain resources. Also, the understanding of the basic *raison d'être* of the institution of property has an impact on how much state regulation (and re-distribution) of private property is tolerated, on who is given what kind of rights over his property, what rules are put in place to govern the acquisition of property, and how conflicts between property owners are resolved.

Of course, a government that faces the task of establishing a legal regime to govern a resource is not limited to one theory of property law. It can freely choose between the ideas of different schools of thought, and the choices made represent diverse political, social and cultural preferences. Today, most property systems contain elements of a number of ideologies behind the institution of property (Barnes, 2009). However, each individual theory focuses on particular elements of the property regime and entails an own mode of analysis. The application of these ideas in their "pure" form (Note 2) produces valuable insights into what can constitute an adequate regulatory regime, but also demonstrates the theories' inherent limitations.

This paper utilizes some of these theories in the context of the regulation and formalization of ASM, a global

economic phenomenon that is widespread in developing countries, yet not widely known beyond, and thus warrants a brief introduction. This will be done in Part II, which will also explain how property rights relate to the formalisation of the ASM sector. Part III discusses the economic theory of property rights in the context of developing countries and its application to ASM regulation. This theory has a lot to say about the issue at hand, and will therefore be discussed at greater length. However, concluding that certain aspects remain insufficiently addressed, Part IV will discuss what alternative theories of property rights can add to the debate, focussing on natural rights theory and “property as propriety”. Part V concludes by summarizing the findings of the analysis and suggests an approach that combines the insights of the different theories.

2. The Artisanal and Small-Scale Mining Economy

2.1 Problems and Potential of ASM

Artisanal (Note 3) miners extract precious metals (mostly gold) from easily accessible deposits using the only very basic tools. It is undertaken in different forms - with screens on riverbanks, by divers in rivers, in pits and dugouts or in mines abandoned by large-scale mining companies. In any case, the activity is highly labour-intensive, can be undertaken profitably by almost anyone, and has unique potential to secure livelihoods and reduce poverty on a large scale. Accordingly, ASM is a global phenomenon, and of particular significance among the many informal economies in developing countries. The ILO estimates that worldwide, 13 million people are directly engaged in ASM, and that the livelihoods of an additional 80-100 million people depend on it (Hentschel / Hruschka, 2002). In many developing countries, the activity functions as an unofficial “social safety net” for the poor.

Despite its undisputed potential, ASM also faces many economic, environmental and social problems. In fact, it is more often primarily associated (by the population as well as by local governments) with environmental destruction, criminality, the unsustainable plundering of resources, destruction of private property, child labour, the financing of conflicts, and general social degradation (ILO, 1999). A key obstacle to tackling these problems is the fact that most ASM takes place outside legal frameworks. In Sub-Saharan Africa, it is estimated that 90% of artisanal miners operate informally and thus illegally. Yet, logically, governments can only exercise their required supportive and supervisory roles where the activity is formalized (Hentschel / Hruschka, 2002). The first step in this undertaking is to create adequate legal regimes that address the specific characteristics of the industry, and this paper will discuss which insights property rights theory can provide for this difficult task (Note 4).

2.2 Property Rights and the Regulation of ASM

Before engaging in the theoretical discussion of property law, it is necessary to identify where considerations as to the extent and content of property rights feature in an attempt to regulate informal mining. Of course, due respect must be paid to the fact that ASM is a global phenomenon that occurs in places that are socially, culturally and legally very diverse. However, the following issues involve conflicts that occur in virtually all ASM countries, and all have to find adequate regulatory solutions to address them.

The first and fundamental decision regarding property law and the management of natural resources relates directly to the resource itself: Who owns it and what responsibilities does the owner have? In our case, the ownership of minerals is vested not in private landowners but *in the state* in virtually all countries (see Naito/Otto/Smith/Myoi, 1999). Where this is so, the government has to decide whom to grant access to its property by creating mineral rights, e.g. exploration and extraction licences. These rights grant private entities the (more or less) exclusive use of a resource, can be made tradable and therefore can constitute *de facto* private property (Long, 1995).

In deciding how (and whom) to appropriate access to their property, governments have to be aware of the very different power and capacities of the interested parties. For the purposes of this paper, an important distinction is made between large scale mining companies on the one side (mostly transnational corporations from industrialised countries (TNCs)), and ASM on the other. The interaction of these two groups is highly explosive, and governments have to address potential conflicts within the wider property rights system itself.

Finally, other property issues arise in the context of land use. In most cases, miners will not own the land on which the minerals are located. This leads to questions of land allocation, for example if the government should set aside specific lands for ASM, and what provisions are made with regards to other private owners of land on which minerals happen to be located (Note 5).

From a theoretical perspective, some basic questions underlie all of these issues: how much space do governments grant private actors regarding the use of their property, and how much governmental regulation is acceptable? Or, in other words: how “strong” are the private property rights vested in the respective actors? And: how should concerns of property distribution be addressed within the property system itself?

3. The Economic Theory of Property Rights

As mentioned, the economic justification of property rights is particularly important when it comes to regulating an economy. Before it is applied to ASM, it is necessary to introduce the main ideas underlying this understanding of the law.

Generally, the economic analysis of law is concerned with the economic implications of legal systems (Trebilcock, 1991). Basic economic models of analysis are applied to legal rules. Many proponents of this theory suggest that almost all aspects of a legal system follow an inherent economic logic and at least partially serve economic purposes (Posner, 2006). One can basically distinguish between two types of economic analysis of law. On the one hand a positive, descriptive analysis that makes predictions as to what the economic consequences of a certain rule or policy *will be*. This mode of analysis uses economic assumptions as to the behaviour of individual actors: that individuals act rationally out of self-interest so as to maximise their personal wealth or benefit, and that they respond to incentives while doing so (Trebilcock, 1991). Understanding which incentives a legal regime gives its participants is a necessary precondition to judging its merits.

On the other hand, there is a normative, "judgemental" analysis, which indicates how rules *should be* configured to achieve the most wealth-maximising outcome (Trebilcock, 1991). In this analysis, the concept of "efficiency" is of paramount importance: a law is efficient if it allocates resources in way in which their value is maximised (Posner, 2006). To determine whether a particular result is, in fact, wealth maximising, an economic cost/benefit analysis is conducted, asking whether the beneficiaries of a certain rule could, *hypothetically*, compensate those that lose out from the change, and still have sufficient gains left for themselves (so-called "Kaldor-Hicks efficiency") (Note 6). It is important to note that, while many proponents of the theory argue that what constitutes a "benefit" to an individual can be virtually anything (and also include, for example, altruistic notions), this approach is preoccupied with determining the "value" of a good by how much someone is willing to pay for it. Thus, in this analysis values only find a place where they can be expressed in monetary terms.

As will become clear in the following discussion, both modes of analysis produce valuable insights into the formalisation of the ASM economy.

3.1 Property Rights Reform as a Central Prescription of Law and Economics Theory

According to the economic theory of property rights, private property is justified because it is the most efficient means of allocating resources (Barnes, 2009). Only private property gives the incentive to invest and develop a resource. For example, if anyone was free to help themselves to the product, there is no incentive to invest time and effort in a piece of land. Where there is unlimited access to a resource, there will be no concern of individuals to use it in a sustainable manner, and inefficient overuse and exploitation will result (Note 7). According to this theory, the stronger property rights are, the more efficiently the resource will be used. Only where the "full package of rights" that constitutes the institution of private property (use, management, transfer and income rights) is vested in one person, efficient outcomes are achieved.

The belief in the centrality of private property for efficiency has consequences for the whole economic system. A system is most efficient when it rests solely on the existence of private property rights, with minimal state interference. This is why a competitive, free market system is necessary to produce economic efficiency. The role of private law is to enable the smooth functioning of the market, with property law at its centre: Property is defined by property law, protected by tort and criminal law, and its transfer is made possible by contract law (Trebilcock, 1991).

Therefore, not surprisingly, proponents of an economic understanding of law see property rights very much as a tool of social transformation for developing countries - whereby the focus is evidently on the *economic* development of a society. Many "law and development" scholars and institutional economists insist that institutionalized property rights are the key factor for the economic growth of a country (for an overview, see Davis/Trebilcock, 2008). Two particularly influential scholars will be discussed here briefly, and their ideas will subsequently be applied to ASM.

One of the most influential proponents of a version this theory is Hernando de Soto, a Peruvian economist. He argues that the developing world in fact already possesses the assets (meaning physical possessions) and the entrepreneurial spirit required for rapid economic growth.(Note 8) The problem is that this "dead capital" is not represented in an abstract sense, and as such not sufficiently tradable, and vulnerable to expropriation and destruction. The key to bringing this dead capital to life is, according to de Soto, creating a system that makes it tradable so that surplus - and spontaneous economic growth - can be generated. De Soto goes so far to suggest that capitalism succeeded in the West (and "failed everywhere else") because in the West, entrepreneurship was formalised under one property system. Institutional capacity, such as administrative bodies and courts, are, according to de Soto, secondary: "An appropriate system of property rights, contracts, and extra-contractual liability can spontaneously generate the efficient use of resources without a bureaucracy to decide or authorize how the

resources must be used" (de Soto, 1989).

An important aspect of de Soto's work is his idea on how "formalization" should be brought about. Instead of *creating* formal property rights by top-down legislation, he argues that existing customs and possessory relationships that have already been established and work efficiently should be formalized (de Soto, 2000).

Similarly, Richard Posner advances the centrality of institutions - and in particular the institution of property, as a central aspect of "modernizing" a developing society (Posner, 2006). With regards to informality, Posner acknowledges that there can be substitutes for the formal enforcement of property rights, and even economic progress entirely without law. However, he argues that these substitutes (e.g. strong arm tactics, reputation, and reliance on family bonds) are mostly very costly and as such overall inefficient. This leaves a basic legal structure with secure and strong private property rights as an essential element of economic growth.

Posner sets out a "framework" on how to efficiently achieve the required infrastructure. In line with de Soto, Posner argues that the rules (= laws) themselves should be the first object of reform ("rules first" strategy), as they are cheaper to reform than expensive institutions. (Note 8) He introduces a classification system to measure the efficiency of rules. According to this scheme, a rule is "*substantively* efficient" if it "internalizes and externality" or otherwise promotes the efficient allocation of resources. Externalities, it should be added, are unintended costs incurred by third parties that are not part of a particular transaction and did not create them (Barnes 2009). *Procedurally* efficient rules, then, are those that reduce the cost or increase the accuracy of using the legal system. Generally, Posner suggests that the emphasis should lie on rules rather than on standards, as the latter are more costly to administer and leave room for discretion, and thus the danger of corruption.

3.2 Imperatives of the Economic Theory for the Reform of ASM

The application of the economic theory of property rights, as advanced by de Soto and Posner, to the phenomenon of ASM reform highlights both strengths and limitations of this approach in the context of developing countries.

3.2.1 The Economics of Mining Law

As noted, states are the sole owners of the minerals on their territory in virtually all cases, irrespective if they are located on public or private lands (Naito et al, 1999). Governments hereby face a conflict of interest: as landowners, they are interested in maximizing their profits. As governments, they are obliged to advance public welfare. Thus, rather than merely recognizing private property rights, governments have to actively create mineral rights markets that promote an efficient exploitation of the resource by artifice. From a "law and economics" perspective, the goal thereby is to create mineral rights that are secure, strong, freely tradable and as such function as *de facto* private property rights (Long 1995).

3.2.2 What Role for ASM?

As noted, 90% of small-scale mining takes place beyond legal frameworks, without secure property rights, and without paying taxes. Thus, the first and fundamental question that "law and economics government" would ask is: should we create a formal framework that *promotes* ASM at all, or is informality in fact more efficient? This question requires, in effect, a cost-benefit analysis in the sense of *Kaldor Hicks* efficiency. The costs of drafting and disseminating laws, and the possibly deterring effect these laws might have for large-scale mining, would have to be weighed against the expected benefits of a (realistic) participation in the law (Note 9). After what was said above, the general tendency of such a government is clear: creating private property rights is always more efficient due to the total wealth it generates, and formality is preferable to informality. In addition, the government can expect taxes and royalties from the miners, and a decrease of smuggling of gold to neighbouring countries (Hentschel / Hruschka, 2002). President Posner and Chancellor de Soto would quickly dismiss the question as to the *if* and move on to consideration as to *how* a formal ASM economy could be achieved.

At this point already, the decision to treat ASM as a potentially profitable economic sector differs significantly from the attitude of many developing governments, as evidenced by their mining laws. Mostly, ASM is treated like a social problem, and an inherently criminal activity that should be suppressed by restrictive laws as far as possible (Tschakert, 2009). Development workers report that there is a widespread fear that the engagement with ASM in fact could be seen as endorsing criminal behaviour, and scare away large international mining companies and FDI (Hilson, 2009). A further fear is that a law promoting legal ASM will create a "rush" to ASM from other economies. There is sufficient evidence that this is not the case (Tschakert, 2009). Additionally, as will become clear, this governmental attitude is in fact highly inefficient, as the resulting repressive laws are simply not obeyed, stripping governments of any control of the sector whatsoever. Poverty-driven as it is, the mining takes place despite the repressive legislation - it just remains in the informal sector. Regarding the economic theory of law, however, an important point must be made. The role moral considerations can play in an efficiency-oriented analysis is disputed. Yet it is clear that a strong orientation towards efficiency as a policy goal ("judgemental" law and economics) does

not permit to take "irrational" moral fears into consideration when designing legal rules. This theory would have no patience for social exclusion of certain groups where it is economically inefficient, and would not hesitate to engage productively with the ASM phenomenon.

3.2.3 Economic Property Rights for Miners

Applying the economic theory to the question of *how* to regulate the also proves valuable. ASM miners are in a "classic" de Soto-situation - they have informal, efficient systems of co-operating at mining sites that they have often worked at for significant periods of time (Siegel/Veiga, 2009). They possess basic equipment and "entrepreneurial creativity". What they do not have, however, is access to credit and the security of tenure that is required to invest in their mining sites and develop them into more advanced, more efficient small mining companies. Thus, applying de Soto's logic, what would be required is large-scale government initiatives that formalize the customary rights of the miners and give them legal title to their claims. When given alienable mining rights, this tradable capital can be utilized to access micro-loans. Further, the security of tenure necessary to trigger investments in mining enterprises can only be achieved through mining licenses that are of substantial duration. No rational investor would put money into a claim that he is entitled to for only one or two years, as is currently the case in many developing country mining laws (Hentschel / Hruschka, 2002). In economic terms, "providing security of tenure is the most critical element of a practical mining law" (Long, 1995).

Where de Soto leaves many questions open as to what type of legal rules should be introduced, Posner enters the picture. Applying his terminology, one would have to draft "substantively efficient" rules that "internalize externalities" or otherwise promote the efficient allocation of a resource (Posner, 2006). Apart from the mentioned sufficient duration of the licences, governments would have to draft quasi-property rights that "internalize externalities" such as environmental damage and damage to landowners. Only where miners are made responsible for damage done to these third parties they have incentives to develop their claims in an environmentally, socially, and economically sustainable manner. Therefore, a *substantively efficient* ASM law would have include a clear set of duties that miners have to obey, such as controlling the use of toxic chemicals used to process the minerals and rules governing the use of explosives.

3.2.4 Inducing Compliance from Rational Market Actors

As mentioned, a pervasive problem with ASM-regulation is the fact that, even where comprehensive legal frameworks exist, they are not obeyed - mostly, they are over-bureaucratic, technical, and inaccessible for miners that often are not formally educated (Hentschel / Hruschka, 2002). In addressing this problem, too, an economic analysis is advantageous. From an economic perspective, the primary function of the law is to induce compliance (Posner, 2006). Where it fails to do so, an economic analysis would not point to the non-complying party but rather aim to create, in Posner's terms, *procedurally efficient* rights, that reduce the cost of using the legal system. Essentially, an economically thinking government would undertake a cost-benefit analysis from the perspective of an individual, rational miner that is interested in maximising his own profits. This would in effect be the "positive", or descriptive use of economic analysis mentioned above (Trebilcock, 1991). Thereby, it is assumed that all economic agents respond to incentives. Thus, for a miner, contributing in the formal economy must be the rational choice, one that can only be achieved through an advantageous regulatory framework.

In such an analysis, it is especially important to identify the *leverage* that exists on the side of the government. In the context of ASM, this point entails particularities that should inform the choices of policy-makers. In developed countries, where government capacity for enforcement is comparatively high and sanctions are regularly enforced, the calculation of the cost of non-compliance with prescriptive norms includes, to a considerable extent, the question: "what if I get caught"? In developing countries, given the limited means of enforcement, this factor is often minimal.

Further, the specific circumstance of the natural resource is of paramount importance for the governmental leverage to induce compliance with a law. Generally, the government legislates from the position of the owner of the resource that can exclude others from its use (Barnes, 2009). In the context of mining, developing country governments have no difficulties of excluding large-scale mining companies from the illegal exploitation of minerals as they are focussed on hard-rock deposits deep underground or large and rich secondary deposits that require significant expenses to explore and exploit (Long, 1995). No company would invest these sums of money without knowing that it will be safe from government intervention in the exploitation phase. This gives government sufficient leverage to regulate the large-scale industry. With ASM, however, the situation is fundamentally different. These miners focus on deposits in riverbeds and in depths of a few meters (Barreto, 2008). These minerals are in a *de facto* "open access" situation, and the government cannot practically exclude them from the minerals at all.

For a legislator, this situation must lead to the acknowledgement that he has very limited leverage to induce compliance by top-down, "command and control" regulation. Rather - returning to Posner's categorization - a

procedurally efficient law would aim to maximise the positive incentives for miners to comply with the law and reduce the costs of entering into the legal framework. A short look at presently existing ASM laws suffices to come to the conclusion that this realization has not commonly been made. Time-consuming licensing procedures, expensive licensing fees and elaborate environmental risk-assessment requirements still present deterring obstacles hindering miner's participation in the existing schemes (Hentschel / Hruschka, 2002).

Generally, an economic analysis would thus focus on giving miners strong (*de facto* property) mineral rights, that allow them to exclude others from the use of the resource, provide protection for investments and make it attractive for them to join the formalized sector.

3.3 Limitations of the Economic Theory of Property Rights

There is a significant amount of literature that criticizes the economic justification of property rights. For example, many dispute the assumption that all persons are rational, self-interested preference-maximisers, and argue that therefore, private property does not necessarily lead to the efficient use of resources (Barnes, 2009). Others point to internal inconsistencies within economic approaches (Barnes, 2009). These issues lie beyond the scope of this paper. Rather, it is concerned with the questionable moral, social and economic implications of the "pure" application of economic property rights theory. This critique takes issue with the consequences of a governmental focus on economic efficiency and efficient property rights. Such critique focuses on the larger social and cultural consequences of establishing a certain system of property rights. In the following, this paper will discuss aspects relating to this critique in the context of developing countries (subsection a). Subsequently, the potential consequences of some efficiency-oriented policy decisions in the ASM context are discussed, that highlight the shortcomings of the economic model (subsection b).

3.3.1 The Wider Picture - Shaping a Society through Property Rights

Barnes observes that "at the heart of the economic justification of property is a belief that economic forces and values should have a primacy in the decision making process" (Barnes, 2009). Thus, a number of policy imperatives flow from the economic theory. As shown, on a small scale this would be the creation of transferable, strong private property rights for individuals. On a larger scale, this theory would strongly favour the establishment of an open-access, free market situation as the wealth-maximizing economic model. This implies that the only "public function" of property (meaning the role that property has in furthering public or community interests) is to allocate resources efficiently, thus reduce waste and in effect increase the "size of the pie" which enriches society as a whole. Distributive considerations as to who is enriched, and to which extent, are not addressed by this instrumentalist theory. Finally, it is essential to this justification of property rights that government only "creates" property rights where it is economically profitable to do so. As Barnes notes: "Unless the particular allocation of resources under private property demonstrates some measurable economic advantage over other possible allocations then private property fails to merit its special status" (Barnes, 2009). In other words: if it is not economically efficient, you should not have property.

It is evident that many of these policy imperatives have proven to be dangerous, especially in the context of developing countries. Establishing a domestic property rights market and opening it to foreign investors risks "selling out" national resources to transnational corporations that effectively transfer most of the benefits abroad and displace small, national market actors (Manders, 2004). The neo-liberal policy standards of the "Washington Consensus" of the World Bank and the IMF, that focused heavily on deregulation and privatization and were thus very much in line with the economic theory of property rights, have proven to be disastrous for many developing countries whose domestic economies could not cope with the opening to the global market (Steglitz, 2003).

Also, distributive inequalities that result within the domestic market are accepted by the economic model, even if they reach huge proportions. Formalizing private property rights and making them alienable enables those that already possess economic power to further amass wealth, and the resulting disparities in wealth often lead to social tensions (Hendrix, 1995). In this sense, the "law and economics"-government might disregard social settings that can lead to catastrophic social developments. Harvard professor Amy Chua argues that the combination of democratic and free market reforms can, if property is disproportionately concentrated with an ethnic minority, produce an anti-market "backlash", leading to instability, envy, violence and even genocide (Chua, 2003).

These are only some of the general problems the economic approach can entail, but they should suffice to caution any unquestioned adoption of its policy imperatives.

3.3.2 The Dark Side of Efficiency-oriented Analysis for ASM

This is also true in the context of ASM reform. It should be recalled that that the specific situation of mining law requires creating a free market by artifice. Governments do not merely "recognize" existing rights in *de Soto's* sense, they can and must create very specific types of *de facto*-property rights that entail consequences for the situation of

miners. If governments act as landholders particularly interested in wealth maximization, problematic policy choices can result.

The dangers of focusing on attracting large international mining companies as the supposedly most national wealth-maximising solution are evident in many mining laws of developing countries today. The license terms for large-scale operations (their *de facto* property rights) are extremely favourable, with long durations of leases, extensive tax holidays and massive allocations of land. In the Philippines, for example, mining licenses that can be granted for large scale companies cover up to 81,000 ha., with a duration of 25 years. ASM licenses, in comparison, cover 10 ha. per ASM-co-operative and last for 2 years (Philippine Mining Act 1995). For the companies, these "strong" private property rights guarantee security of tenure and make investment attractive. "Weaker" property rights, that include provisions that require large-scale mining companies to reach land-sharing agreements with small-scale miners, are obviously less attractive as they contain a certain amount of insecurity. But for the small-scale miners, particularly the land aspect is problematic: in countries that have limited space and limited mineral lands, the granting of very large proportions of the most attractive mineral land to TNCs will leave ASM no choice but to mine there illegally - resulting in conflict, often involving governmental and private security forces that violate the human rights of individual miners (Hilson, 2002). "Strong" property rights leave it entirely to corporate social responsibility (CSR) to find compromises in these situations. The irony of this situation, that results from the focus on what is perceived to be economically efficient in the global market, is that it is not at all efficient with regards to mineral development: The surface-near deposits exploited by ASM cannot be profitably mined by large companies (Hilson, 2007). Therefore, land sharing arrangements (that, in property terms, do not vest the "full bundle" of rights in one entity), might be very much more efficient.

Recalling the discussion of subsection a) above, it should be noted that licensing schemes that require land sharing agreements to be concluded are in effect measures of wealth distribution to the benefit of the small-scale miners that are rooted within the property system itself. Where mining licenses include such obligations, private property is defined in a way that limits the freedom of the owner to do as he pleases, and limits what can be appropriated with market power. This runs contrary to the "full bundle of rights" imperative of the conventional economic model, and would therefore probably be vetoed by a "President Posner".

A further difficulty of the economic theory that can result in problems for developing countries is its inability to attach economic "value" to cultural concerns. Governmental land allocation for the purposes of ASM (as well as TNCs in general) tends to disregard the human rights of indigenous peoples that cannot be adequately expressed in monetary terms. In this regard, it might seem efficient for a government to lease out the entire rural landscape as *de facto*-private property to both mining companies and ASM (International Human Rights Clinic, 2007). From an economic perspective, it is difficult to factor the spiritual value attached to particular regions by indigenous populations into such an efficiency analysis.

Finally, the unquestioning formalization of existing property arrangements proposed by de Soto and others, also can lead to problems. It might be seen to be governmentally legitimizing "unjust" allocations of wealth that have been obtained through sheer power. On a large scale, this can marginalize social groups and lead to social unrest and violence. In the context of ASM, the dynamics within groups of miners reportedly create systems of abuse and extortion (UNECA, 2002). If those miners that have successfully established superior positions of power within mining groups by Darwinist means are granted formal licenses, the "undemocratic" status quo could be further worsened by governmental recognition. Studies from South America have shown that generally, property owners tend to exploit their property in their own self interest rather than investing and pooling in the interest of the entire community as suggested by de Soto (Hendrix, 1995). An efficiency-oriented analysis would have problems arguing against the efficiency of such situations of high personal dependence of workers on a license holder. Posner himself concedes that there is no economic argument against enforcing "voluntary" contracts for slavery (Posner, 2006).

3.4 Conclusion: the Economic Theory of Property Rights

To briefly sum up, the economic theory can produce valuable insights for developing government approaching ASM. Particularly the realization of ASM as a potentially very profitable, efficient economic sector would be a significant advancement from the current status quo within ASM laws. It is highly likely that secure "quasi-property" rights would improve the situation of ASM miners considerably and benefit the economic development of developing societies. Also, the "descriptive" application of the theory produces numerous valuable insights into the content and procedure of formalization efforts. At the same time, this theory and its focus on strong private property rights and free market contains policy imperatives that can produce huge inequalities, cultural exclusion and social unrest. In particular in relation to large-scale mining and TNCs, the economic theory does not justify sufficient protection of the interests of ASM in the free market of mining rights. It is suggested that in this regard, other theoretical justifications of property should be consulted that can address many of these shortcomings. This will be done in the

following final section of this paper.

4. Addressing the Shortcomings of the Economic Theory

As mentioned, today's property regimes contain elements that can be attributed to many different legal theories. Where the economic theory of property right leads to undesirable results, one could therefore resort to other theories that have something to say about why property should exist and which limitations can be placed on it for the sake of the common good. This section will discuss two of these theories and how they might be applicable in the context of ASM. (Note 10) In addition to asking what limits may be legitimately placed on the use (or acquisition) of property, this section will reflect on which "public function" these theories attach to private property - meaning the role that the property system has in structuring society, redistributing wealth through the property system itself and thus in furthering public or community interests (Barnes, 2009).

4.1 Property as a Natural Right

Article XVII of the Universal Declaration of Human Rights holds that "[e]veryone has a right to own property alone as in association with others" (Article XVII). The realization of property as a human right highlights the importance that is attributed to the close connection that can exist between material things and the inherent dignity of human beings. John Locke, the founder of this line of thinking, elaborated how material things, that are originally common to all, become private property through the labour of a person (Barnes, 2009) Locke's argument is that since we "own" ourselves, and we own the work of our hands, we must also own the product of our labour, provided that it is productive (Locke, 1690). In other words: There is something of ourselves in everything we produce, and this must be recognized by any property system.

As it focuses on the human rights dimension of property, this theory provides a strong argument for the protection of the fruits of individuals' labour against arbitrary governmental interference such as dispossession. In a sense, this backs up the argument of the economic theory for strong protection of private property rights. However, this idea also adds a dimension in that it protects material accumulations from governmental interference even if they are not economically efficient. For example, this theory clarifies that government cannot simply "sweep" land from the ASM communities that were built up informally and now happen to be in the way of large scale investment, such as reported from Ghana (Hilson, 2007). Even if the miners erected their claims and their basic equipment on land that they had no formal license to (and thus are called "illegal" by many governments), the government has to respect that their possessions, including the extracted minerals, are the product of their labour, and thus protected as a natural right. Of course, this can equally be true for large mining corporations, whose property must be protected against arbitrary government interference and expropriation. Any legal regime governing ASM therefore has to provide for the protection of these possessions and offer just compensations should they have to be expropriated for the "greater good". It should be clear that this element of property is not one that a government can "pick and choose" in its regulatory design. It is a fundamental human right that is recognized by most countries and, as enshrined in the UNDHR, enjoys customary law status.

Locke's labour theory is primarily concerned with the right to possess, use and manage the property that is subject to, and results from, a person's labour. The theory does not seem to provide guidance on how "artificially" created property rights (such as mining claims) should be designed and disseminated. However, Locke does address issues concerning the "public function" of property. Barnes summarizes Locke's two central qualifications to the natural right to property regarding its accumulation: No one should acquire more property than he can make use of before it spoils; and there must be "enough and as good left in common for others" (Barnes, 2009). These qualifications stem from the realization that property ultimately serves mankind and must thus serve to preserve humanity as such. They speak to concerns of property distribution.

The first limitation can be directly translated to the mining context: No entity should "own" more mineral rights than it can develop. There should be limitations on the amount of mineral rights that persons can acquire. Also, there should be a provision that obliges the entity (be it large or small-scale) to develop a claim, as only productive labour should lead to property in the first place.

The "enough and good" provision, that aims to guarantee a means of subsistence to all, would justify limiting a "sell-out" of land to large mining companies and setting aside certain minimal areas of land for ASM - even if this would be inefficient from an economic point of view. In the same manner, it could justify forcing large scale mining companies to enter into land sharing agreements, as it does not require property rights to be "strong" in a sense that all elements of the bundle should be concentrated in one owner. As long as the "input" of a person into the property is respected, limitations of the use of the property do not conflict with the natural rights approach.

Interpreted in such a manner, the "property as a natural right" theory presents a picture of ASM regulation that differs from the purely economic model in important points.

4.2 Property as Propriety

The final theory that will be addressed here is property as propriety - a theory of property which Barnes in his calls "much neglected and unarticulated" (Barnes, 2009). This theory stresses the ability of property to function as a tool to achieve some form of "proper" or "appropriate" social order. Today, both in Western industrialised states as well as in many developing states, the trust in the private ordering function of property (such as articulated by the economic theory) is dominant (Singer, 2000). In contrast, the property as propriety theory reminds us that property is in fact a form of governance, and most clearly points to the public function of property. This idea is best understood from a historical viewpoint, as the *governing* function of property was more obvious before the rise of the bureaucratic state. The system of land tenure practised in feudalism, for example, structured a society characteristically through means of property allocation. Besides being very illustrative of the concept of "property as propriety", this example also highlights a problem of this theory - namely determining what exactly is "proper" in a society. It provides no normative guidance, and could equally serve those who see a free market economy as "proper" as well as proponents of communism and entirely undemocratic status quo.

For our purposes, this theory adds value in two regards. Firstly it justifies why certain resources should be subjected to certain alternative types of property that carry specific obligations for society as a whole (for example, public trust doctrine in the US or Stewardship) (Barnes, 2009). Its openness also allows the inclusion of exotic (and seemingly inefficient) property arrangements such as in Papua New Guinea, where 90% of the land is owned by communities (Trebilcock, 1984).

Secondly, and more fundamentally, this theory forces one to realize that property indeed *has* a central role in ordering society and shaping social relations. Above, several studies were referred to that proved that property measures by developing countries influence their social and cultural landscape to a considerable extent. Accordingly, rather than providing a certain recipe for how property should be structured and what kind of rights should be awarded, this theory draws the attention to the fact that governments shape society through whichever property system they establish. This must mean that certain regulations and restrictions far beyond what is justified under the economic theory of property rights must be permissible. "What property in this sense boils down to", writes Barnes, "is the idea that certain property holdings and land in particular carry with them a responsibility to the wider community, or perhaps that collective interests may take priority over private interests." (Barnes, 2009).

The acknowledgement and acceptance of the ordering function of property "frees" regulatory interference with private property from the prejudice it typically faces in Western market economies. Especially in the context of developing countries, where regulatory systems often have to be built up from scratch, this theory brings to mind the American legal realists' attacks on the private / public divide, which they condemned as an artificial construct. Robert Hale argued in 1923 that, through creating "full bundle of rights"-type property rights, a free market, and providing a system of enforcement, the state establishes a system of free-market coercion that, in effect, is no less coercive than governmental top-down regulation of "natural" property rights (Hale, 1923).

From a Kaldor-Hicks point of view, it might be overall cost-benefit maximizing to privatize mineral rights as far as possible and to focus on attracting TNCs and FDI. The theory of property as propriety, however, draws attention to the fact that within the Kaldor-Hicks test, the possibility of compensating the losers of a certain rule is a hypothetical one. It might lead to the realization that a wider distribution of wealth within a society is the more proper solution, even if the overall size of the pie is smaller.

What should this mean for ASM? As mentioned, virtually all developing countries have established state ownership of the precious minerals located on their territory. And many governments have also officially recognized their duty to fulfil their ownership role for the public good of the country. (Note 11) Accordingly, it is "proper" to promote the access of weaker parties to the resource, and limit the access of large-scale mining, through the design of the property system itself. Also, once a certain picture of what a "proper" ASM community should look like is found, regulations that pursue this goal should be formulated - including limitations of both large and small industries with respect to the environment, cultural constraints and other interests whose importance cannot be adequately measured in monetary terms.

5. Conclusion

It has been shown that the design of adequate property rights systems plays a central role for the pursuit of an ASM industry that is both profitable and sustainable. Acknowledging the theoretical background and justification of property rights is essential for the task of regulation. Each theory discussed above has important contributions to make, however each is only helpful to a certain extent. This paper might be seen as support of Michael Trebilcock's observation "[t]hat any one perspective on the world should offer only a fragmentary grasp on the total wisdom required to shape a more congenial world should not be surprising and should not be viewed as a fatal indictment of

that perspective.” (Trebilcock, 1991)

In this sense, the insights of the economic theory into the central role private property has for efficient resource allocation and Posner's and de Soto's proposals for the design of efficient rules should not be discarded by the economic theory's inability to incorporate moral and social considerations of distribution. After all, "[c]reating wealth is a necessary precondition to distributing it" (Trebilcock, 1991). Similarly, the realization of the close connection of property rights to human dignity is essential but not sufficient to inform a comprehensive property system. The recognition of the ordering role of property should lead governments to be sceptical about blindly importing western, "strong" property rights and servicing the demands of transnational corporations. Experience has shown that leaving issues of economic and social inclusion to considerations of private goodwill and "corporate social responsibility" is a risky gamble.

The question that arises is, of course, which approach should be adopted when the theories require different outcomes. For example, natural rights theory might demand economically inefficient decisions – but how should these go? When should requirements of the identified “proper” order justify interference with the “natural” property rights of TNCs, and when should the advantages of individuals be absolutely protected from being sacrificed for the public good? The challenge is to find a way of coordinating the theories in a manageable way. Universal standards such as economic and social human rights could provide guidelines in this regard. But how exactly this is done should be left for developing countries to decide – which, as noted, are socially, culturally and legally very diverse.

References

- Alston, Philipp. (2005). Ships Passing in the Night: The Current State of the Human Rights and Development Debate Seen Through the Lens of the Millennium Development Goals *Human Rights Quarterly* 27, 755-829.
- Atuahene, Bernadette. (2006). Land Titling: A Mode of Privatization with the Potential to Deepen Democracy. *Saint Louis University Law Journal*, 50, 761.
- Barnes, Richard. (2009) *Property Rights and Natural Resources*. Oxford: Hart.
- Barreto, Laura. (2008) Analysis of Artisanal and Small-scale Mining Mongolia Regulations for Gold. [Online] Available:
<http://www.sam.mn/en/samcomponent/policy-a-regulatory-framework/reports-reference-materials.html> (October 13, 2010).
- Chua, Amy. (2000). The Paradox of Free Market Democracy: Rethinking Development Policy. *Harvard International Law Journal*, 41, 287.
- Cross, Frank. (2002). Law and Economic Growth. *Texas Law Review* 80, 1737.
- Chua, Amy. (2003). *World on Fire*. New York: Anchor Books.
- De Soto, Hernando. (2000). *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.
- De Soto, Hernando. (1989). *The Other Path: The Economic Answer to Terrorism*. New York: Perseus Books.
- Hale, Robert. (1923). Coercion and Distribution in a Supposedly Non-coercive State. *Political Science Quarterly*, 38, 470.
- Hendrix, Stephen E. (1995). Myths of Property Rights. *Ariz. J.Int'l & Comp. Law*, 12, 183-214.
- Hentschel, T., Hruschka, F., Priester. (2002). M. Mining, Minerals and Sustainable Development (MMSD) Project – Global Report on Small-scale Mining, International Institute for Environment and Development (IIED) Working Paper No.70.
- Hilson, Gavin. (2002). An Overview over Land Use Conflict in Mining Communities. *Land Use Policy*, 19, 65-73.
- Hilson, Gavin. (2009). Small-scale Mining, Poverty and Economic Development in Sub-Saharan Africa: an Overview. *Resources Policy*, 34, 1–5.
- Hilson, Gavin, Yakovleva, Natalia; Banchiragah, Sadia Mohammed. (2007). To Move or Not to Move: Reflections on the Resettlement of Artisanal Miners in the Western Region of Ghana. *African Affairs*, 106, 413–436.
- International Human Rights Clinic, Human Rights Program Harvard Law School. (2007). All that Glitters: Gold Mining in Guyana, The Failure of Government Oversight and the Human Rights of Amerindian Communities. [Online] Available: www.law.harvard.edu/programs/hrp/documents/AllThatGlitters.pdf.
- International Labour Organization. (1999). *Social and Labor Issues in Small-scale Mines*. Geneva: International Labor Office.
- Long, Keith R. (1995). Economics of Mining Law. *Natural Resources Research*, 4 /1, 74.

- Manders, Jonathan. (2004). Sequencing Property Rights in the Context of Development. *Cornell International Law Review*, 37, 179.
- Naito, Koh; Otto, James M; Smith, David N; Myoi, Hajime. (1999). Legal Aspects of Exploration and Mining: a Comparative Table of Mining Law in Asia. *Journal of Energy and Natural Resources Law*, 17, 1.
- Posner, Richard. (1998). Creating a Legal Framework for Economic Development. *World Bank Research Observer*, 13, 1-11.
- Posner, Richard. (2006). *Economic Analysis of Law* (6th ed.). New York: Aspen.
- Sen, Amartya. (1999). *Development as Freedom*. New York: Anchor Books.
- Siegel, Shefa & Marcello M.Veiga. (2009). Artisanal and Small-scale Mining as an Extralegal Economy: DeSoto and the Redefinition of 'Formalization'. *Resources Policy*, 34, 51.
- Singer, Joseph. (2000). *Entitlement: The Paradoxes of Property*. New Haven and London: Yale University Press.
- Stieglitz, Joseph. (2003). *Globalization and its Discontents*. New York: Norton, 2003.
- Trebilcock, Michael. (1984). Communal Property Rights – The Papua New Guinean Experience. *University of Toronto Law Journal*, 34, 377.
- Trebilcock, Michael. (1991). Economic Analysis of Law in R.F. Devlin, (Ed.), *Canadian Perspectives on Legal Theory*. Toronto: Edmond Montgomery.
- Trebilcock, Michael, Veel, Paul-Erik. (2009). Property Rights and Development – The Contingent Case for Formalization. *University of Pennsylvania Journal of International Law*, 30, 398.
- Tschakert, Petra. (2009). Recognizing and Nurturing Artisanal Mining as a Viable Livelihood. *Resources Policy*, 34, 24-31.
- United Nations Economic Commission for Africa. (2002). *Compendium for Best Practices in Small-Scale Mining in Africa* Adis Abeba: UNECA.
- Van den Bergh, Roger. (2003). Property Rights and the Creation of Wealth. *American Law and Economics Review*, 5/1, 263.

Notes

Note 1. *State v Shack* 277 A2d 369, 372 (N.J. 1971) .

Note 2. This paper is necessarily highly selective in its choice of "representatives" of the particular theories. The scholars chosen are those that the author feels are particularly illustrative, and sometimes provocative, in their respective fields.

Note 3. Sometimes, it is insisted that a distinction is necessary to express the higher degree of mechanisation of small-scale mining as opposed to artisanal mining. For the purposes of this paper, however, this is not important, and the terms "artisanal" and "small scale miners" are used interchangeably.

Note 4. ASM has increasingly entered the consciousness of the development community and national legislators since the 1990s. Since then, a number of countries have put in place legal frameworks dealing with the phenomenon, but this has produced only very limited success. See United Nations Economic Commission for Africa, *Compendium for Best Practices in Small-Scale Mining in Africa* (UNECA, 2002).

Note 5. Of course, there are many further aspects that governments have to address when regularizing ASM, for example environmental aspects, financial assistance, and institutional organization. However, the points mentioned above are those especially connected to the question of property rights, and this justifies their selection.

Note 6. Besides Kaldor Hicks efficiency, another test is used that asks whether a certain rule increases somebody's welfare while not decreasing any one's welfare ("Pareto-efficiency"). For our purpose, the cost-benefit analysis of the Kaldor-Hicks is more relevant, as the regulation of an economy will inevitably make someone less well off (Trebilcock, 1991).

Note 7. "The tragedy of the commons" is often used to illustrate the economic advantages of private property open-access regimes. Hereby, it is assumed that rationally thinking market participants will overuse an open-access resource (a commons) if the private costs each incur are less than the total social costs that result from their use of the resource. In contrast, if a single person owned the entire commons, the margin between private costs and social costs would not exist, as the owner both derives all the benefit and bears all the costs (Trebilcock, 1991).

Note 8. In contrast to De Soto, Posner makes numerous arguments for the adoption of Western laws, eg the American Uniform Commercial Code, by developing countries. He does, however, argue that the reform should be conducted by local lawyers that should "borrow" from other legal systems whenever necessary (Posner, 1998).

Note 9. Of course, there are many more, country-specific factors that would have to be taken into account in such an analysis. For example, Gavin Hilson - the leading scholar exploring small-scale mining - highlights the risks that wrongly drafted and implemented laws can have that produce dependence (Hilson, 2009).

Note 10. Due to the limited scope of this paper, not all theories of property can be addressed here. For a comprehensive discussion see Barnes, 2009.

Note 11. For example, § 1 of Ghana's Minerals and Mining Act (2006) provides that "Every mineral in its natural state in, under or upon land in Ghana, rivers, streams, water-courses throughout the country, the exclusive economic zone and an area covered by the territorial sea or continental shelf is the property of the Republic and is vested in the President in trust for the people of Ghana." Republic of Ghana, Act no. 703 (2006).