**Managing Artisanal and Small-Scale Mining in Forest Areas– Perspectives from a
Poststructural Political Ecology**

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Abstract

Artisanal and small-scale mining (ASM) is an activity intimately associated with social depravation and environmental degradation, including deforestation. This paper examines ASM and deforestation using a broadly poststructural political ecology framework. Hegemonic discourses are shown to consistently influence policy direction, particularly in emerging approaches such as Corporate Social Responsibility and the Forest Stewardship Council. A review of alternative discourses reveals that the poststructural method is useful for critiquing the international policy arena but does not inform new approaches. Synthesis of the analysis leads to conclusions that echo a growing body of literature advocating for policies to become increasingly sensitive to local contexts, synergistic between actors at difference scales, and to be integrated across sectors.

Key Words: Artisanal Mining, Deforestation, Poststructural Political Ecology, Policy

Introduction

There is considerable debate regarding the relative virtues and vices associated with artisanal and small scale mining (ASM).ⁱ The sector is a source of livelihood for as many as 100 million people worldwide, mainly in developing countries (ILO, 1999). But historically, it has received a low proportion of aid relative to its socio-economic contribution (Hentschel *et al.*, 2002), due in part to its notorious association with environmental degradation and social depravation (e.g. Hilson, 2008; Dondeyne *et al.*, 2009; Werthmann, 2009).

Deforestation and forest degradation are amongst the most significant environmental impacts associated with ASM. Its contribution to deforestation is likely to be small compared to activities such as logging and agriculture. However, the largely-unregulated state of ASM (Hilson and Potter, 2003) means that it is an ever-present threat to forests, making its inclusion in forest management policies imperative. This view is substantiated by Peterson and Heemskerk (2001) who estimated deforestation caused by gold miners in Suriname would increase from 48-96km² annually in 2001, to 750-2280km², by 2010.

This raises two important points for discussion. First, in many developing countries, forest ministries may not have the capacity to protect forest reserves in the face of an expanding ASM sector. Second, much ASM activity is poverty-driven, rendering any successful reduction of activity in forested areas a challenge to livelihoods. Framing the debate between human livelihoods and environmental 'wellbeing' places the subject at the nexus of the human-nature dialect. A holistic understanding of such problems requires the integration of epistemological differences.

This endeavour has been spearheaded by an interdisciplinary school referred to as 'political ecology'. There is a vast and eclectic array of subjects examined under the umbrella term 'political ecology' but generally, it has emerged as a popular theoretical 'tool' for analysing the technical aspects of environmental degradation and their socio-political underpinnings (Neumann, 2009). Within political ecology, several methodologies have been employed. Discourse analysis is a central feature of Escobar's (1996) call for the development of a poststructural political ecology. The work in this area brings a critical perspective on modernist notions of objectivity and rationality,ⁱⁱ and interrogates the multiple power relationships which determine the nature and construction of environmental problems (Neumann, 2005). The poststructural view of discourse is associated with the work of Foucault (1994), and posits discourse as power, an inescapable institutionalisation of power relations (see Hager, 1993).ⁱⁱⁱ

The analysis begins in poststructural fashion by examining the relevant hegemonic discourses, or meta-narratives, and their impact on deforestation and ASM policies. The paper subsequently examines alternative discourses presented by less powerful actors; these can be viewed as a critique of the hegemony and they promote policy alternatives. The discourses were selected through a literature review of discourses deemed relevant to ASM and forest management, as well as broader environment-development debates. In selecting and examining a broad range of discourses, the paper inevitably has mixed ontological roots. This inconsistency is recognised, but results in a more balanced picture of power relations than a purely poststructural analysis. This 'broad' approach also allows for an evaluation of the utility of poststructural political ecology for providing insights into complex cross-sector challenges and providing recommendations for the management of these challenges. Although this approach might be regarded as inconsistent, it does provide a more balanced picture of power relations than a purely poststructural analysis. It is also possible to determine whether poststructural political ecology can adequately provide insights into cross-sector challenges and recommendations for management of these challenges.

The Dominant Discourses and their Policy Impacts

The impact of the sustainable development, global environmental management and neoliberalism discourses can be mapped onto existing and emerging policy approaches. This reveals that the discourses are consistently reflected in policies designed to manage ASM and deforestation.

Following publication of the United Nations World Commission on Environment and Development, *Our Common Future* (WCED, 1987), sustainable development discourse emerged, forcing environmental concerns such as deforestation into the mainstream international policy arena. Policy negotiations on deforestation have since been beleaguered by contention over its causes, consumption patterns, appropriate financial mechanisms and technology transfer (Steiner, 2002). Whilst negotiations on forest policy have stalled, the notion of sustainable development has

flourished, and now dominates public discussions on environment and development (Torgerson, 1995). However, the definition and operation of sustainable development has also been plagued by debates. A selective interpretation of sustainable development places environmental protection, meeting basic needs and inter- and intra-generational equity as the central tenants. Whilst these are part of the discourse, its dominant form contextualises these goals within the promises of limitless economic growth (Dresner, 2008).

This 'win-win' perception of development has pervaded policy discussion on forest work. For example, the WWF-World Bank Alliance Forest Vision for the 21st Century, which focuses predominantly on the policy of protected areas, states that, if well managed, it 'will support environmental values while serving human and economic needs by mid-century' (WWF, 2010:np). In addition, the Global Environment Facility (GEF) of the World Bank has labelled *all* of its forestry work as 'sustainable forest management' (GEF, 2010). Similarly, the Communities, Artisanal and Small-scale Mining (CASM) organisation, the centre-piece of donor engagement with ASM, explicitly places sustainable development at the heart of its goals (CASM, 2008).

There is debate regarding the sustainability of extracting finite mineral resources. However, the discourse has proven flexible enough to be utilised by either side. On one hand, the sustainable development discourse manifests itself in policies such as formalisation, regulation and technical support, which aim to maximise economic growth whilst minimising environmental costs. On the other hand, there is a set of policies implemented by both national governments and corporations designed to reduce ASM activity. They typically promote alternative sustainable livelihoods such as, rose gardening, palm oil production and bushmeat commercialisation (Tschakert, 2009). Following the sustainable development discourse, the promoted livelihoods reflect concerns regarding the environment, equity and provision of basic needs but they are designed to address these through integration with the global economy

Typically, sustainable development discussions problematise the environment at a global level. Deforestation is often portrayed in neo-Malthusian terms, and as a series of institutional, governmental and market failures. This characterisation of problems has contributed to the development of a 'global environmental management' (GEM) discourse (Dryzek, 1997; Adger *et al.* 2001). Examining ASM in Ghana, Tschakert and Singha (2007) demonstrate the operation of the GEM discourse when they employ the narrative structure developed by Adger *et al.* (2001). They show how illegal miners are cast as villains who recklessly pollute the environment, the large scale concession holders and local farmers who have been stripped of productive capacity are victims, while the environmental regulators and military that crack down on illicit activities are championed as heroes. In generic terms, 'heroes' are the aid bureaucrats, policy makers and scientist-managers who have identified the vicious cycle of poverty and are capable of designing and implementing *generic technocratic blueprint* solutions that can work the world over.

The crisis narrative around the problematised environment helps to perpetuate the focus on protected areas as a global blueprint for forest management. Similarly, the framing of ASM as a set of institutional, government and policy failures, leading in turn to generic formalisation policies and technical support (Hilson and Potter, 2003; Hilson, 2007) clearly exhibits the GEM discourse. For example, throughout donor projects in the mining sector, 4 key priorities are consistently replicated: strengthening the capacity to manage mining revenues by developing economic and sector policies, improving regulatory capacity to manage mining sector development, developing the capacity for management of state equity, and finally, project management (e.g. World Bank, 2008; World Bank 2009).

The proposed marketisation of forests further exemplifies the GEM discourse. As highlighted by the United Nations, forests 'need to be supported by a market context that enhances the economic values of forest resources and a price mechanism that promotes an adequate and remunerative return for the sustainable use of forest resources' (United Nations, 1997:6). Correspondingly, where

environmental conservation groups previously viewed business and marketisation as 'dirty concepts', they are now under the discourse of sustainable development, embracing partnerships with business and propounding the importance of economic valuation of ecosystems and their services (i.e. commodification) (Mert, 2009).

Against the background of the evolving sustainable development discourse, the United Nations Framework on Climate Change Convention (UNFCCC) agreed at the 11th Conference of Parties (COP 11) to explore a range of policy options and positive incentives for reducing deforestation, which culminated in the launch of Reducing Emissions from Deforestation and Degradation (REDD). With the process further encouraged at subsequent COP meetings, it is likely that REDD will be a central piece of any post-Kyoto agreement. It can be understood as a market mechanism that compensates developing countries for 'avoided deforestation' and is regarded as a cost-effective way of reducing global emissions and involves financial transfers to poorer countries. This potentially makes it a win-win policy, the type of solution envisioned by proponents of the sustainable development discourse. Additionally, the global reach and technical nature of REDD proposals reflects the 'institutionalisation' of the GEM discourse.

Elliot (1999) argues that neoliberalism pervades the solutions emanating from the dominant discourses. Essentially, neoliberalism combines modern versions of post-enlightenment ideals of rationality, democracy, and individual freedom with economic principles that favour an export economy organized entirely through markets, privatisation, trade liberalisation, and limited state budget deficits (Hartwick and Peet, 2003). Neoliberalism became spatially widespread and depoliticised through Structural Adjustment Packages (SAPs), which were implemented in crisis economies across Asia, Africa, and South America. They were designed to facilitate economic development, through embracing liberal markets and global competition. They became manifest in policies prescribing the downsizing of the state, austerity financing, public service reform,

marketisation, deregulation, voluntariness and an increased role of the private sector through privatisation and private-public partnerships (McCarthy and Prudham, 2004; Humphreys, 2009).

The sustainable development discourse and GEM seemingly have a common neoliberal ideological foundation. This is particularly apparent in contemporary forestry and ASM policies, including certification schemes such as Forest Stewardship Council (FSC) and Fair Trade gold. These schemes represent classically-neoliberal approaches to environmental management as they are entirely voluntary, are led by the private sector and are market based. The former runs a global forest certification scheme with two components, forest management and chain of custody. The certification allows consumers to identify and purchase timber and other forest products originating from well-managed forests. As well as being neoliberal in character, the essence of sustainable development is also found at the heart of the FSC scheme. It promotes the regeneration of forests, the protection of local livelihoods (win-win) and provides some 'assurance that future generations will be able to enjoy the benefits of the forests' (FSC, 2010:np). The latter aims to bring fair-mined and fair-trade gold to 'ethical' western markets which through certification promises 'greater access to rights by ASM, which will lead to better quality of life in their communities, safer and fairer working conditions, and significant reductions in the typical environmental impacts of ASM' (Alliance for Responsible Mining (ARM), 2010).

Fair Trade gold and the promotion of alternative livelihoods are components of a larger policy movement that has developed over the last 10-15 years. Corporate Social Responsibility (CSR) refers to the notion that businesses should pursue profit within the context of good local and global citizenship (Sadler and Lloyd, 2009). It might be considered unusual to label CSR as a 'policy', but in neoliberal terms, it represents a fully deregulated, voluntary and market based approach to solving environmental and social problems.

Cheshire (2010) outlines how the relationship between large-scale mines and local communities has taken on the characteristics of patronage, rather than partnership. The provision of community amenities by large-scale mining companies has increasingly blurred boundaries between state, market and civil society. This evolving relationship is of importance of ASM communities because their activities and policies to address them are intimately associated with the actions and policies of large-scale mining operations (e.g. Hilson and Yakovleva, 2007; Gifford *et al.*, 2010). For example, SAPs throughout the developing world promoted the interests of large-scale mineral operations above ASM. The giving of concessions to large-scale operations through SAP mining reforms has led to widespread protracted conflict (e.g. Botchie *et al.*, 2007). Consequently, ASM has been marginalised in policy. Therefore, whilst CSR might not be immediately apparent as a policy to address ASM, it is of vital importance in the contemporary approach to ASM management.

CSR is the central piece in multinational mining companies' attempts to balance legitimate concerns from local communities, the need to ensure environmental protection and the ever present need to please shareholders by generating profits (Jenkins and Yakovleva, 2006). Normally, it is manifest in the disclosure of information, often in the form of CSR or sustainability reports. A cursory glance at these reports shows how they are linguistically rooted in the language of dominant notions of sustainability. For example, all of South African-Headquartered AngloGold Ashanti's CSR activities fall under the label 'sustainability' (AngloGold Ashanti, 2010). Similarly, Rio Tinto place 'economic prosperity' at the heart of their approach to sustainability (Rio Tinto, 2009). Sadler and Lloyd (2009) corroborate this sentiment, arguing that it is not coincidental that CSR agenda has been led by those countries (USA and UK) that have been prominent in 'rolling-out' neoliberalism (Peck and Tickell, 2002).

A further example of the dominance of neoliberalism is the European Union's attempts to legislate against illegal logging. The Forest Law Enforcement Governance and Trade (FLEGT) initiative pursues bans of illegal timber imports on a *voluntary* bilateral basis because World Trade Organisation (WTO)

rules prohibit unilateral bans on imports. Humphreys (2009) explains that neoliberal tenets of the WTO weaken environmental legislation by exclusively allowing voluntary and non-binding agreements. The author acknowledges that although multilateral bans are permissible, they are unusual as environmental considerations are usually neglected in favour of legalising the rights, not responsibilities, of business, investors and transnational capital.

Evidently, environment and development discourses are reflected in policies across sectors in a consistent fashion. Table I summarises how the key features of the dominant discourses translates into policy. The influence of the dominant discourses is particularly evident in emerging policy approaches: REDD and FSC for forestry, and fair-trade gold and CSR in ASM.

Table I. Discourse features and their corresponding reflection in policy

Dominant Discourses	Key Discourse Features	Forest Policy examples	ASM Policy Examples
Sustainable Development	Win-win policies	REDD	Formalisation and Regulation
	Commodification/marketisation	REDD	Fair Trade gold
	Neoliberal elements	FSC	CSR
	Meeting basic needs, environmental concerns and equity	Protected Areas	Alternative Livelihoods
Global Environmental Management	Technocratic solutions	REDD	Technical Assistance
	Global blueprints	Protected Areas	Formalisation and Regulation
Neoliberalism	Marketisation/market based solutions	REDD	Fair Trade gold
	Deregulation and voluntarism	FSC	CSR
	Privatisation and public-private partnerships	Protected Areas	CSR

Parallels between GEM, neoliberalism and (the dominant version of) sustainable development are evident. These discourses overlap, are related, and taken together form a reasonable picture of the discourses dominating environment and development policy. The dominance of neoliberal ideology

supersedes nuances within other discourses which conflict with neoliberalism (such as an explicit concern for equity or the environment). This is evidenced by observing how the sustainable development discourse has moved towards neoliberalism and those aspects of the discourse that conflict with it are simply trumped by international law and policy.

Alternative discourses and their critique

In contrast to the dominant discourses, there are a series of alternative discourses which demonstrate that neither the discourses, nor the related policy outcomes, are universally accepted. These discourses effectively serve as critiques to the hegemony and they have their own policy prescriptions. Populist, criminalisation-marginalisation and infrapolitics discourses were identified as being key alternative voices and the basis of most policy critique. In general terms, their critique is based on the argument that policies fail due to misdiagnosis or poor understanding of local material realities. By examining these discourses and their policy prescriptions, an insight into the limitations of a purely poststructuralist political ecology can be gained, and the analysis can be used to suggest policy recommendations.

Adger *et al.* (2001) argue that a populist discourse runs counter to the GEM. It frames profligate Northern consumers, global capitalism and colonial powers as villains who undermine the livelihoods of local people, who are simultaneously victims and heroes. This view is supported by a wealth of empirical evidence. For example, Medina *et al.* (2009) show that NGOs working in the Amazon region employ a language which implies that locals are victims who are continually 'cheated' by villain loggers and simply need some technical support and organisational capacity building to manage the forests sustainably. This represents a simplification of reality as studies have shown the logger-local relationship is somewhat symbiotic (Brown and Ekoko, 2001). Researchers in this area have provided evidence of local agency and advocate for an increased role for communities in forest management on the basis that communities are capable of creating and enforcing effective rules (Medina *et al.* 2009, Hayes and Ostrom, 2005).

An extension of the populist discourse particularly relevant to ASM (and forestry) is the criminalisation and marginalisation discourse analysed by Tschakert and Singha (2007). The official discourses, propounded by governments, intergovernmental institutions and business, places sustainable development, partnerships, cooperation and poverty alleviation at the heart of policy. However, an alternative argument regarding the *practices* of these actors creates a discourse which shows how the 'targets' of policies are criminalised and marginalised. Criminalisation is defined by Kull (2002:928) as 'the negative redefinition of a resource management practice, such as fire [*or ASM*], in order to assert specific claims to resources'. The ASM sector and other forest livelihoods practices can be criminalised through the enclosure by the demarcation of land for large-scale mining leases or protected areas (Neumann, 1998; Andrew, 2003).

A combination of weak governance and institutions, under-funding, inadequate education, a lack of technical training and poor policies have contributed to the formation and maintenance of the dominant marginalisation and criminalisation discourse in the ASM sector (Tschakert and Singha, 2007). Hilson (2007; 2008a; 2009) shows that misdiagnosis of the sector has led to policy failures, ranging from inappropriate technological interventions, misled attempts at implementing fair trade and poorly designed and implemented attempts at formalisation. The author argues repeatedly that policy failures are rooted in assumed homogeneity in ASM communities.

Several studies have articulated the variety of socio-political arrangements in ASM communities. For example, Levin (2006) describes the variety of actors and relationships involved with artisanal diamond mining in the Kono district of Sierra Leone. These actors include: diggers, washers, divers, mine managers, license holders and supporters.^{iv} The relationships between these actors vary between different mines. With regards to financial support and marketing, Levin found that in some mines the supporter is also the main diamond buyer, but in others these roles are separate.

Similarly, mine managers can be found on a continuum from illegal to legal, some are personally unregulated but work under an official licence, a situation with uncertain legal status.

Werthmann (2009) examines a component of the ASM dynamic which is often neglected: the role of women. ASM camps are often characterised as male dominated, however, Werthmann (2009) demonstrates that women involved with mining in Burkino Faso undertake a variety of jobs in ASM camps. They can be miners, ore washers, involved with processing or pit owners, as well as jobs such as waitressing or petty trading. Women engage in mining activities with a degree of ambivalence. They understand that mining offers them employment opportunities, but at the risk of losing their reputation, especially if they begin a relationship with a male miner. The overlooking of women and their perspective by policies rooted in globalised discourses inevitably leads to their marginalisation. Werthmann (2009) argues that women in ASM should not be victimised, pointing out that whilst women are vulnerable to circumstances beyond their control, even uneducated women can make rational decisions regarding whether they are better off involved in mining or elsewhere. Policy should not victimise women in mining, but pay greater attention to their perspective and their suggestions for improvement.

Hilson (2009) proposes that a better understanding of the sector would lead to attempts at formalisation that are sensitive to factors which currently inhibit policy success. In the case of alternative livelihoods Tschakert (2009) shows policy failure is partly due to the miners' preferences for occupations such as taxi driving, poultry farming or carpentry. Additionally, Hilson and Banchirigah (2009) highlight the relevance of the deagrarianisation debate when they examine the alternative livelihoods programme explored through national policy and CSR in Ghana. They contextualise the growth of ASM in the phenomena of widespread livelihood diversification throughout sub-Saharan Africa in response to the failure of smallholder agriculture (see Bryceson, 1996; Bryceson and Jønsson 2010; Banchirigah and Hilson, 2010). In response to seasonality, credit market idiosyncrasies, fluctuating global markets, *inter alia*, individuals are often involved in several

livelihood strategies simultaneously. Machonachie and Binns (2007:372) describe this as a 'dove-tailing' of agriculture and ASM. Understanding the Ghanaian rural economy from this nuanced perspective further clarifies why alternative livelihood strategies that neglect ASM in favour of agricultural production of goods (often for the global market) are often unsuccessful.

Tschakert and Singha (2007) show that criminalisation and marginalisation perpetuates itself by inhibiting local actors from accessing official support. For example, in the case of ASM, operators who work illegally cannot access information and training regarding improved use of mercury, a toxic additive used to amalgamate gold. They go on to argue that marginalisation and criminalisation leads to the ostracising of mining communities, which, in turn, undermines their agency for self-determination and participation in creating solutions.

Identification of this discourse results in a call for policies to be more receptive to spatial heterogeneities and ASM dynamics. Duffy (2007) highlights an important element of ASM dynamics when she analyses the shadow economy of gemstone mining in Madagascar. The shadow economy refers to illicit transnational networks which link local mining to global markets. These clandestine criminal networks, surrounding mining towns such as Ilakaka, have used symbolic or actual violence to control the local gem economy. Consequently, miners often receive low prices for their gems, and anyone offering miners better money would face considerable personal danger. The inter-relationships between global markets and local realities are mediated by an illegal network which has confounded all attempts to implement 'good governance'. According to Duffy (2007), dualisms such as local-global or legal-illegal do not adequately capture the complexity and variable impacts of globalisation. Neglecting to consider such complexity has led to paradoxical withdrawal of the state from ASM in Madagascar; without state intervention, the benefits of ASM are unlikely to reach the miners or their communities (Cartier, 2009).

Comparing geographies between areas and countries further reveals how different contexts face different challenges. Roopnarine (2006) argues that in Guyana the geographic remoteness of ASM communities presents a particular challenge. Under-staffed, under-educated and under-funded regions within Guyana mean that any ASM policies will only succeed in a broader context of commitment to the interior.

While criminalisation and marginalisation of local communities may undermine their participatory capacity, the conception of political activity should not be confined to those activities that are openly declared. This would render grassroots actors devoid of agency and political life. Such a view misses the immense political terrain that lies between quiescence and revolt (Scott, 1997). Liberal Western democracies have lower risks associated with open and public displays of political action. It is therefore easy to overlook the 'hidden transcript' or 'offstage discourse' that forms the material and strategic resistance of subordinate groups in many societies across the globe.

Scott (1997) labels the resistance of subordinate groups 'infrapolitics', which can be overt or covert, legal or criminal, attention-grabbing or quiet and incremental. In material terms, this resistance often manifests as theft, trespassing and illegal gleaning. Such resistance is sparked by 'threatened livelihoods, a sense of moral injustice or political disagreement' (Kull, 2002:940). The ideological dissonance behind much infrapolitics concerns systems of property rights. Hilson and Yakovleva (2007) illustrate this using a case of conflict between small-scale and large-scale mine operators in Ghana. The former believe they have the right to mine as they are given permission from the chief, whilst the latter assume that the rights to the land is theirs, since they have been given legal concession by the Ghanaian Government. Each group views the other as trespassing thieves.

Discussion and Conclusion

Debates on discourses and poststructuralism revolve around the relative power of discourses. By examining alternative discourses, it is possible to evaluate the utility of poststructural political

ecology and to develop understanding of policy drivers and formulate new policy. The alternative discourses demonstrate the dissatisfaction with existing policy prescriptions. However, the power of these discourses to challenge the hegemony is questionable. This is revealed in the policies which they prescribe. Mainstream policies such as alternative livelihoods, fair trade, certification schemes, formalisation and regulation and community development are still advocated by alternative discourses, although with suggested improvements. The alternative discourses only result in *marginal* changes to policy. This conclusion is outlined in more generic terms by Escobar (1996) who argues that the widespread use of the sustainable development discourse has left environmentalists and other less powerful groups struggling to promote their own versions of sustainable development. By engaging with the sustainable development discourse, NGOs and other less powerful groups frame the debate within the broader development discourse, inhibiting conceptions of alternative versions of reality and challenges to the status quo. The preceding discussion suggests that the restrictive and homogeneous realities, created by the dominant discourses, have led to a repetitive approach to policy making, where plan B is to do plan A better. This sense is compounded by alternatives that do not change the conceptions of reality, but reinforce the necessity for voluntary, market-based, economically centred policies. Accepting this cedes ground to the Foucauldian poststructural school, which contends that hegemonic discourses are effectively impenetrable.

This has implications for approaches to policy formulation and implementation. Escobar's (1996) call for a re-imagination of reality, which could be a robust exposition of local discourses, must be balanced by an acknowledgement that anything too radical will not be accepted in powerful circles, let alone be legitimised sufficiently to become institutionalised. It is possible to argue that a call for a 're-imagination of reality' is futile, and that marginal changes to policy are likely, in the long term, to be a more effective agent of change. Therefore, this paper submits that if policy is to be improved, then acknowledging the limits of and refining understanding of the balance of power could lead to

better management of those imbalances, both in terms of re-imagining reality and promoting marginal improvements to policy.

A critique of the alternative discourses reveals that global level discourses lead to homogeneous policy approaches, which contrast with heterogeneity of local contexts. The heterogeneity of local contexts are not restricted to differences between locations, within communities exists a variety of voices, some of which subscribe to neoliberal principles. For example, Berry (2009:1375) describes how some chiefs in the Asante region of Ghana have become aware of the political advantages in building a reputation as a 'progressive' leader. In some cases, this has led to chiefs responding 'directly to internationally backed efforts to privatize state assets and services or recruit foreign investors'. Berry's (2009) argument that privatisation under customary land tenure regimes threatens to increase inequality within communities and could encourage land claims based on origin and indigeneity highlights the recognition that local communities are not immune from the pervasive influence of power relations and the detrimental effect of narcissistic ambition. Brown and Purcell (2005) warn against the tendency for political ecology to assume a priori that local solutions are superior to those conceived at a different scale, a phenomena they call the local-trap.

Policies must therefore progress towards more sensitive interpretations of local situations and move away from blueprint implementation to a more synergistic approach to policy. For example, in the field of ASM, Jacques *et al.* (2006) show that in contrast to popular notions of anarchism, mining communities in Burkino Faso actually have well defined structures and high levels of organisation. Formalisation of ASM that takes account of how the sector is organised in specific contexts could lead to more successful regulation. More generally, it is increasingly advocated that a new approach to regulation and formalisation should incorporate existing practices of ASM communities (see Hentschel *et al.*, 2002). This, if it was achieved, would represent a significant change in policy approach and go some way to redressing the dominant perception regarding the balance of power.

It is clear that a body of empirical fieldwork is required to further understand and articulate material recognition of reality. The case studies presented above demonstrate that research on ASM has successfully highlighted the heterogeneity of ASM across the globe, and has exposed the inadequacy of policies based on hegemonic environmental management discourses at addressing complexity. In addition to research on the dynamics of ASM and related policies, much of the research into ASM has thus far been dominated by work on technical improvements, the impacts of mercury use and its management (e.g. Veiga et al., 2006; Swain et al., 2007; Jönsson et al., 2009). This body of research would benefit not only from a broadening of case studies, but also from research into the formation and operationalisation of policy discourses in the field of ASM, addressing specifically: why the evidence of heterogeneous local contexts and relative economic importance are not recognised in policy.

Motivation and funding for work examining this evidence-policy gap could be raised by developing a 'discourse of diversity'. Research and subsequent policy initiatives in this area should also be coordinated. The current overarching vision, seen by many to be guiding interventions, is neoliberalism. This makes apparent an under-theorised area of development research - the normative basis for development work. In discussing the normative notions of justice in REDD, Okereke and Dooley (2010) demonstrate that the utilitarian basis of neoliberalism is likely to be the guiding normative basis for any schemes. The dominant discourses claim authority not only in policy circles, but also in the realm of ethics. The clash of normative values underlies much of the contention over land use systems, with neoliberal utilitarianism propounding the virtue of private property and more egalitarian and communitarian societies struggling to adopt and accept the seeming inhibitions of private property. There is insufficient space to consider this aspect more fully here, but it is an area that requires further attention given its fundamental and systemic impact on approaches to the human-nature dialectic.

Everett (1997) argues that poststructural approaches neglect the agency of individuals and institutions. Whilst this argument is powerful, it is insufficient to warrant the abandonment of poststructuralism. Alternative discourses can also undermine agency, particularly those which examine marginalisation. A further criticism of political ecology is that some authors appear to assume *a priori* what is, and what is not, important, and that inconsistencies, mixed metaphors and duplicate interpretations result from the multi-disciplinary approach (Vayda and Walters, 1999; Blaikie, 2008). With regard to discourse analysis, Adger *et al.* (2001) assert that the stylised and simplified notion of GEM versus populist discourses merely highlights the discrepancy between complex and heterogeneous local contexts and the attempts of these discourses at legibility, simplification and standardisation.

Poststructural political ecology lacks a robust mechanism by which researchers can move from insights from discourse analysis to policy recommendations. To not make recommendations risks indictments of policy irrelevance and to make recommendations invites accusations of mere conjecture. This is an issue that is not easily addressed.

These legitimate concerns must be placed within the context of trying to balance an integration of disciplines with a methodology which has enough consistency and coherence that it advances a more nuanced and holistic understanding of human-nature relationships. This paper has clearly used mixed methods of discourse analysis and therefore the conclusions should be treated with caution. However, poststructural political ecology should not be dismissed because, despite its shortcomings, it can contribute to understanding of environment-development problems.

The cross-sectoral approach used in this study is valuable. This provides an increased insight into the vagaries of discourse institutionalisation in different sectors and on different scales. For example, in policy areas such as fair trade gold and FSC, the institutionalisation of the dominant discourses is apparent. However, there are significant differences across sectors. For example, the CSR agenda

has had a much greater impact on large scale mining companies compared to logging companies. Adger *et al.* (2001) support this argument, showing how simplified discourse models are inadequate at explaining the distinct dynamics and alternative manifestations of local-scale environment management. This highlights a limitation of discourse and poststructural approaches: they cannot explain these important differences. The heterogeneity between sectors highlights immediately the inadequacy of such approaches and shows the need for institutional insights, historical materialism and a greater scalar sensitivity. With such approaches, a fuller understanding of the relationships of power can be developed. However, poststructural discourse analysis can be considered useful. It corroborates, from a different perspective, a growing body of literature from a range of disciplines arguing that policy should recognise local material contexts in a more iterative and reflexive fashion.

Motivated by concern regarding the apparent lack ability to successfully manage ASM and forests in developing countries, this paper has examined the issue from the perspective of a broadly poststructural political ecology. Taken together, the discourses of sustainable development, global environmental management and their underlying ideology, neoliberalism, present a reasonable picture of the hegemonic discourses that dominate environment-development discussion. These discourses are consistently reflected in global policies designed to improve ASM and forest management. Whilst there are clear nuances in their interpretation and manifestation, they can be seen to have a clear and consistent impact on the policy arena, particularly in emerging policy approaches such as FSC and CSR.

Alternative discourses demonstrate that the hegemony is not unchallenged. However, the policy advocacy of the alternative discourses can be seen to broadly conform to the dominant agenda in so far as they only propound marginal changes to policy formation and implementation. It could be argued that such work limits the scope for more radical scholarship that would allow for a re-imagining of reality and a new set of policies. However, radically different conceptions of reality and related policies are unlikely to penetrate the hegemony and be institutionalised.

It has been argued that poststructural political ecology is of little use or policy relevance. Whilst this is recognised as a legitimate concern, the essence of poststructural work is that it demonstrates the way in which power and its associated discourses limit the scope of what is considered policy relevant. By pandering to the requirements of 'policy relevance', academic bodies risk becoming puppets to the powerful. Therefore, scholars must balance the need for research to be constructive and productive whilst not losing, albeit unintentionally, the fight for objectivity.

The perspective of a poststructural political ecology revealed the disparity between homogeneous international policy approaches and heterogeneous local contexts. Policy formation and implementation relevant to ASM in forested areas, therefore, should become increasingly sensitive to the heterogeneity of local material contexts, synergistic between actors at different spatial scales and incorporate a greater degree of integration between policy fields.

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ⁱ The terms 'artisanal' and 'small-scale' mining are used synonymously to refer to mining by individuals, families, small groups or co-operatives working with little or no mechanisation to excavate and process minerals (Hentschel *et al.*, 2002).

ⁱⁱ The predominant philosophical basis of contemporary political ecology is known as critical realism, it is a model of nature that is neither independent of social and power relations, nor a mere illusion produced through discourse view (see Neumann, 2005).

ⁱⁱⁱ Discourses are understood as analogous to the operation of power - that is, struggles over discourses are essentially struggles over power (Humphreys, 2009). There are numerous approaches to discourse analysis (e.g. Foucault, 1994; Van Dijk, 2001; Arts and Leroy, 2006), which Gee (1999) deems as necessary given that no single approach can claim general veracity.

^{iv} Providers of financial support to licence holders and mine managers.