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**COMMUNAL APPROACHES TO NATURAL  
RESOURCE MANAGEMENT IN AFRICA:  
FROM WHENCE AND TO WHERE?**

**By**

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**I. INTRODUCTION**

I have chosen the topic of communal approaches to natural management as the subject of this address for three reasons. Firstly it is a topic which receives attention in several presentations prepared for this symposium. Secondly, having grown in the last two decades from a relatively untested conceptual stance to the status of conventional wisdom in much development discourse, communal approaches are under attack, both from donor agencies impatient with the lack of evidence of immediate and positive results and from scholarship in the narrative-counter-narrative mode. The topic is thus likely to be prominent in academic and development discourse in the next few years. Finally, my choice has been dictated by the broader significance of the topic for the evolution of governance in Africa. What is happening in communal approaches to natural resource management provides in large measure a surrogate picture of elements of this evolution, and until we grasp this our analysis will be blinkered by a focus on element, to the exclusion of essence.

## **II COMMUNAL APPROACHES TO NATURAL RESOURCE MANAGEMENT: FROM WHENCE?**

To examine the assertion just made we need to explore what we mean by "communal approaches to natural resource management" and how the various meanings we hold have arisen. Conceptual conflation and acronymic profusion are among the major liabilities of policies and programmes that evoke the label of "communal approaches." Thus we have, for instance, Community Based Conservation (CBC), Community Conservation (CC), Integrated Conservation and Development Projects (ICDPs), Community Wildlife Management (CWM), Community Based Natural Resource Management (CBNRM), Co-Management (CM) and Adaptive Co-Management (ACM), all perceived as falling within a general family of related perspectives but each exhibiting differences of intent, emphasis and substance.

To bring some order to this acronymic alphabet soup and sharpen our understanding of what we mean by "communal approaches" I suggest that we first look at their history, with special attention to their objectives and politico-economic context. The exercise should reveal some of the major fault lines which have emerged in such approaches to date and indicate where they should be going in the future.

We can begin with the definition of Adams and Hulme given to "community conservation," which they call "those principles and practices that argue that conservation goals should be pursued by strategies that emphasize the role of local residents in decision-making about natural resources" (Adams and Hulme 2001:13). At the generic level this is a good start, indicating the fundamental component of a shift in the locus of decision-making from centre to periphery. But it tells us nothing about who "local people" are, and it privileges "conservation" without elaboration on what this means. This focus on conservation is characteristic of most projects which sail under the banner of communal approaches and reflects the provenance of these projects, almost all of which have been initiated and supported by the environmental community of scholars, NGOs, donors and agencies. The acronyms cited give us a second clue as to provenance: communal approaches are largely grounded in the international project mode, in which acronyms have become a lexical imperative. The project mode is generally short-term, time-bound and reductionist, assuming that the

end can be defined and provided for at the beginning (cf. Kaplan 1999:6). This raises a question to which this address will return: "Can a project for conservation, externally defined and executed in a project mode, be married to a communal approach?"

## **Objectives**

### *Conservation*

Turning to objectives, three types are apparent in the history of communal approaches. The first is the enhancement of conservation, reflective of the provenance just discussed. Here the rationale has been largely instrumental and pragmatic: government environmental agencies in Africa do not have the resources to fulfill their managerial mandates and need to incorporate the services of the broader rural populace; national park and forestry estates are inadequate to meet the needs of biodiversity and need to be complemented by far larger landscapes managed for conservation; rural farmers, in-place and beyond the effective control of government, are the real arbiters of environmental destiny and should be given the conservation role that this position dictates.

These arguments make sense, and in spite of analyses to the contrary<sup>1</sup> the ecological record of the more robust forms of communal approaches, certainly in Southern Africa, is notably positive.<sup>2</sup> They make sense, however, only when certain conditions apply:

- When "the communal" is given form and substance in specified regimes of land and resource management.
- When communal approaches and state management are understood as complementary rather than mutually exclusive alternatives.
- When communal regimes are integrated into national systems of conservation planning and implementation.

### *Rural Development*

A second objective has come to the fore in communal approaches, which can generally be subsumed under the term rural development. Poverty alleviation, livelihood enhancement and economic development (all issues which attract

contemporary donor funding) are components of this objective. Linking this to conservation objectives, one argument used is that the costs of conservation (both direct and opportunity costs) must be matched or exceeded by economic benefits before subsistence farmers will be motivated to make conservation investments in the future. Another argument is that natural resources constitute a valuable economic asset for rural peoples which is generally underexploited. This asset could be an important fulcrum for rural economic development if its true economic values are realized through commoditization and captured by its rural producers.

Zimbabwe's CAMPFIRE Programme is a prime example of a communal approach with this objective being paramount. Its pre-history is particularly relevant since it constitutes one of the most well-documented and convincing verifications of the arguments mentioned above as applied to land and resources under private tenure.<sup>3</sup> Policy shifts incorporating these arguments cumulated in the 1975 Parks and Wild Life Act which had the effect of making farms and ranches into proprietary wildlife units, combining ownership, management, cost and benefit. The results were dramatic. In the next 15 years wildlife populations increased, degraded ranch land took on new ecological health and a flourishing wildlife industry had developed, particularly as the economic value of wildlife was increased by factors of between 5 and 10 through commoditization in the safari hunting and game viewing modes.

CAMPFIRE was initiated to transfer this success on private land to farmers living under communal tenure conditions. In the process of gaining official acceptance a serious flaw in this transference emerged. The necessary amendments to the Act stipulated that the authority status granted to private landholders would be conferred only to the rural district council level, not to the communal entities, the "producer communities," which were analogous to the farms and ranches which had provided the model of success. In this attenuated devolution the direct links between production and benefit, between authority and responsibility, were broken. This has been the most important factor leading to CAMPFIRE's mixed record, with its all-to-few examples of success being those of local regimes which through a combination of aggressive assertion and shrewd negotiation have attained a measure of *de facto* devolved authority.

Paradoxically CAMPFIRE's emphasis on realizing true market values for natural resources has had the unintended effect of inhibiting devolution. If these values are realized, the hegemonic interests of the state to retain their benefits are reinforced, and it is less disposed to surrender them. This is illustrated in the Programme's history where devolution to rural district councils has led to significant increases in council revenues and where in some cases wildlife is now the main source of council revenues (Bond, 2001). This is of great value to central government, which is relieved of the necessity of providing administrative and development subsidies to such councils. Neither councils nor government are thus inclined to loosen their grip on these benefits and the power they represent by further devolution to producer communities. "In such cases", Murombedzi notes, "the top-down preferences of central governments on communities have merely been replaced by the top-down preferences of local governments on communities" (Murombedzi, 2001, p255). In effect, in Zimbabwe's programme devolution has been emasculated to mean decentralization.

This CAMPFIRE example demonstrates how prioritizing economic development in communal approaches through commoditization may have ambiguous outcomes. It may indeed raise levels of appreciation for the importance of natural resources, and where values are delivered at producer levels can constitute a powerful incentive for local collective entrepreneurship and innovation. But it can also open the door wider for elite appropriation of benefit and drive socio-economic differentiation, in both national and local contexts.

There is a final observation which we can draw from the CAMPFIRE example to show how an exclusive pre-occupation with economic benefit can be problematic for communal approaches. CAMPFIRE has largely proceeded on the assumption of the presence at local levels of natural resources of sufficient economic value to make them a competitive form of land use. The fact of the matter is that such resources are not evenly distributed, and in many localities resource/demand ratios are such that the presence of these species can only be of subjective or ecological value. In such contexts communal approaches promising the delivery of direct economic value are doomed to fail; their configuration of benefit must be based on other values.

### *Institutional Development*

The third in the trio of objectives put forward for communal perspectives is rural institutional and organizational development. Two types of argument for this objective are in evidence, the first being an instrumental input to the other objectives of conservation and economic development. If "the communal" is to contribute to these objectives, so the argument runs, it must be organized and trained to do so. So apparently self-evident is this argument, and being as it is so closely aligned to conventional paradigms of project development, that this objective is generally accepted as a means to these other aims. Most of the problems related to the achievement of this objective as stated in this form have stemmed from the search for institutional cohesion at communal levels. One assumption in communal approaches has been that in certain circumstances collectives of land and resource users interacting at local levels can create viable regimes of communal property use and management maintained by relatively stable normative consensus. In other words, in certain circumstances collective good can institutionally supercede individual or sectional instrumentality.

Recent scholarship has pointed out major deficiencies in any simplistic programmatic application of this assumption. It isolates the local from larger societal structures; it assumes local homogeneity in the face of manifest differentiation; it is ahistorical; it ignores power relationships; and it tends to be overly deterministic. In the light of these critiques a social constructionist stance is adopted.<sup>4</sup> In essence, this stance regards institutions as being highly dynamic and flexible, subject to constant manipulation by individuals or interest groups for their own instrumental purposes. Normative positions are subject to continuous reconstruction stemming from the socio-political location of the wide spectrum of social actors concerned, and this in turn affects behaviours and outcomes.

In their second-generation phase communal approaches must take on board these insights. They do not invalidate the basic assumption that communal regimes of resource management can be viable, but they serve to warn against naïve assumptions of local homogeneity and discreteness. They also serve to dispel any notion that the creation of viable and effective localized regimes is simply a matter of good extension work and training in organization and fiscal management. They tip interventions

away from formulaic and determinative approaches to a more systemic and process-oriented mode. And finally they place the locus for institutional development firmly in the province of local collectivities themselves; it is they who have the prerogative and power to seek centripetal consensus to counter the centrifugal tendencies of sectional interest.

This leads us to the second set of arguments for placing institutional development at the heart of communal approaches, which is far more radical but also far more powerful. The argument begins (from analysis in the development discourse) with the suggestion that development cannot be subsumed to economic values. If there is a concern about poverty it should consider the most insidious but most fundamental form of poverty, the lack of choice. Development is about increasing, not decreasing, choice. It is about "enabling people to become more conscious, to understand themselves and their context such that they are better able to take control of their own future." (Kaplan 1999:18). As Kaplan puts it, "The whole point of development is to enable people to participate in the governance of their own lives. If this is not seen then the entire development endeavour becomes a farce." (Kaplan 1999:19).

The argument continues with the suggestion (from the systems analysis discourse) that conservation cannot be properly understood in terms of fixed, predictable states; it is better perceived of as resilience in a complex, evolving biophysical-cum-social system comprised of structures which interact across scales of place and time and which move through adaptive cycles of growth, accumulation, restructuring and renewal.<sup>5</sup> Resilience is characterized by the capacity of the system (and its sub-systems) to absorb disturbance and evolve in response to change. In this formulation social institutions, being anthropogenic and responsive to purposive interventions for human well being, are critically central. This being so there is a strong case for institutional development, in the evolutionary mode, to be given priority in the objectives of communal approaches.

To do so would not be to ignore the other objectives we have discussed. Conservation, economic development and adaptive institutional capacity are congruent objectives and can interact synergistically. The problems of their conflation arise from our means-end sequencing in their juxtaposition. To date most



communal approaches have taken conservation, in its conventional meaning, to be the end to which they are directed, and to which economic and institutional development may serve as means. If however conservation is taken to mean systemic resilience in longer cycles of change then there is a strong case for making adaptive institutional capacity the central objective of communal approaches, providing the foundation on which ecological and economic concerns can effectively be addressed.

### **Communal Approaches and the Evolution of Governance**

It can also be the foundation for other developments, and this brings me back to my remark on the importance of communal approaches for the evolution of governance in Africa. Communal approaches address the arena of governance and civil organization requiring the collective management of common pool resources below those of the large-scale bureaucratic units which governments have created at sub-national levels. Institutionally this is a huge void, applying to large parts of the African landscape. Governments have not effectively penetrated downward into this landscape with their bureaucratic structures, their incursions into it being proscriptive, unenforceable and frequently appropriative. Given this vacuum in effective bureaucratic institutionalism, rural populations have had to rely on management forms which derive in large part from their pre-colonial heritage of communalism, in which order is induced by "affective"<sup>6</sup> modes of personal relationship which emphasize ascriptive roles, peer pressure and collective control. Battered by state attempts to strip it of its foundations or co-opt it for centrist interest, this form of communal governance has retained a remarkable vitality. Where it has succumbed, local environmental governance has lapsed into a condition of open access anarchy.

Communal approaches need to recognize the salience of this institutional heritage, incorporating into it capacities to deal with a modern African world with its changes wrought by commoditization, rural market penetration, socioeconomic differentiation and globalization. This is no "prelapsarian dream" but rather an attempt to deal with contemporary realities and satisfy the requirements of the institutional arena which I have described.

The importance of this arena is however not solely confined to the needs of natural resource management. It is also a critical locus for dynamics which will determine the future of democracy in Africa at larger and more inclusive scales. Currently discourse on this future tends to focus on representative democracy, achieved through successive multi-party elections. This, says Ake, trivializes democracy: "If Africa settles for democratization as multi-party electoral competition, as it is in danger of doing, then there will be no democracy despite elections, because elections will be a choice between oppressors. A state constituted as an autocracy will be undemocratic no matter who is running it". (Ake 2000:160).

Ake suggests that the path to the transformation of the autocratic state lies in devolution, the incorporation of the citizenry in a continuous process of governance which links the economic and the political through self-actualization. What ordinary people want, he says, is "not abstract political rights but economic rights, they want social upliftment and empowerment to fend for themselves, defend their interest and be fully part of the enterprise of forging the collective destiny." (Ake 2000: 184).

Devolution and democratization are thus inextricably linked. This raises the stakes for communal approaches but also underlines the opposition they face. Ake notes that devolution for democracy entails "a radical redistribution of power and resources away from the small elite which currently monopolizes them to the masses. Unfortunately, those who have the power to effect the changes which democratization requires have a strong interest in resisting these changes, and those who have an objective interest in the changes do not have the power resources to effect them. Power and desirable change are pulling in diametrically opposite directions." (Ake 2000:190). This intractability is one of the main reasons why many experiments in communal approaches have failed or underperformed. They have been launched without the essential devolutionary component, and without this their success has inevitably been inhibited.

### III COMMUNAL APPROACHES TO NATURAL RESOURCE MANAGEMENT: TO WHERE?

Having made this brief and selective survey of the origins, objectives and limitations of communal approaches to natural resource management I am positioned to give my vision of where these approaches should now be going. I do not have time - nor you the patience - for this to be done by presenting a long check list of prescriptions. Instead I will profile this vision in terms of five essential characteristics which I believe this direction should possess.

#### 1. *Institutional Resilience*

Communal approaches should be infused with the appreciation that institutional resilience is the pivotal variable determining their success or failure. Without this communal approaches which emphasize conservation or economic development are missing an essential element and are unlikely to be sustained. This is not to say that, in context, projects which prioritize these objectives should not be initiated, but their long-term sustainability is dependent on an institutional location which is durable and adaptive.

In the rural African landscape such locations are dispersed in localized sites where the necessary social capital provides for the emergence of natural resource regimes with consensual legitimacy. Such emergence demands however devolution of power from the centre to the periphery, a transformation where "power and desirable change are pulling in diametrically opposite directions."

This plunges communal approaches directly into the political arena. Eight years ago I gave an address to a symposium on these approaches in which I commented that "the khakhi shorts ecology brigade has led us into a largely unrecognized struggle over property rights in rural Africa" (Murphree 1995, p.49). The implications are profound, and will make the difference between rural democratic representation and the continuation of perpetual minority status for the communal peoples of Southern Africa in national structures of governance.

The outcome of this struggle will be determined by a number of factors, and I am not suggesting that communal approaches to natural resource management should become solely political enterprises. What they cannot forget however is the essentially political dimension which they involve. They must be politically aware, become more politically astute, and when appropriate become more politically facilitative in the search for institutional resilience.

## 2. *Selective Application*

Advocacy for communal approaches has never in its more rigorous forms put them forward as a panacea for the problems of environmental governance. The question thus arises, "If communal approaches are not panacea, under what circumstances should they be applied?" This is a critical question, again involving variables and alternatives which I cannot adequately discuss here. There is however an overarching analytic stance which gives us the key to finding the answers. Briefly put, this key can be expressed in the prescription: "Match regimes to the commonage."

Commonages are determined on the basis of two sets of criteria. The first set involves ecological and managerial criteria.<sup>7</sup> On these criteria several commonages emerge, some for resources which are static and local, others for mobile resources which are sub-national or national and others which are international. Some are truly global, the atmosphere being an example.

The second set of criteria are social: commonages are what societies determine them to be. The state may claim the prerogative of this determination when, for instance, it declares wildlife to be in "the public domain" by legislative fiat. This confers legality on the commonage concerned, but may not equate to the legitimacy conferred by social consensus. Indeed we cannot assume that "the public domain" can be treated as a relatively undifferentiated whole. As we have already noted, ecological criteria suggest a wide variety of commonages with different management requirements, only some of which are of scale falling under the general public domain. To this we must add the general, indeed ubiquitous, institutional tendency towards stakeholder differentiation - the association of specific places and resources with units of proprietorship whose constituents are the primary stakeholders. Frequently these units are referred to as "communities" or "the local", although both of these terms

have their definitional ambiguities. More important than the terms are the factors which may create this differentiation: common history, ethnic and kinship ties, residence or propinquity, dependence on and investment in the resource base and direct cause-and effect linkages between action and response. However these factors combine (and we must recognize that they combine dynamically) the result is a sense of collective proprietorship over a defined commonage, which is distinct from the larger "public domain."

This social mapping provides the seed-bed from which a varied and dispersed institutional landscape has emerged. On the basis of consensual legitimacy there are in fact multiple commonages. Some of these, given the importance and nature of the resources involved, are indeed national or sub-national in scale.<sup>8</sup> For these the state or one of its sub-units may well be the appropriate proprietor. But most of these commonages are far more restricted in social and ecological scale. While their boundaries and constituencies are frequently the subject of dispute their legitimacy as proprietorial units is usually high. This is the proper realm of communal approaches, and in determining where they are applicable aligning institutional and ecological landscapes should be a paramount consideration.

### 3. *Systemic Integration*

A third characteristic that I would like to see in the future course of communal approaches is greater emphasis on systemic integration. Communal approaches, as I have already argued, require the devolution of power to dispersed regimes of authority and responsibility. They are thus strategies to "scale out" natural resource governance, but if they stop at this point they may result in fragmented and discontinuous ecosystem management. Dispersed regimes need coordination and collaboration which manages diversity, controls conflict and exploits potential synergies. To promote this coordination what is needed is a system of institutional linkages between such regimes and other (state or private) regimes, based on the principle of reciprocity. In this way "scaling out" is matched by "scaling up."

Such systems should be hierarchically layered to correspond to scale requirements, the higher layers having delegated functions and being accountable to their constituent regimes. And they stand in sharp contrast to many, if not most, of the

attempts to promote improved environmental management at landscape levels. These initiatives have included outreach and education campaigns, resource and revenue sharing, and limited participation through consultation on points of conflict. Admittedly these approaches have advantages. They can relatively easily be tailored to meet state protected area management objectives and can be implemented in relatively short time frames. But they are a flawed vehicle for creating enduring institutional linkages and their legitimacy quotient is low. Linkages built on reciprocity take much longer to develop. This pathway is therefore a longer and more difficult one, but is also one which holds out the key for strong institutional systems which link ecological and social imperatives.

#### 4. *Adaptive Contextual Disaggregation*

A fourth characteristic is disaggregation, not by acronymic distinction but by a far more substantive disaggregation which matches incentive to context. We have spent considerable time discussing what communal approaches mean: are they primarily conservation, economic, or institutional development programmes? These questions are important at a generic and conceptual level but at the on-the-ground implementational level these objectives merge, their relative salience being determined by local context.

It has already been pointed out how communal approaches which emphasize economic benefit depend critically on resource-demand ratios. These vary significantly across the African landscape. Economically oriented approaches can work well in certain conditions. In others they are based on false premises and lead to disillusionment. Thus I am uncomfortable with current attempts to sell communal approaches as the answer to poverty alleviation, which comes close to a new version of suggesting that they are the panacea for rural poverty. This is dangerous, ignoring both local contexts and the contexts of national macro-economic systems. In conditions where human pressures on a degrading resource base are high communal approaches are better directed towards sustainable agroecological productivity and the diversification of livelihood alternatives.<sup>9</sup>

Effective incentives for viable communal approaches also vary over time, as changes in demography, markets and culture shift the profile of motivational support. In Namibia, for instance, the prototype of its Conservancy Programme was successfully initiated in Kunene on a conservation basis, drawing on the interests of traditional leaders for a restoration of wildlife populations without any promise of economic benefit. Today a younger generation of leadership prioritizes household income and job creation as the rationale for the Programme (Jones and Murphree 2004).

Linking emphases in incentive with context is thus an adaptive exercise. Communal approaches need to disaggregate their endeavours to accommodate the variation involved, not as an operation in abstract typology but rather to avoid misplaced emphases and enhance their responsiveness to change.

##### 5. *Interdependent Reciprocity in Learning*

The last characteristic that I look for in the future of communal approaches is interdependent reciprocity in learning. Here I am talking about the relationship between communal actors on the one hand and the community of scholars, practitioners, donors and policy makers on the other. With some notable exceptions<sup>10</sup> and considerable rhetoric to the contrary, this epistemic community continues to be dominated by a scientific-cum-bureaucratic paradigm which is deterministic, reductionist and impositional. Applied to communal approaches this paradigm translates into the following assumptions and attributes: designs emanate from external agents whose knowledge and norms are transcendent; designs can be engineered to produce predictable outcomes; designs are implemented through a time and resource-bound project mode; projects are produced by external agents on behalf of third parties, the communal actors who are its dependent subjects.

What I have previously said about the emergence of resilient local institutions turns much of this on its head. Such institutions are not designed, they emerge when enabling conditions are present. In this emergence communal actors are not subjects or "developmentees," they take center stage as those whose degree of social capital will determine whether they arise or not. This self-determination, this independence to experiment, evaluate and adapt, is the antithesis of the client-patron, dependency syndrome which too frequently mars communal approaches today.

But a shift from dependence to independence is not sufficient to fulfil the potential of communal approaches. Communal institutions need the collaboration of external agents (and here I am thinking particularly of scholar-practitioners) not only for the information they can provide on comparative experience but also as allies with privileged access to policy processes which can improve the enabling conditions for their development. Indeed it can be argued that the principal role of external agents in communal approaches is to protect and enhance the conditions of emergence.<sup>11</sup>

Just as local institutions need scholarship, so our scholarship needs the inputs of local level institutions. This is not simply because the local is the laboratory for experiments in communal institutional resilience, it is also because the learning that arises in these contexts is a learning that our scholarship needs to rescue it from the detritus of the abstract and sterile debates which currently characterize it. This takes the dialectic of dependence to independence further to its proper syntheses of interdependence. This is a different profile for scholarship, a combination of civil and professional science marked by a reciprocity in which neither stands alone.

Most contemporary scholarship supporting communal approaches in natural resource management is reformist, approving the whole and criticizing the parts. My vision for the future course of communal approaches, with its emphasis on interdependent reciprocal learning, is broader and more radical. Doing what we are doing in communal approaches better is not enough. We need to do it differently, and in a new configuration of learning. In so doing, we may contribute not only to conservation but also to the evolution of a more participatory and viable democracy in Africa.



## Notes

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<sup>1</sup> For example Oates 1999; Barrett and Arcase 1995 (with a rejoinder in Murphree 1996).

<sup>2</sup> See Jones and Murphree 2004. This multi-country regional survey draws on data demonstrating that communal approaches in Botswana, Namibia and Zimbabwe have resulted in an expansion of land under active management for conservation, stable or increasing wildlife populations and the reintroduction of rare or endangered species.

<sup>3</sup> A large range of literature exists, among which see Child 1988, Dasmann 1964, Taylor 1974.

<sup>4</sup> Examples are found in Berry 1993, Leach et al. 1997, Long and Long 1992 and Peters 1994.

<sup>5</sup> See Gunderson and Holling 2001 and Axelrod and Cohen 1999.

<sup>6</sup> "Affective" relationships in their politico-economic dimensions are elaborated in Hyden 1983. Culturological generalizations should be treated with caution, but when terms such as "communalism" and "affective relationships" illuminate changing aspects of governance (in the manner developed by such classical theorists as Tönnies and Weber) they have important analytic relevance.

<sup>7</sup> Managerial requirements must take into consideration the principle of subsidiarity and issues of scale. See Murphree 2000.

<sup>8</sup> Economic and ecological attributes are frequent considerations in determining national or regional commonages. For example the drawing power of the Victoria Falls for tourism makes it a common pool resource not only for the riparian states of Zambia and Zimbabwe but for the entire southern African region. River catchment areas are another example.

<sup>9</sup> On the importance of sustainable agro-economic communal approaches see Jones and Murphree 2004. The imperative for rural livelihood alternatives is clearly demonstrated in Cumming and Lynam 1997. In their well documented and finely grained analysis of five villages in the Zambezi Valley Cumming and Lynam demonstrate that the biophysical resource base will be inadequate on its own to meet the minimum subsistence requirements of households in four of the five by 2030 if current production modes and demographic trends continue.

<sup>10</sup> Scholarship produced by the Resilience Alliance (<http://www.resalliance.org>) and programmatic approaches by CIFOR (Center for International Forestry Research) are among these exceptions.

<sup>11</sup> A more exacting analysis will examine whether emergence is a property or a strategy (Ruitenbeck and Cartier 2001: 15-17). Here I am accepting that it can be both, and conflating policy with external agency.

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