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ECOLOGY, POVERTY AND SUSTAINABILITY: ENVIRONMENTAL PORTENTS AND PROSPECTS IN RURAL NAMIBIA

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Pula, Pula, Pula!

- Invocation from Botswana:
Water, Wealth, Well-being.

THE UNFORGIVING LAND

Environment, at least as a social science or a political process, is about human beings as well as ecology in the narrower sense. To modify Adam Smith on the incompatibility of sustained national wealth and human misery - no ecological zone can be healthy and sustainable the majority of whose residents survive in misery and extreme need.

Neither the ecological nor the human condition present context nor the inherited dynamic in rural Namibia is an easy or a happy one. Both are unforgiving of error and past errors have been major and long persisted in. Basically, the ecology is that of semi-arid to desert lands - fragile, easy to damage, hard to restore. The human condition is - for most rural Namibians - one of severe to absolute poverty in an institutional context and economic structure which (even post-apartheid and that system's extended family) offers no easy ways out.

These two unforgiving realities - of ecological erosion and of human misery - interact. In the North more people on the same land area have pushed beyond the margins of ecological sustainability of soil and of vegetation. Need, not greed, is the destructive dynamic so far as the rural households are concerned, although the ultimate cause is past European rancher greed for land which hemmed in the northern rural households. In the Centre and South, ranches built on underpaid labour still do not earn plausible returns on resources used and in many cases have pushed the ecology to or beyond the tipping point into secular degradation. In the 1980s many ranches near Windhoek had seasonal open water and no erosion gulleys, nor the compacted, impermeable surface soil that causes them. To argue about whether worker need or rancher greed/need is the key, is to miss the basic reality; no ranching system which cannot provide decent living conditions (including income, housing, nutrition and access to basic services) to its working households, a positive return on capital used and production patterns ecologically friendly enough to halt/avert secular degradation can be sustainable.

Not all choices are of that type. There are trade-offs. Namibia is water short - or at least most of it is inherently short of physically and economically accessible water. The total reasonable urban household, mining, industrial, rural household, livestock and crop demands are beyond economically viable and ecologically sustainable flow levels. Hard choices have to be made by use and by location. To seek to avoid them by drawing down stocks (as appears to be happening now in the Kaastveldt and other artesian areas) is to delay facing future unforgiving limits of the ecology and, by so doing, to make the achievement of humanly acceptable and ecologically sustainable accommodations harder.

Proposals for deep ploughing, levelling with heavy equipment and setting up

standard irrigation channel systems have been made in respect of the Oshana country. Given the specific, complex structure of the natural ridges and channels this would be much more likely to reduce than to enhance soil fertility. Worse, the deep ploughing and use of heavy equipment would carry a high risk (near certainty?) of cracking the relatively shallow hard-pan underlying surface sand and soil, thus releasing the deep salt water reservoir beneath it and creating a new and larger analogue to the Etosha Pan. The danger of acting on ill-considered and virtually ecology-damaging untested proposals in the context of an unforgiving environment and of the need for extreme caution in handling risks of irreversible damage could hardly be better illustrated.

Wildlife and mixed farming are competitors for (alternative users of) land, vegetation, water. Certainly both uses can, and should, co-exist in Namibia as a whole. Indeed, some areas suitable for wildlife (e.g. Sossusvlei, Skeleton Coast National Park, Fish River Canyon, Etosha Pan) are pretty nearly totally unsuitable for any other use. But at the margins there are trade-offs and choices and the worst course is to pretend they do not exist and thus to make them accidentally, fragmentarily and ultimately more by inaction than by conscious decision.

For example, there is a sound wildlife ecology case for a corridor connecting the Skeleton Coast wildlife zone to the Etosha Pan one. Part of this corridor would require curtailing rather limited, low grade present grazing areas. Further, it would limit potential expansion south of grazing - or mixed farming - areas through boreholes to serve areas with vegetation and some rainfall but no surface water. This is not an easy decision because the Oshana country is disastrously (in terms of ecological damage and of human poverty) overloaded and extending it south on the west side (as well as on the less continuous east) is attractive and potentially ecologically sustainable. But for both Namibian and global wildlife heritage reasons (including potential employment and revenue gains to Namibians), restoring and enhancing the Northern wildlife belt from the Skeleton Coast through Etosha is a serious proposal deserving serious attention. It is also one which, if adopted, should be used as a basis for mobilising external support. Let the richer portion of humankind contribute to protecting its "common heritage" in Namibia directly and by financing alternative livelihood enhancing programmes for Kaokoveldt and Oshana country rural households.

PULA, PULA, PULA!

But it is undesirable - as well as usually unnecessary - to specialise in the role of Cassandra. To purvey a prospect of unrelieved doom and gloom is to increase the probability of being doomed to that future by distracting attention from and demobilising efforts toward ways of averting disaster. Whether one's readers accept and despair or reject and ignore, an ecological message of doom is not likely to protect the ecology.

Namibia's ecology is damaged. It is not irrevocably destroyed. There are limits to ecological carrying and self-regenerating capacity, but they can be increased and are not yet - in most cases - hopelessly surpassed. Judging from conversations, the press and the Independence Day parade floats, ecological concern in Namibia is real and fairly widespread; an enabling climate necessary, even if not sufficient, for ecological protection and regeneration. That is a climate which does not exist to the same degree in many other countries.

Similarly, the unacceptability of the human condition of a majority of Namibians

is not simply perceived, but is a priority in respect to governmental and - perhaps less uniformly - civil society action. The returning war migrants and the dislocated persons of town exurbs and the Oshakati-Ondangwa-Ongwediva triangle are literally visible and as public concerns. So are the conditions under which many ranch workers exist and perhaps less widely - the deadly interaction of human need and ecological degradation in much of the North.

What is needed now is the development of a coherent, articulated, informed strategy in relation of sustainable environment which includes both the ecological and human conditions strands. Because that will necessarily take time, a set of preliminary guide-lines and caveats may be useful:

- Be cautious in the absence of clear evidence of ecological safety - delaying a safe gain is less damaging then incurring an irreversible loss (e.g. block new water pumping from reservoirs which are clearly or probably already being drawn down faster than the recharge rate).
- Where practicable, halt ecological degradation now; at the least take action to slow it down and set target dates for halting and beginning to reverse it (e.g. initiation of suitable seedling distribution and household tree-planting programmes).
- Give urgent attention to ecologically friendly means of increasing the livelihood-sustaining capacity of both the small- and the large-scale farming/ranching sectors (e.g. holistic grazing systems).
- View trees-bushes-shrubs in the context of silviculture and farming/ranching systems (including their livelihood effects), not only from fuel supply, forestry and ecological preservation perspectives.
- Build up a national (and local) water flow/stock and potential augmentation inventory (inventories) and another of present uses as rapidly as possible to allow 20 year perspective programmes for water development, allocation, charging and use and in the interim seek, at the least, to halt expansion of unsustainable (local) uses.
- In parallel to the above, proceed with water use/supply/protection agreements with Angola, Botswana, Zambia, Zimbabwe and - when possible - South Africa in respect of border rivers and trans-border drainage/basin systems.
- Review available experience on large-, medium- and small-scale irrigation with a view to determining sustainability (with special reference to soil salination) and viability and defer any borderline large- and medium-scale expansion until clear evidence and analysis are to hand while experimenting in respect to small-scale and, probably, Orange River margin pump or weir schemes (small or medium).
- Evaluate shifts in production pattern and price policies (e.g. to encourage mixed farming, oilseeds, urban market "truck gardening", silviculture) in ecological and livelihood as well as physical supply and food price/food security terms.
- Collect data on experience and research in other SADCC countries with a view to adaptation and field testing crops - techniques - services - institutions for Namibian use (in respect to agriculture-livestock-silviculture generally, but including ecology and food security).
- Recognise that, except for beef and karakul, rural production is not and will not be central to the macroeconomic dynamics of Namibia so that ecological viability and livelihood-enhancing (not narrower physical or financial surplus) targets should be the central ones.

Ecology is a crucial matter and a serious one. Because it has, at least until the past decade, been systematically ignored - in capitalist and centrally planned socialist economies alike - its advocates have necessarily become crusaders and engaged in a certain amount of rhetorical overkill and factual over-simplification. This was - and to some degree still is - necessary to get and to keep ecology squarely on the agenda. But it now has a cost. Real policy influence - once an issue is accepted - requires seriousness, accuracy and attention to economic (and especially livelihood) consequences. The Independence Day float slogan "Save the gay whales" (logically impossible?) attracts attention; it can hardly help inform policy.

Ecology will not be saved unless doing so can be shown to be economically beneficial. Wildlife and wilderness will live or die on demonstrating that protecting them is at least as valuable as alternative land uses. Furthermore, who receives the gains matters. Wildlife protection that limits the agricultural activities of neighbouring rural residents is practicable - without massive repression up to and including shooting intruders on sight - only if they share in the benefits in a way perceptible to them.

Similarly, emotion is not an adequate guide to policy. Never culling seals is not an ecologically sound policy - nor very plausible for a country, one of whose major economic sectors is fishing. But culling without careful studies can become killing off whole local seal populations. And public relations matters: explaining why culling is licensed and on what criteria; insisting that the whole carcase (or at least the skin and part of the meat) be used, requiring humane killing (shooting not clubbing).

Karakul is an example of inept public relations. Karakul is not an endangered nor a wild species (although it would be both if the fur market collapsed). Far fewer people object to products of domesticated animals than of wild (let alone endangered) species. Why has Namibia failed to position karakul to take advantage of that fact? Similarly, why has the new positioning not included new styles to replace the dowdy 'grandmother's coat' image it now - however unfairly - has. Karakul issues matter for ecology and for environment. Most uses of many southern Namibian areas would do ecological damage if at levels seeking to produce parallel output and employment levels to those now provided by karakul. The collapse of the karakul industry would endanger the livelihoods of up to 10 000 households; its recovery could greatly improve them. "Karakul: the modern new style 'green' fur" is an attainable, desirable and environmentally/ecologically protective image for which to aim.

On the basis sketched above it is potentially possible to transit from "unforgiving land" to "Pula, Pula, Pula". If the first pula is read narrowly as rain, admittedly not much can be done; but if read as water then supply, conservation, and use are subject to major gains (or losses) from better and different management. Similarly wealth in the sense of riches is, in general, not attainable for most rural households; but wealth in the broader sense of decent livelihoods and human conditions for those who live on the land is attainable. So, too, is their wellbeing consistent with the wellbeing (sustainability) of Namibia's rural ecology.

ECOLOGY - ELEMENTS AND THREATS

It is relatively easy to draw up a check-list of threats and elements but remarkably difficult to articulate in a policy- and programme-focused way:

- data are scarce, scattered, full of gaps;
- Namibia is not homogeneous. To write specifically on land quality - use - carrying

capacity - present situation, trends and future prospects/portents without specifying whether one is talking about the Kaokoveld, the Oshana Country, the Okavango Valley, the Eastern Caprivi (itself arguably in three zones), the Otavi Highlands, Gibeon or the Orange River potentially irrigable zone makes no sense;

- the ecological aspects cannot be abstracted from the human if one is concerned with future pressures and possibilities - creating an ecological paradise at the expense of rural residents is neither practicable administratively nor politically, while sustaining rural livelihoods by ecological destruction is at best a short run expedient clearly humanly and fiscally (as well as ecologically) disastrous in the medium term.

The key ecological factors are land, water, vegetation, air, sea and wildlife/ "wilderness". The threats to them include overuse and pollution leading to, e.g. erosion, salination, fertility decline, quality degradation (in plant populations), desertification, poisoning (e.g. via polluted - including saline - water and airbone chemicals/radiation/dust), destruction of stocks (of fish or wildlife)[1].

Of these the sea - i.e. slaughter catching of fish, shellfish and marine mammal stock problem - poses an important and specific problem. However, the ecology of Namibia makes it virtually totally separate from other rural ecology and livelihood issues. Air pollution's flashpoints in Namibia are Rossing and Tsumeb. Rossing can be seen as an environmental and occupational health time bomb which has been ticking away for over a decade. The air pollution downwind is still visible despite significant improvements, at the level of dust and - presumably - also remains in its less visible, but more deadly, parallel of radiation. Water pollution is also a known problem, which may or may not be better contained now than in the past. The history of the relatively comparable USA Rocky Mountain/dry Southwestern Plateau uranium oxide mining/processing operations suggests present protective and pollution reduction measures - for workers, for downwind/downwater communities in the Arandis-Walvis Bay-Swakopmund triangle and for the ecology - are still inadequate. Because uranium oxide has a relatively high value - say $25 a pound - better protection - which might cost $0.10 to $0.15 per pound a year after capital costs of $0.50 per pound - is probably consistent with continued profitable operation. But unless a local government - trade union - medical - ecological pressure group is formed, inertia, private partner interests and fear of tampering with Namibia's second most important single economic asset are likely to slow or block positive change.

The Tsumeb ecological pollution focus is the smelter. (There are other environmental health problems in the mines, but largely focused on mine personnel, not the general public nor rural ecology.) The smelter plume contains a variety of noxious substances of which the chief is sulphur. The dryness (usually) of the atmosphere limits the degree to which this descends as sulphuric acid but random depositing of over 1 000 tonnes a year of sulphur particles is, in any form, ecologically unsatisfactory and humanly unacceptalbe even if sulphur is in some contexts a useful fertiliser component. Technologies for sulphur (and other pollutant) extraction exist and are widely used. Their 'only' problem is cost - about $0.08 a pound gross operating and capital cost, less $0.01 to $0.03 value of

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[1] A more detailed review of and policy proposals for these sectors is available from the author at the Institute of Development Studies, University of Sussex, Falmer, Brighton BN1 9RE, UK.

sulphur recovered for a net cost of $0.05 to $0.07 per pound and $0.30 a pound initial investment judging from Southwestern USA experience. With present base metal prices recovered to well over $1.50 a pound and Tsumeb's return to profitability, these costs are probably just consistent with continued profitable operation but would very sharply reduce profits (half USA Southwestern smelters and associated mines closed in the 1980s - a period of lower real prices than now - because they could not meet the costs of "clean air" laws and remain viable). As with Rossing the ecological problem - while presumptively affecting crops and herds in the Tsumeb case - is not primarily rural nor agricultural.

Wildlife/Wilderness issues do affect agriculture but in somewhat special ways because the basic issue is normally what land should be dedicated to which. In most cases the two uses are not mutually compatible on the same piece of land. It is at the margin that trade-offs arise. These are unlikely to be for small areas: in few parts of Namibia is the use of up to 5 000 ha to protect a scenic attraction likely to have a high agricultural opportunity cost and rarely is such a small area viable by itself for wildlife. The Skeleton Coast/Etosha corridor illustrates the nature of the real and difficult choices likely to arise and is probably the most quantitatively significant and temporally urgent of them all.

But wildlife and wilderness areas do need to be protected and serviced - not merely zoned - if they are to survive. To the extent that costs can be covered from visitor fees without the visitors themselves wrecking what they come to preserve, no inherent problem arises (Etosha is probably an example, as are non- or quasi-wilderness). To the extent that it is argued that Namibian wildlife and wilderness are part of a global and national heritage which has claims on resources in its own right, there are problems of priority to that heritage and/versus priority to survival and development needs of poor Namibians - unless external grant funds of wildlife/wilderness programmes are substantial.

Game ranching is best considered as ranching, not wildlife. The ecological case is that many pastures have better carrying capacity for game (which is also less damaging to vegetation than cattle, sheep or *a fortiori* goats). While possible to overstate, this case is broadly accurate of many semi-desert grazing areas. The convincing logical case that such game ranching is/should be economically more viable remains, unfortunately, problematic in practice. There are viable game ranches - including in Namibia. But they are few in number, usually capital- and skill-intensive. To pose pure game ranch versus pure cattle (or sheep) ranches may not be an appropriate approach. Arguably a mix of three elements:

- cattle or smallstock;
- cropped wildlife and/or
- wildlife tourism (guesthouses and game viewing) is attainable.

One clear problem with wildlife cropping is broadening industrial market access via negotiating sanitary/hygiene agreements and contracting adequate marketing agents in Europe and North America. For ranch wildlife tourism, there is a factual or a perception problem. If such tourism strengthens ranch economies and preserves/raises employment (especially female employment) there is a strong ecological-environmental-economic case for it. But if it reduces employment and total ranch sales, even if increasing profitability, a real conflict between private profit and national product/employment exists.

HUMAN ENJOYMENT AND ECOLOGY

Production, distribution, power, population and poverty relations interact with ecology. This is particularly true of Namibia today and for at least two decades to come,

because non-rural sectors cannot supply livelihoods for the whole population so that "going to town" is not a solution to rural poverty (and would create concentrated environmental horror zones in and around cities and main towns broadly analogous to the present Oshakati-Ongwediva-Ondangwa exurban triangle). Improving rural livelihood/access to services and housing conditions to avert tidal waves of in-comers to urban areas is a necessary strategic priority. Reconciling it with ecological damage reduction and reversal is not going to be easy. Pretending there is no such priority will have even more negative environmental consequences.

Rural inequality characterised by cramming large numbers of households or fragments of households into small areas of often marginal land with next to no attention to raising household sector productivity is a recipe for growing environmental degradation (human and ecological) as population in these areas rises. That is the underlying historic dynamic of much of what South Africa described as "homelands" or "second-tier authority" areas. So long as alternative livelihoods and household security systems do not exist for most of these people (and their descendants), the problem remains and worsens now even after the ending of apartheid/'homelands'. The long-run solutions doubtlessly lie in the creation of alternative livelihoods and household security systems, but the short- and medium-term need to include changes to increase productivity **and** increase ecological friendliness.

These areas are characterised by need driven ecological degradation. Need for fuel, fodder, crops to eat, livestock to eat and sell - need, all rising with population and, over 1967-1987 exacerbated by worsening urban employment and falling real remittance conditions, forces overcollection of bush, overcutting of trees, overgrazing, cultivating too continuously with too little return of nutrients to the soil. In analysing and acting on this type of downward spiral, two dead-end roads need to be avoided:

- seeking to enforce ecological sustainablility by fiat and force - unlikely to succeed and certain further to immiserize poor people;
- saying that the ecological damage is not the poor people's fault but the system's (true enough) and that therefore nothing can or needs to be done (false, especially as the burden of the ecological damage will fall primarily on the next generations of poor people).

The large ranching/mixed farming sector initially typified the economy of greed - stolen land, cheap (*de facto* forced) labour, limited ecological awareness, proprietor levels of consumption vastly higher than those of workers which were near to or below the absolute poverty line, master/servant-type labour relations. Reconciliation should mean not shaking fists (or more lethal weapons) over the past, but it must not mean declining to analyse it and its heritage and failing to act to transcend them.

Worker livelihoods need to be raised and households reunited - for human and political reasons and also to retain a labour force. Subsidies (which have been unsustainably high counting capital grants, concessional interest rates, residence payments, special services, etc.) need to be reduced; overstocking and under-investment in pasture maintenance and improvement need to be halted. The issue is - how? There are no longer (and historically have usually not been) large profit margins to meet these costs. Ranch proprietors, in general, do not have incomes above the professional-managerial-medium-sized entrepreneurial average and often have sizeable debt burdens and low cash balances. Clearly, either income (ranch cash and worker self-provisioning) must be enhanced or costs cut, or both.

Routes which would reduce employment and raise capital intensity and scale are

open to question economically and would make a serious negative contribution to the adequate livelihood creation priority. Turning the land back to 'traditional' ranching would lower costs, but also output, with very doubtful gains to worker livelihood. Work team based approaches (or conversion to Botswana model large- and medium-scale ranches) could be viable if adequate knowledge, experience and skills were available. They are not available today - at least not for broad-front conversion. The status quo is not viable, except in the very short run.

But some means towards an answer have to be found and action on their implementation begun within 2 to 3 years. Ostrich and game ranches may chip at the edges. So may encouraging artisanal production by workers' household members, but the basic answer has to lie in the livestock/worker provisioning crop/cash crop matrix.

Superimposed on these two long term problems is that of war-displaced persons. The most visible - especially from a capital/major city perspective - may be those returning from abroad. However, the majority of displacees - especially the majority of desperately poor people among them - are internally displaced people from the districts loosely describable as the Ovambo and Kavango rural areas. These at their 1989 peak numbered up to 300 000 whereas rural-oriented external returnees probably are well under 50 000. The end of the war and therefore of sales of goods and services to the RSA occupation forces (and now to UNTAG) has sharply reduced urban and peri-urban formal and informal employment. Many of these people need to be able to return to their homes. But they cannot return without systematic enabling support - tools for agriculture and for house building, seeds, implements, household utensils, food until the harvest, and core livestock to rebuild that aspect of mixed farming. And unless there are systematic family sector household-friendly programmes for reversing tree/bush destruction and soil depletion, their return cannot be made compatible with ecological stabilisation and sustainability.

"PULA, PULA, PULA!"?

This study cannot constitute a complete ecological and human environmental programme for rural Namibia. Its aim is much more modest:

- to demonstrate the negative and systematic interactions of ecological degradation and human poverty in Namibia;
- to identify the most serious environmental/ecological risks and downward dynamics in rural Namibia today with special reference to agriculture;
- to suggest how one can ask questions about these risks/downward dynamics which direct attention toward humanly and ecologically sustainable answers - and to ask some of those questions;
- to suggest some initial, partial answers which - if implemented - could improve environmental/ecological dynamics and buy time for articulating fuller strategies based on additional data and analysis.

Clearly that is not enough to announce the attainment of "water, wealth, well-being!", but it should be a first step in that direction. Ecological sustainability - especially in a context of pervasive rural poverty and a fragile natural environment - is only attainable at the end of a long journey. To begin that journey requires taking first steps now (precisely because the journey is long and the time avialable to complete it not so long) and taking them in the right direction (because wrong steps may be virtually irreversible). It is as a pointer to some of these steps that this paper is presented.