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Saving Nature, Feeding People and Ethics

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ABSTRACT: Holmes Rolston's case for holding that it is sometimes right to let people starve in order to save nature is argued to be inconclusive at best; some alternative responses to population growth are also presented. The very concept of development implies that authentic development, being socially and ecologically sustainable, will seldom conflict with saving nature (sections 1 and 2). While Rolston's argument about excessive capture of net primary product is fallacious, his view should be endorsed about the wrongness of 'development' in areas where sustainable development is impossible, but not unqualifiedly endorsed about those areas where it is feasible (section 3). Important as policies promoting sustainable levels of population are, representing population growth as a cancer is misguided, and could engender indifference to suffering (sections 4 and 5). The neo-Malthusian paradigm (which makes population growth the cause of both poverty and environmental degradation) appears to conflict with a considerable body of empirical evidence; the kind of policies needed in Third World countries are ones which enlist people's energies for producing food and preserving nature alike (section 6).

KEYWORDS: nature, development, value, ethics, population

1. INTRODUCTION

'Given the fact that rhinos have been so precipitously reduced, given that the Zimbabwean population is escalating (the average married woman there desires to have six children), one ought to put the black rhino as a species first, even if this costs human lives'.¹ Thus Holmes Rolston about the black rhinos of Zimbabwe. Rolston goes on to argue that feeding the hungry is not always our first obligation,² and that it may sometimes be right to allow not just poachers to be shot (as is authorised by the law of Zimbabwe) but even ordinary inoffensive malnourished people to starve, granted that they have other options which could fend off starvation, rather than allow within nature reserves the kind of development which might alleviate the poverty of people already living there.³ This paper discusses ethical and related issues arising from problems about conser-

vation, population growth and feeding people, as raised in Rolston's paper, together with some alternative responses to these issues.

Those of Rolston's readers who reject capital punishment or favour due process are likely to be unenthusiastic about any shoot-to-kill policy; but resorting to violence against poachers (including violence designed to incapacitate) might still be approved. Approving it, however, need not involve endorsement of Rolston's grounds; and the same applies to his grounds for prohibiting development in nature reserves. The issue is not a straightforward conflict of interests of the human population of Zimbabwe versus Zimbabwean rhinos. For the grounds for conservation include the interests of future Zimbabweans (some of whom may be saved from starvation thereby) and also, to some degree, the interests of future rhinos. These interests show that the sharp decline in the rhino population has moral relevance; but it is much less clear that the growth of the human population of Zimbabwe constitutes a reason for letting some of its citizens die, any more than the growth of Western affluence does, and much less still that the supposed desires of Zimbabwean mothers supply such a reason. Some rather different responses to population growth will be presented later in this essay.

2. PRIORITIES, PRESERVATION AND DEVELOPMENT

What, then, is to be said about priorities between saving nature and feeding people? Compared with many American environmentalists, Rolston is relatively moderate in these matters. Thus he does not write of population growth as a kind of pollution, or advocate the removal of indigenous peoples from their forests. However, he is prepared to argue from the actual moral assumptions of people in the actual world that meeting people's needs does not always take priority. For example, he is prepared to argue from people's willingness to deploy surplus resources on Christmas gifts, college education or symphony concerts rather than on relieving poverty, and from other suchlike existing priorities, for the conclusion that morality does not always require us to feed people first.

To such reasoning, we need not object that it moves from sociological facts to value judgements. For Rolston is aware that he is reliant on the acceptability of the moral assumptions of existing agents and communities, and that without such a premise his premises about Christmas presents and the rest have little relevance. Hence he could not object to this premise being made explicit: the moral assumptions of existing agents and communities (particularly Western ones) are acceptable, at least to some degree, he supposes. Yet this same premise still warrants criticism; the assumptions underlying Christmas expenditure could easily be morally indefensible. Indeed the annual spending spree of nominally Christian societies is frequently a target for moral criticism, whether from utilitarians, Kantians or religious believers. More generally, the moral

assumptions of behaviour in the contemporary world cannot be allowed to form the basis of critical normative ethics; for on this basis it would make no sense to urge that the *status quo* warrants criticism and ought to change. Yet this is something which environmental ethicists usually both want and need to urge.

To be fair to Rolston, he is not in general a supporter of the *status quo*, he recognises the general moral importance of satisfying human needs,⁴ and he allows that in many cases there will be no conflict between feeding people and upholding the interests of nature.⁵ Indeed his argument is partly that feeding people first cannot always be given the highest priority, or prioritising anything else would always be wrong – which (I agree) is implausible. He also holds that most development (agricultural development included) is of a kind where nature is sacrificed. While it is undeniable that some so-called ‘development’ is of this kind, the limited scope of such conflicts is worthy of a few moments’ reflection.

Conflicts between nature and development would be frequent if development happens whenever a change is generated by human beings which someone regards as an improvement (and this seems to be the sense in which Rolston is using the term). For if the concept of nature applies not only to wilderness but also to whatever exists without significant modification from human purposive activity or contrivance, then most building projects will constitute development in this sense, and will also subvert a larger or smaller segment of nature. Conflicts will, however, be less frequent where the concept of development is given its more usual sense, and relates to social and/or economic change which is genuinely for the better,⁶ and not just change believed by someone to be such; for the relevant criteria will plausibly now include those of social justice, and will exclude much which would otherwise count as ‘development’.

Now a further defensible criterion of development as genuine improvement is sustainability; for development which is unsustainable will seldom if ever comprise an improvement. Thus we already know, once we know that it is unsustainable, that either it will undermine itself, or that it will be undermined by other predictable processes; and this already casts considerable doubt on whether an improvement is present at all. Even if, with regard to human interests, there will be temporary gains (even for a thousand years), an unsustainable change scarcely counts as development if there is an alternative change which would be both beneficial and sustainable.

Sustainable changes, however, will typically allow affected tracts of nature to remain self-renewing and sustainable. For where affected tracts of nature are subverted or cease to be sustainable, the processes of production, whether of food or shelter or of other services, will more often than not be unsustainable themselves, because natural systems have ceased to be self-renewing and sustainable, and cannot sustain them indefinitely. (Rolston has suggested that processes which last for several centuries are thereby sustainable, but might also sacrifice much biodiversity;⁷ in my view, if ecosystems are disrupted or undermined for the sake of processes which cannot be sustained indefinitely, these

processes are not sustainable.) Accordingly, development will seldom be worthy of the name where it is not sustainable, and sustainable not only in the form of stable systems of production but also with respect to the stability of the natural world. And if so, then it will not be the case that most development is of a kind where nature is sacrificed. Where nature is sacrificed, what is going on will usually fall short of being development, at least in the more usual sense of that term.

3. GROUNDS FOR PRESERVATION

This is, however, a somewhat *a priori* defence of development; and in any case the impression should not be given that I would seek to argue against Rolston's conclusions about saving nature at all points. Specifically, the arguments for preserving wild species should be recognised, and require the preservation of some wild habitats (as Rolston argues with regard to black rhinos in Zimbabwe). These arguments derive from the interests both of future humans and also from those of the future wildlife whose existence we can either facilitate or prevent, plus obviously the interests of current wildlife and those current humans who derive benefit from the existence of wildlife.

Further, as Rolston concludes, this means that there are some areas which could be colonised by hungry humans, if only temporarily rather than sustainably, who might thereby temporarily satisfy their needs for food, fuel and shelter, but which should be denied to them in order to save the wild creatures (such as black rhinos) which depend on these same areas. The hungry humans would not be required to starve, being free, for example, to move to areas of development elsewhere. Nor would the indigenous people who already inhabit such reserves be required to leave, as long as their lifestyles are compatible with nature preservation. The only kind of prohibited actions would be ones which meet human interests through the kind of so-called 'development' which destroys the reserve, because of the value of the thriving of wild nature, because of the importance of this for future humans, and because of the importance of the intactness of habitats necessary if the thriving of wild nature is to be facilitated.

Now one of Rolston's background assumptions should be challenged. Rolston cites Peter M. Vitousek and others as having shown that 40 per cent of the planet's land-based net primary product (i.e. basic plant growth) has been captured by human beings, and claims that if the human population and its economic demand doubles, this capture could rise as high as 80 per cent, leaving little for 'natural forms of life that cannot be accommodated after we have put people first'.⁸ But Mark Sagoff has pointed out that this argument wrongly assumes that increases in the size of the economy require a proportional increase in the percentage of net primary product calculated by this method as having been 'captured'.

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Vitousek and his colleagues only reached their 40 per cent by including all the material used in human-dominated ecosystems by communities of organisms different from those in corresponding natural systems, or in other words all the plants indirectly affected through human-caused changes in land use, including all the plants of areas of countryside which are not strictly wilderness. Otherwise their figure for human use would have been around 5 per cent. Sagoff proceeds to argue that virtually the whole of North America had already been thus 'captured' (in the Vitousek sense) by 1492, and certainly by one hundred years ago, and that since there has been large-scale economic growth since then, the proportionality assumption must be rejected, as it implies that in the absence of increased capture of net primary product no economic growth in North America since then could possibly have occurred.

Obviously there was an increase in the actual exploitation of net primary product between 1492 and a century ago, but this does not detract from Sagoff's reply to Vitousek. Wary as we should often be of economic growth, such growth turns out to be partially independent of capture of net primary product,⁹ a proposition assumed by Rolston himself when he remarks that agricultural production in many developing countries could be boosted without further encroachment on natural habitats.¹⁰

But as this last point exhibits, the unacceptability of Rolston's use of Vitousek's claims about net primary product does not entirely undermine his argument against the development of such habitats. For natural ecosystems and the valuable wild creatures which populate them continue to be under threat, not least through land hunger in areas of human population growth. Even if growth need not be at the expense of natural vegetation, it often is, and this is true of population growth as well as of economic growth.

A key aspect of Rolston's argument, however, is that the areas in question could not support human colonisers sustainably. Neither the moral philosopher nor, I suggest, the consistent environmentalist can rest content with the conclusion that some such areas should be forbidden to people altogether (and, to his credit, Rolston does not favour this¹¹). Besides (although here Rolston might disagree), if the needs of starving people could be satisfied sustainably from a given area, there is a strong case in favour of letting them colonise it and thereby meet their needs, unless these needs both could be met elsewhere, and probably would be met if this were attempted. If the needs of future people count, so do the needs of current people.

The qualification about starving people may seem to suggest that my view is that priority should always go to human interests over nonhuman interests. In fact, this is a stance which I should reject. Often, for example, the human interests at stake will not be basic needs, while the nonhuman interests will comprise basic needs for the nonhuman creatures concerned. Besides, although I differ from Rolston in holding that some colonising of wild habitats is allowable, I still favour most current reserves remaining such, and more being created, in full

recognition of the fact that this involves one or another kind of zoning, and the designating of these areas as prohibited to uses which would harm either other people or wild nature. The difference between us concerns the permissibility of sustainable development in some areas which are predominantly natural at present (such as the siting of solar energy plant in deserts close to areas needing an enhanced energy supply). In cases where such development could be and would be so planned and organised as to involve a sustainable relation between the human participants and nature, it should in my view be permitted for the sake of human needs.

Even so, it would have to be limited for the sake of species preservation. In previous centuries, poor people have been able to colonise wild areas, and this should not be wholly prohibited to the poor people of the present. Yet the ethical case for preservation means that this process must have its limits. Preserving the last members of a wild species can make a much greater difference to the total of value in the world than preserving the same number of members of a currently plentiful species would. For it preserves not only current lives but also the possibility of countless future members of the species coming into being in the future. This justifies preserving the territorial niches necessary for such preservation. While the case for such preservation could conflict with sustainable colonisation, in practice such conflicts would be rare, granted the argument already put forward concerning the way in which sustainable development allows of the sustaining of wild species and systems.

4. POPULATION AND SUSTAINABILITY

Certainly, population policies are important, so that we do not get into dilemmas such as choosing between exterminating wild species and/or allowing their extinction, and failing to make provision for an increased human population. Population policies (if voluntary, and integrated with policies of development) have the potential for eventually limiting the incidence of conflicts between preservation and human needs.

For many reasons including this one, population policies should aim at attaining a sustainable level of population. Even if the level at which the global human population eventually stabilises is substantially greater than the current population of the planet, a sustainable population could mean an end to encroachments on the remaining areas of countryside and of wilderness. Or rather, it could mean this as long as the level is not so high that next to no wilderness by then remains, and also as long as the introduction of sustainable processes of production and of food-supply by then prevents the need to extract resources from yet more and more wild places.

Even before the human population stabilises, there will be a tendency for conflicts between human colonisation of wild places and the preservation of such

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places to become fewer, as long as the trend is in the direction of stabilisation; for the demand for additional territory will steadily reduce. Naturally the reasons for aiming at population stability are unlikely to be confined to the desire to avoid such conflicts; the interests of the human beings of that day are likely to be central. Nonetheless the eventual attainment of zero population growth on a sustainable basis remains likely to contribute strongly towards the preservation of wildlife and wilderness.

5. ARE PEOPLE A CANCER?

Rolston, however, is not alone in representing much of the current human population of the world as resembling a cancer (glossed on his previous page as 'an explosion of unregulated growth'¹²), and many of its individuals as 'another cell of cancerous growth'. 'For a couple to have two children', he concedes, 'may be a blessing'. But the tenth child, he claims, is 'a tragedy'. 'When the child comes, one has to be as humane as possible, but one will only be making the best of a tragic situation, and if the tenth child is reared, and has ten children in turn, that will only multiply the tragedy.' Such tragic growth, he maintains, leads to a deteriorating quality of life and to deteriorating natural resources, declining ecosystem health and disappearing integrity. And in these circumstances, it is a fallacy to claim, he suggests, that we ought always to feed the poor first.¹³

While I agree that there are some measures which should not be taken to feed the poor because they are unsustainable methods and would destroy wild habitats, much of what Rolston here says is unacceptable. Admittedly my agreement that some means towards the feeding of the poor would be misguided commits me to the view that feeding the poor should not always be everyone's highest priority. But Rolston's argument would, if valid, prove too much, and would suggest that with regard to certain humans, or to all humans above certain vague numerical ceilings for certain territories, there is no obligation to feed these people at all.

First, it should be pointed out that if the conception and birth of anyone is a blessing and has positive value, then this should be true of the conception and birth of everyone, except perhaps those whose quality of life is going to be nil or negative. The intrinsic value of the life of a given person cannot simply disappear through the fact that this is the tenth child of their parents. At most, there might, alongside the positive intrinsic value attaching to such lives, be a negative instrumental value in the simultaneous existence of all ten children plus the other human inhabitants of the planet. Whether there actually would be such negative instrumental value might depend on factors such as the possible overcrowding which might sometimes result from the addition of extra people, the possible strain for those involved in supporting extra people through childhood, or the possible indirect effects of extra people on ecosystems.

Yet these very factors could easily be exaggerated. Overcrowding of dwelling-places is avoidable if enough are built to prevent houses being excessively crowded, and overcrowding of streets and squares if people refrain from gathering in excessive crowds. Attaining this would often involve few extra resources. As for strain for existing people, the addition of children to poor families in the Third World involves less strain than Westerners might expect, as such children soon become economically active, and thus usually supply pairs of hands which can assist in the work of providing for the family or the community. As for strain on ecosystems, sometimes no extra fuel will be involved (as the newcomers may share the same hearth as their elders), and whether their needs for food and for sanitation cause ecosystems to degenerate is much more a function of social arrangements than of these extra people's mere existence.

A little more should be said about the property of tenthness (or of ordinality in general) not undermining the intrinsic value of lives of positive quality. Rolston seems to be saying that additional children after some threshold number have no such value. But imagine that after the birth of such an additional child, one or more siblings die, and the total number falls below the threshold number. His view seems to imply that the life of this child now acquires the intrinsic value it would have had if her/his birth had occurred before the threshold was reached. But such miraculous changes to intrinsic value are incredible, particularly since no qualitative change may have befallen the child in question; for the child may be too young to be affected by the deaths of the siblings. Besides, if this child's life has intrinsic value after the siblings' death, it is difficult to see how it could have lacked it previously. What is much more credible is that overall disvalue arises (as I have suggested) because of the adverse effects of the simultaneous existence of so many people in much the same place on the flourishing both of the parents and of the children themselves. If the tenth child's arrival is a tragedy, it is not intrinsically a tragedy, but at most a tragedy in the circumstances, all-things-considered.¹⁴

While Rolston, who is a believer in intrinsic value, could scarcely claim that this language is inapplicable to such matters, some of his readers might prefer to interpret his language about blessings and tragedies in a relational manner, and thus resist the above introduction of talk of intrinsic value. They could endorse his talk of the blessing comprised by the first two children because these children bless the union of the parents with fertility and fruitfulness; and they could claim that the arrival of the tenth child comprises a tragedy because the entire family is now overburdened, something the parents have reason to regret. But my point can be re-expressed in the language of relationships and blessings. For once again the deaths of siblings could deplete the number of children to below the same threshold, and the existence of the additional child would now count as a blessing on the basis just mentioned. Thus there is nothing intrinsically tragic about the arrival of the additional child; once again, the tragedy derives from the

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effects of the overall family situation. If all the children stay alive, but half the children are adopted by a childless aunt and uncle, there may be no tragedy for the family, although the environment might still be affected.

My suggestion is that we retain both the language of blessings and tragedy, which could serve to convey how in many cases the parents would perceive and understand their predicament, and also the language of intrinsic and instrumental value and disvalue, which avoids the need for everyone to endorse such perceptions, and which conveys interpersonal reasons for our welcoming or regretting, encouraging or discouraging the events to which it is applied. The language of value has the further advantage that, since it does not depend on intensional contexts, like cases must be judged alike, and that thus tenthness (and ordinality in general) will only correspond to a difference in value where it is shown to be relevant.

The next question to be considered concerns what is meant when Rolston says 'When the child comes, one has to be as humane as possible, but one will only be making the best of a tragic situation, and if the tenth child is reared, and has ten children in turn, that will only multiply the tragedy'. Who, precisely, must be as humane as possible, but might still consider not rearing the tenth child? The possibilities include poor parents in a Third World country, that country's government, and Western aid charities and their individual donors. Third World governments often lack the resources to supply the material needs of their citizens, and there would be something extremely patronising about the suggestion that it is Westerners, already on average taking a disproportionate share of the earth's resources, who are to decide humanely whether the child is to be reared, even though Westerners are the people most obviously able to choose between saving nature and feeding the poor. Several features of the context suggest that the decision-makers are poor parents, who may do 'what humans have always done, making a resourceful use of nature to meet their own needs'.¹⁵ But could it really be they who may instead 'try to save nature' and let the child go hungry?

In most cultures, parents are held to have a special responsibility to provide for their children, which takes precedence over other responsibilities. This may not be the last word on what the all-things-considered responsibility of the parents is; but in most countries the law requires parents or guardians to make this provision, on pain of considerable penalties. Thus, even if a reflective morality would not invariably support local expectations about parental duties, it would be unreasonable if the parents were to be expected to defy their country's law (and usually local custom too) in order to comply with reflective morality, even if reflective morality were somehow to urge infanticide. Thus the parents must be held to be justified in rearing the tenth child. And since they might themselves be tenth children of their parents, this judgement already supports the rearing of the tenth child of a tenth child.

This could still be a tragedy, all things considered. In my own view, it often would be. On the other hand, we have not yet heard enough about the situation

of the poor parents to know this. For example, in some societies, large numbers of the population are childless monks; in such a context, if some adults have children at more than the replacement rate, that may be no problem. This would also be true of societies in which few people are celibate but fertility rates are low. Nevertheless, in many societies large families will often be a tragedy, all things considered, and should be discouraged, both by governments and aid agencies. But does this (or anything else) make population growth a cancer?

No. A cancer is not just 'an explosion of unregulated growth'. If it were, then species such as mushrooms, rabbits and locusts would often be cancerous. A cancer is also a growth bearing no positive intrinsic value itself which is also potentially fatal to a living creature capable of health, and who is thus, as has been argued more fully elsewhere¹⁶ a potential bearer of intrinsic value.

But the suggestion that the current human population of the Earth is a cancer is deeply at variance with all this. On the one hand, unlike a cancer, this population consists of potential bearers of intrinsic value; and to represent such individuals (when numerous) as cancerous is to disregard this value, and to treat them as means only, and as nothing but dysfunctional ones too. On the other hand, what the collection of these intrinsically valuable individuals is supposed to be fatal to is the biosphere, which in the view of many including myself has no independent intrinsic value. The biosphere is still, of course, highly valuable, but this is because it is capable of generating bearers of intrinsic value such as individual humans and other creatures. Besides, if the suggestion is really that human beings might be a cancer because they could threaten each other, it is a fantastic hyperbole which serves to distract attention from ways in which these same human beings, in the same numbers, could avoid posing any such threats either to humanity or to other species.

I have no wish to deny that human numbers and activities are imperilling numerous other species, and that human numbers could easily grow to a level at which far more species would be threatened. But the possibility of extinctions has long been known, without usually inclining those aware of it to the vocabulary of pathology. Granted the strong grounds for preserving species, agents should certainly adopt concerted preservationist policies (and, where relevant, population policies to prevent unsustainable population growth too¹⁷), but need not simultaneously regard their own existence and agency as some kind of cosmic curse.

The discourse of human population as cancer is also dangerous. If, beyond certain numbers, humans comprise a cancer, then the motivations to save human life, to heal injury and to cure illness are likely to lapse. For if each individual existence beyond a certain numerical level is an evil, then (whatever humanitarianism may dictate) there must be virtue in letting such individuals die, if not in speeding the process. This discourse thus generates a reluctance to show solidarity with vulnerable humans, and can predispose those who endorse it to misanthropy. Morality is thus wrenched from its springs in sympathy, benevo-

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lence and mercy, and is even liable to be diverted from its concern for justice, in favour of some kind of global hygiene. The possibilities for racist or fascist outcomes are all too clear. Besides, if human numbers beyond a certain level comprise a cancer, then the cancer is ourselves, the thinkers who think this thought, as much as other families or other peoples. At the very least, we should stop having children, even if we would be justified in remaining alive at all.

Thus the purportedly factual claim that population growth is cancerous turns out to carry unacceptable conceptual and normative implications. Rapid population growth is a real problem, but lacks these implications. Thus the depiction of population growth as cancer cannot be regarded as contributing to the case for withholding priority from feeding people.

6. THE DELUSION OF THE NEO-MALTHUSIAN ENVIRONMENTAL PARADIGM

Besides, the belief that population growth (sometimes supposedly combined with fecklessness) among rural people in the Third World is fatal to the environment and to sustainable development is often treated as an unchallengeable axiom among advisers of Western aid agencies in the grip of a preconceived neo-Malthusian environmentalist paradigm, and with total disregard for empirical evidence to the contrary. Allan Hoben has ably demonstrated this, and how the belief just mentioned has bedevilled the findings both of supposedly empirical research and of policy advisers.

Hoben's central case study concerns the Akamba of Kenya, whose land has become both greener and more productive through the same period as a continuation of human population growth which experts had claimed to be generating irreversible and hopeless desertification.¹⁸ He also presents parallel case studies from Kordofan in the Sudan¹⁹ and Kissidougou Prefecture in Guinea;²⁰ in both cases experts' claims about demographic pressures allegedly producing overgrazing, environmental degradation, deforestation and (in the Sudanese case) encroachment by the Sahara turn out to be constructions of outsiders who forced the phenomena to comply with an entrenched paradigm.

I am unable to claim that population growth *never* causes environmental degradation; thus the evidence which Rolston cites from Madagascar could well attest that it can,²¹ unless possibly it is vitiated in parallel ways. Besides, Hoben's evidence of areas of Africa becoming greener relates (at least for his Kenyan and Guinean examples) to tree-planting on the part of local people, rather than to preservation of natural habitat. Yet this same evidence, combined with Hoben's account of how peoples such as the Akamba have been deprived of the best land during and since the colonial period,²² raises doubts about claims of widespread poor land-use,²³ and about population growth driving people to colonise remaining areas of wilderness. Hence we should be cautious before supporting policies

which might prohibit people introducing improved methods of agriculture, or before urging donor agencies to pressure African governments to require such often questionable policies as conditions of receiving aid packages.

In any case, the world population is going to increase before it stabilises; and it would be unfortunate if this larger population of the middle of the next century is told by its philosophers and by their predecessors of today that many of its members ought not to have existed. Even if this is true, none of them will have been able to avoid existing; and suicide on the part of the conscientious ones is unlikely to improve matters.

Rather we have to plan for a planet with ten thousand million people (or more) living sustainably (even though a lower maximum would be desirable), and with sustainable wild habitats too. This requires both population policies (as in China), preservation policies (as in Kenya and Zimbabwe), and development policies which harness the energies of existing people and (in due course) of their descendants both for development and for preservation.²⁴

In the long run, the ethical issue of whether we should ever give priority to saving nature over feeding people (to which the answer probably remains a heavily conditional 'yes') loses its significance. Agonising about this theoretical question should be replaced by devising policies of development and of preservation in which local people, including rural people, can participate, policies which encourage people both to save wildlife and to feed themselves.

NOTES

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¹ Rolston 1996, pp. 257–258.

² Rolston 1996, pp. 260–261.

³ Rolston 1996, p. 259.

⁴ Rolston 1996, p. 246.

⁵ Rolston 1996, p. 245.

⁶ Clarificatory note (supplied at the proofs stage): this could be better expressed as 'social and economic change which genuinely satisfies human needs', the sense widely used in, for example, development ethics circles. (I did not intend the view that 'development' carries a prescriptive meaning.) 'Development' in the sense just specified could still fail

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on occasion to be change for the better, all things considered; but much so-called 'development' would (importantly) be denied the accolade of comprising development in this sense. At the same time, the criteria of development in this sense cohere well with those of social justice. Further, development in this sense typically involves sustainability, for the reasons given in the penultimate paragraph of this section.

⁷ Rolston, private communication of April 11, 1996.

⁸ Rolston 1996, p. 256; he here cites Vitousek et al. 1986.

⁹ Sagoff 1995.

¹⁰ Rolston 1996, p. 256.

¹¹ Rolston 1996, p. 259.

¹² Rolston 1996, p. 254.

¹³ Rolston 1996, p. 255.

¹⁴ Rolston considers that this was his sense of 'tragedy' too (private communication of April 11, 1996). The relation between population and flourishing is discussed in Attfield 1995a, chapter 10, 'Population and the Total View'.

¹⁵ Rolston 1996, p. 255 (previous paragraph).

¹⁶ Attfield 1995b.

¹⁷ I am indebted to Rolston (private communication of 11 April 1996) for pointing out the bearing of my earlier remarks about unsustainable development on population processes.

¹⁸ Hoben, 1995, pp. 19-21. Hoben here cites Tiffen and Mortimore 1992, and Tiffen, Mortimore and Gichuki 1994.

¹⁹ Hellden 1988. The current famine in Sudan is largely due to civil war.

²⁰ Fairhead, Leach et al. 1992.

²¹ Rolston 1996, p. 256, where he cites Wilson 1992, p. 267, and Jolly 1980. Contrary evidence from Nigeria and elsewhere in West Africa is available in Lockwood 1995.

²² Hoben 1995, p. 17.

²³ Hoben 1995, pp. 18-19.

²⁴ I have revisited these issues in *The Ethics of the Global Environment*, 1999.

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