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Environmental refugees: a growing phenomenon of the 21st century†

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There is a new phenomenon in the global arena: environmental refugees. These are people who can no longer gain a secure livelihood in their homelands because of drought, soil erosion, desertification, deforestation and other environmental problems, together with the associated problems of population pressures and profound poverty. In their desperation, these people feel they have no alternative but to seek sanctuary elsewhere, however hazardous the attempt. Not all of them have fled their countries, many being internally displaced. But all have abandoned their homelands on a semi-permanent if not permanent basis, with little hope of a foreseeable return. In 1995, environmental refugees totalled at least 25 million people, compared with 27 million traditional refugees (people fleeing political oppression, religious persecution and ethnic troubles). The total number of environmental refugees could well double by the year 2010, and increase steadily for a good while thereafter as growing numbers of impoverished people press ever harder on overloaded environments. When global warming takes hold, there could be as many as 200 million people overtaken by sea-level rise and coastal flooding, by disruptions of monsoon systems and other rainfall regimes, and by droughts of unprecedented severity and duration.

Keywords: refugees; other migrants; environment; future outlook; global warming; sea-level rise

1. INTRODUCTION

In early 1999, there were almost 22 million traditional and 'internationally recognized' refugees (people fleeing political oppression, religious persecution and ethnic troubles). Their numbers had declined from a peak of 27 million in 1995 but remained higher than the 19 million of 1993 (Organisation for Economic Co-operation and Development 1998; Renner 2000; Salgado 2000). In addition, there were large numbers of people who could be characterized as environmental refugees, or people who could no longer gain a secure livelihood in their homelands because of drought, soil erosion, desertification, deforestation and other environmental problems, together with the associated problems of population pressures and profound poverty. Not all of them have fled their countries, many being internally displaced. In 1995, they were estimated to have totalled at least 25 million, and their numbers have been increasing (Myers 1997; Myers & Kent 1995; see also Blaikie *et al.* 1994; Doos 1997; Ramlogan 1996; Renner 2000; Suhrke 1994; UN High Commissioner for Refugees 1995; Westing 1992).

Out of the 25 million environmental refugees in 1995, there were roughly five million in the African Sahel, where a full 10 million people had fled from recent droughts, only half returning home. Another four million, out of 11 million refugees of all types, were in the Horn of Africa including Sudan. In other parts of Sub-Saharan Africa, where 80 million people were considered to be semi-starving due primarily to environmental factors (Myers & Kent 2001), seven million people had been obliged to migrate in order to obtain relief food (Downes *et al.* 1993; Hulme *et al.* 1994; Jacobsen & Wilkinson 1993; Schwartz & Notini 1994). In early 2000, Sudan had eight million people who were officially considered at risk of starvation, with another six million in Somalia and three million in Kenya, plus several million others in other countries (Myers & Kent 2001). A large, though undocumented, proportion of these could be characterized as environmental refugees.

Although Sub-Saharan Africa remains the prime locus of environmental refugees, there are sizeable numbers in other regions and countries. In China, with its 120 million internal migrants, at least six million deserve to be regarded as environmental refugees, having been obliged to abandon their farmlands due to shortages of agricultural plots in the wake of decades of population growth (Hu 1993; Micklin 1993; Songqiao 1994). In Mexico, there are one million new environmental refugees each year. Some become assimilated in cities, and a few return home, leaving a cumulative total, as a bare minimum in 1995, of two million (Bagley & Quezada 1994; Liverman *et al.* 1995; Mumme 1992). Finally, there are those people displaced involuntarily by public works projects, notably large dams, which are increasing by 10 million every year (with a cumulative total of 50 million in China and India alone). Most of them resettle elsewhere, but the number remaining in a refugee-like situation totals one million (Myers 1997; Renner 2000).

2. THE HAITI EXPERIENCE

As a notable instance of the environmental refugees issue, consider the experience of Haiti. For years, Americans have watched streams of Haitian boat people head-

† This paper presents a revised version of the author's earlier documentation and analyses (Myers 1997; Myers & Kent 1995).

ing towards Florida. Not only have these people been fleeing political oppression, they have been driven by the grand-scale rundown of the environmental resources—soil, water and trees—that underpin their agricultural economy (de Sherbinin 1996; Preeg 1996; Ridgeway 1994).

Almost three-quarters of the populace depends directly on agriculture. Only one-third of all land is considered suitable for farming, but population pressures cause three-fifths to be cultivated. Two-thirds of the farmland is on slopes of more than 20°, yet it has to support farmers at densities of more than 270 km^{-2}, as great as in the most heavily populated agricultural areas of India (Perkell 1992). The soils are thus exceptionally prone to erosion, half of all farmlands being so eroded that they might be un-reclaimable. In some places, much of the landscape has lost virtually all its soil, exposing large stretches of bare rock (White & Jickling 1994).

The combination of environmental rundown with population growth (Haiti's growth rate is the second highest in the Caribbean) means that *per capita* grain production is only a little over half what it was 40 years ago. Many Haitians enjoy only 80% of an acceptable calorie intake: they are chronically malnourished, which is jargon for semi-starving. Life expectancy is only 49 years, marginally better than in 1970, and one child in 10 dies before the age of five. Since 1975, average cash income has been declining, until today it is as little as US$400 a year (UN Development Programme 1999; World Bank 2000).

Primarily as a result of all these environmental travails, at least 1.3 million Haitians, or one in five of the populace, have left their homelands, 300 000 of them heading for the United States. In former times, some of them were driven by political oppression and government corruption. But for most, the predominant factor has been environmental, and to that extent these people deserve to be called environmental refugees (Catanese 1991; Vasquez 1993).

Even though their country now enjoys a measure of political democracy and economic freedom, many Haitians still lack adequate food. Many more environmental refugees will surely leave from Haiti for the United States. This migration poses high costs in the destination states. In Florida, state and local governments have paid out as much as US$250 million per year to cater for Haitian aliens, more than 17 times the US$14 million the US Agency for International Development has been spending annually for environmental safeguards throughout the Caribbean (Stepick 1994; US Committee for Refugees 1994).

3. ENVIRONMENTAL REFUGEES WORLDWIDE

The 1995 estimate of 25 million environmental refugees is cautious and conservative. Scattered throughout the developing world are 135 million people threatened by severe desertification, and 550 million people subject to chronic water shortages (Gleick 2000; Postel 2001; UN Development Programme 2000). Although certain of these people will have been included in the figure of 25 million, many could have been driven to migrate without being counted as environmental refugees.

Out of the nearly one billion additional people added to the global population during the 1990s, a good proportion will have been among communities with a cash income of US$1 per day or less (World Bank 2000). They include the people most likely to be subsisting, or rather struggling to survive, in environments that are too wet, too dry or too steep for sustainable agriculture. In Sub-Saharan Africa, these environments will have needed to support an extra 150 million people during the 1990s, with a similar total in India (UN Population Division 1999).

Poverty serves as an additional 'push' factor associated with the environmental problems that displace people. Other factors include population pressures, malnutrition, landlessness, unemployment, over-rapid urbanization, pandemic diseases and government shortcomings, together with ethnic strife and conventional conflicts. In particular, it is sometimes difficult to differentiate between refugees that are driven by environmental factors and those that are impelled by economic problems. In certain instances, people with moderate though tolerable economic circumstances at home feel drawn by the opportunity for a better livelihood elsewhere. They are not so much pushed by environmental deprivation as pulled by economic promise. This ostensibly applies to many Hispanics heading for the United States. But those people who migrate because they suffer outright poverty are frequently driven also by root factors of environmental destitution. It is their environmental plight as much as any other factor that makes them economically impoverished. This generally applies to those refugees who migrate to areas where economic conditions are little if any better than back home, as is the case with many people who migrate within Sub-Saharan Africa and the Indian subcontinent. In this instance, with poverty and 'life on the environmental limits' as the main motivating forces, it matters little to the migrants whether they view themselves primarily as environmental or economic refugees (Myers & Kent 1995; see also Lonergan 1998; Mougeot 1992; Natural Heritage Institute 1997).

In short, there is a gradient of factors at work. At one end are those people who are driven by environmental problems outright, and at the other end are economic migrants who are voluntary opportunists rather than refugees. In between is a grey zone in which one category sometimes tends to merge into the other. The assessment so far is no more than a first-cut effort, albeit preliminary and exploratory, to come to grips with a prominent and fast-growing problem that is all too real for those who endure it, however much the purists might argue about final definitions.

On top of all these sub-problems is the lack of official recognition, whether on the part of governments or international agencies, that there is an environmental refugee problem at all.

4. THE FUTURE OUTLOOK

How many environmental refugees can we realistically anticipate in the future—or rather, how many people are likely to become vulnerable to environmental problems that could force them to migrate? Let us consider the outlook for the year 2010. The population of developing countries is projected to have grown from 1995 by well

over one billion people, a 24% increase in just 15 years. Sub-Saharan Africa's total will have expanded by some 240 million, a 42% increase, and the Indian subcontinent's by 377 million, 32%. The numbers of people in absolute poverty are predicted to swell from 1.3 billion to 1.6 billion. The 135 million people affected by severe desertification could well increase to 180 million. The populations of water-short countries, 550 million today, are expected to surge to more than one billion. If the 1985 and onwards 'plateauing' of crop yields continues, there will be greater, and more widespread, shortfalls in food production (especially in Sub-Saharan Africa and the Indian subcontinent), while international tradable stocks will be increasingly unable to keep up with the fast burgeoning demand (UNICEF 2000; UN Fund for Population Activities 2000; World Bank 2000).

The 25 million environmental refugees in 1995 had mostly become obliged to migrate since 1980, when their numbers first started to climb rapidly. In the light of patterns and trends of environmental decline and its associated problems, such as spreading poverty and population increase, it is probable that by 2010 there will be another 25 million such refugees on top of the 25 million in 1995, if only because the impelling factors will continue to be at least as prominent for the communities concerned. (This supposes, too, that there will be few preventive measures of sufficient scope.) In fact, the increase could be more than another 25 million because of increasingly degraded environments coupled with growing numbers of impoverished people.

For a specific instance of the problem's scope to expand, consider the prospect for Sub-Saharan Africa until the year 2010. This is already the region with half of the world's traditional refugees and at least a similar proportion of environmental refugees. Despite some advances in soil conservation (in Kenya and Ethiopia), small-scale agriculture (in Nigeria and Zimbabwe), reforestation (in Tanzania and Malawi), anti-desertification (in South Africa), and population planning (in Kenya, Zimbabwe and Botswana), the outlook is unpromising. The region's population is projected to increase to more than 800 million people, fully 42% more than in 1995. Severe desertification might well affect more than 100 million people, half as many again as today. Ten countries are expected to be experiencing chronic water shortages or even acute water scarcity, with collective populations totalling well over 400 million people. Without greatly expanded efforts to tackle the region's lack of development, *per capita* GNP (gross national product) will probably stagnate in real terms at around US$400, or little higher than in 1970 (Myers & Kent 2001; Otunnu 1992).

Most important of all will be the region's incapacity to feed itself. Some 20 countries with a total projected population of 440 million are expected to experience up to 25% shortfall in food supplies, and a further eight countries with a projected 75 million people face more severe deficits (Myers & Kent 2001; US Department of Agriculture 1999). The total number of malnourished people will continue to grow, with at least 100 million destitutes obliged to live for the most part off imported food. The food deficit could rise to as high as 30 million tonnes. Because of its exceptional poverty, the region will be increasingly unable to compete in the global grain market. Food aid worldwide in 1995 was only 7.5 million tonnes, enough to make up the diets of only 10 million semi-starving people (Myers & Kent 2001).

In addition, there will be problems of global warming. Due largely to sea-level rise and flooding of coastal-zone communities, but also to increased droughts and disruptions of rainfall regimes, such as monsoonal systems, global warming could threaten large numbers of people, with displacement by 2050 or earlier. Preliminary estimates indicate that the total number of people at risk of sea-level rise in Bangladesh could be 26 million, in Egypt 12 million, in China 73 million, in India 20 million, and elsewhere, including small island states, 31 million, making a total of 162 million. At the same time, at least 50 million people could be at severe risk through increased droughts and other climate dislocations (Myers 1996; see, also, Watson *et al.* 1998).

All in all, the issue of environmental refugees promises to rank as one of the foremost human crises of our times. So far, however, it has been viewed as a peripheral concern, a kind of aberration from the normal order of things—even though it is an outward manifestation of profound deprivation and despair. Although it derives primarily from environmental problems, it generates problems of political, social and economic sorts. As such, it could readily become a cause of turmoil and confrontation, leading to conflict and violence. Yet as the problem becomes more pressing, our policy responses fall further short of measuring up to the challenge. To repeat a key point: environmental refugees have still to be officially recognized as a problem at all.

At the same time, there are limits to host countries' capacity, let alone willingness, to take in outsiders. Immigrant aliens present abundant scope for popular resentment, however unjust this reaction. In the wake of perceived threats to social cohesion and national identity, refugees can become an excuse for outbreaks of ethnic tension and civil disorder, even political upheaval. This is already the case in those developed countries where immigrant aliens increasingly prove unwelcome, as with the experience of Haitians in the United States and North Africans in Europe. Almost one-third of developed countries are taking steps to further restrict immigrant flows from developing countries. Yet measures to relieve the plight of refugees of whatever kind have drastically diminished in relation to the growing scale of the problem. Although the annual budget of the UN High Commissioner for Refugees has recently been boosted to US$1.3 billion, the agency is increasingly unable to supply food and shelter for refugees of a traditional kind, much less to invest in rehabilitation or repatriation of these refugees. Meanwhile, the world's refugee burden is borne primarily by the poorest sectors of the global community. In 1998, the 20 countries with the highest ratios of official (traditional) refugees had an annual *per capita* income of only US$750.

5. POLICY OPTIONS

There is much scope for preventive policies, with the aim of reducing the need to migrate by ensuring an acceptable livelihood in established homelands. First of all, we need to expand our approach to refugees in general

in order to include environmental refugees in particular. We cannot continue to ignore environmental refugees simply because there is no institutionalized mode of dealing with them. If official standing were to be accorded to these refugees, this might help to engender a recognized constituency for, for example, those 900 million people who endure some degree of desertification, four million of whom have become environmental refugees in the Sahel alone. Although desertification entrains costs of US$42 billion a year just through the loss of agricultural produce, the United Nations' Anti-Desertification Action Plan would cost no more than US$10 billion a year. However, the amount subscribed so far is less than US$2 billion, ostensibly on the grounds that arid-land dwellers have no constituency and hence lack political leverage.

Second, we need to widen and deepen our understanding of environmental refugees by establishing the root causes of the problem—not only environmental causes, but also associated problems, plus the interplay of the two sets of forces. There are many conceptual grey areas as concerns proximate and ultimate causes, the contributory roles of population pressures and poverty, the linkages to ethnic tensions and conventional conflict, and so forth. Suppose, for instance, there had been a better understanding and hence a better anticipatory response on the part of the Philippines government when the agricultural frontier closed in the country's lowlands during the late 1980s, bringing on a sudden increase in landlessness and an upsurge of migration into steep country in search of land. The problem could have been somewhat relieved through before-the-event measures to redistribute existing farmlands, to improve rural infrastructure, and to supply more off-farm employment, thereby reducing the need to migrate out of the lowlands.

Consider, too, the root causes of famine. If a famine has been human-made, it can be human-unmade, whereas natural factors can only be managed and accommodated. Just as the recurrent droughts in Sub-Saharan Africa cannot all be blamed on climate, so the recurrent famines cannot all be blamed on drought. Drought has often served to trigger famines by disrupting the social, economic and political processes that would normally ensure sufficient access or entitlement to food.

Probably most important of all is that there can be little advance except in an overall context of what has come to be known as sustainable development. This applies notably to reliable access to food, water, energy, health and other basic human needs—the lack of which is behind many environmental refugees' need to migrate. In big picture terms, sustainable development represents a sound way to pre-empt the environmental refugee issue in its full scope over the long run. As a prime mode to tackle the issue, then, there would be a handsome pay-off on investment to foster sustainable development in developing countries through greater policy emphasis on environmental safeguards, together with efforts to stem associated problems, such as poverty, population and landlessness.

However, only select parts of sustainable development measures address the particular problem of environmental refugees. Especially pertinent, for example, would be the Anti-Desertification Action Plan as applied to the Sahel and arid sectors of the Horn of Africa, both being sources of large numbers of environmental refugees, whether present or prospective. Also warranting closely targeted responses are food-short regions in Sub-Saharan Africa and the Indian subcontinent.

Much could be achieved, too, through better targeting of foreign aid. The annual budget of the main source of multilateral aid, the UN Development Programme, has declined so much in recent years that it is now little more than that of the UN High Commissioner for Refugees (US$1.3 billion in 1995)—meaning that the United Nations' main response in this regard tends to be as reactive as it is proactive. Worse, the 10 developing countries with well over two-thirds of the world's 'poorest of the poor' receive only one-third of foreign aid—and it is impoverished communities that serve as the source of most environmental refugees. India has 27% of all people in absolute poverty worldwide, yet it receives only 5% of total foreign aid. Were foreign aid to be more closely directed at impoverished people in the main countries and regions concerned, it could help to relieve the problem while it is still becoming a problem, i.e. before it becomes entrenched.

Equally to the point, developing countries and aid organizations alike devote only *ca.* 10% of their development expenditures to priority human needs, such as water, sanitation, nutrition and health—the lack of which is often a contributory factor to the environmental refugee problem. The communities most deficient in these essentials are the 1.3 billion people in absolute poverty. The challenge could be largely surmounted if the funding proportion were to be doubled to 20%. The additional annual cost for the United States would be no more than US$2 billion, or US$7.7 per American (the price of a beer every three months). Alternatively, the sum could readily be made available by restructuring the US aid programme of US$8 billion a year.

There is much more that developing countries themselves can do, and at no great cost. According to UNICEF (2000), to eliminate deaths from famine would cost little more than US$0.5 billion per year; to cut malnutrition among women and children (who make up a disproportionate share of environmental refugees), less than US$2 billion; and to reduce hunger among the poorest households, little over US$6 billion. All of these measures would help to reduce the prime pressures that generate environmental refugees. The total cost would be less than US$9 billion, or US$7 for each of the 1.3 billion people in absolute poverty—these being the communities that are a main source of environmental refugees. By contrast, developing countries spend an annual average of US$40 per citizen on military activities. In 1999, Ethiopia assigned 13% of GDP to this purpose, four times the global average, even though it featured some of the largest numbers of environmental refugees in proportion to population size.

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