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Modernity and life politics: conceptualizing the biodiversity crisis

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Abstract

The article examines the implicit boundary narratives of both modernization theory and of its counter-discourses (neo-Malthusianism) and successors (globalism and reflexive modernization). Among the successors, special attention is given to the paradigm of reflexive modernization and its empirical corollary, the hypothesis of an emerging global agenda of “life politics”. After offering a matrix of basic theoretical responses to modernization theory, the paper locates the biodiversity crisis within current controversies about how to overcome the flaws of traditional modernization theory. It is suggested to trace the development of this policy area back to the early twentieth century and to reread it in the light of different societal and theoretical approaches toward modernization. In conclusion, it is argued that in order to enhance our analytical capabilities, the concept of life politics needs some critical injection from literatures more sensitive to notions such as spatiality, locatedness and the lived contexts of social groups. © 2002 Elsevier Science Ltd. All rights reserved.

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Introduction

Modernization theory was buried sometime in the late 1960s under an avalanche of criticisms by sociologists, political geographers, and others. The criticisms were directed against its alleged eurocentrism, its gross exaggeration of the homogeneity of both western and non-western societies and the methodological silencing of contradictions within modern societies. Classical modernization theory tended to down-

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play the autonomy of cultural codes, the persistence and malleability of the traditional within the modern, and the many discontents of modern life. With the benefit of hindsight and against the background of both its postcolonial merits and its explanatory deficits, the theory is today understood as a symbolic system and a “metalanguage that instructed people how to live” (Alexander, 1995: 69). Unlike a more reflective theoretical discourse which would have attempted to unite diverse ways of life in an abstract universe of ideal consensus, modernization theory as a symbolic system was first of all good at redrawing boundaries and distributing people according to the stage they had reached on the “evolutionary ladder” (Taylor, 1989) towards the state of grace of full modernity. Pioneers and laggards were spatially distinguished, even when western Robinsons could never be sure not to be overtaken by non-western Fridays one day.

At the centre of the practical concerns of the modernization narrative were a number of unresolved life-and-death issues. The pivotal role of wheat-breeding and increasing the yields of cereal crops for establishing US hegemony after World War II is a case in point (Perkins, 1997). At a different level, modernization thinkers like the Austrian anthropologist Wilfried Daim tried to establish a causal link between the accumulation and diffusion of scientific knowledge and the erosion of spatially relevant “nausea barriers” (Daim, 1960) which he considered to be at the root of caste-like symbolic orders in pre-World War II Europe. Before the heyday of modernization, these impenetrable boundaries were instrumental in keeping sections of the population engaged in earthbound and “unclean” activities at a social distance (esp. the peasantry). The implicit geopolitical code also kept the large agrarian societies of the Third World symbolically at bay. The caste-like distance between different sections of the population was narrowed only with the modern knowledge revolution and the increasing technological rationalization of the society–nature interface. Thus, modernizers saw the taming of basic life processes through hygienic reforms and science-driven agriculture as a precondition of moral progress in a globalizing world.

In response to the untenability of the implicit assumptions associated with modernization theory, two major trends began to take shape in the last two decades: first, a staunch anti-modernism which has decried modernization and “development” as intrinsically unjust projects concocted after World War II by well-entrenched global trade and financial institutions (e.g. Escobar, 1995, 1996), and second, a more discriminating approach ready to concede that apart from being an instrument of control over subaltern classes modernization “can also be a tremendously powerful discourse of entitlement” (Watts & McCarthy, 1997: 80).

In this article, while rejecting the anti-modernist and anti-developmental response given its lack of conceptual clarity and its dubious political implications, we assess the ways in which substantially revised versions of modernization theory have contributed to either reiterate or break with the discourse of classical modernity. Interestingly, these revisions have further elaborated on the life-and-death issues already implicit in old-style modernization theory. This is especially true for the theory of “reflexive modernization” proposed by Ulrich Beck and Anthony Giddens, which explicitly centres around the emerging relationships between ongoing modernization

at a global scale, new conceptualizations of life and nature and far-ranging democratic activities. Both assert that today we are witnessing not the final breakdown of development and modernization nor the transition to some postmodern social universe, but instead modernity coming to terms with itself, its ultimate radicalization (Giddens, 1991, 1994; Beck, Giddens, & Lash, 1996; Beck, 1996, 1997, 1998). Modernity is seen as rebounding upon itself, thereby becoming “reflexive”. Manufactured risks, hazards and insecurities dip under interstate borders and give rise to changes of political sensibilities and agendas. The new risks and insecurities are by-products of the very successes of earth-spanning modernization efforts. Food chains, for example, connect nearly everyone in the world, adding thereby to the vulnerability of both consumers and producers on a global scale. Reflexivity is the result of unintended consequences of industrial modernity increasingly liable to boomerang on the agencies, organizations and institutions that form the interconnected world of states and societies. As a consequence, the nation-by-nation, step-by-step “ladder” of modernization does not necessarily point upwards but might as well loop through a number of stages only to return to where it started from.

Ironically, whereas states are increasingly de-politicized by just implementing the global imperatives of economic competitiveness, political space is being reopened below and beyond the level of official state politics (Beck, 1998). In order to achieve true progress, modern societies cannot afford any longer to ignore the long-term “externalities” of their own operations in terms of increasing social and environmental costs and new life-threatening hazards. Widespread symptoms of a “modernity under a negative sign” (Giddens, 1994: ch. 8) suggest that not only the periphery of the world system has no chance to de-link itself from the developed countries — a political hope nourished by “dependency” theorists till the 1980s (Amin, 1986). Rather, even the developed countries are far from being able to de-couple themselves from the pressures of shrinking resource bases, overflowing global emission sinks, increasing migration and insidious new diseases caused by microscopic “bioinvasions” (Bright, 1998). By focussing on new “life-political” issues resulting from the transformation of nature by abstract knowledge systems, the paradigm of reflexive modernization stresses this aspect of social change through unintended consequences which escape rational control by state agencies. Beck and Giddens come close to suggesting something like a law of *karma* which lays down that the actions of our present local lives affect the lives of future generations and spatially distant people in an inescapable manner. This again seems to encourage theoretical efforts finally to overcome the “boundary narratives” (Newman & Paasi, 1998) of modernization theory that, contrary to proclaimed ethos of universal development, have tended to freeze the geopolitical and moral divisions between European and postcolonial, western and non-western countries.

In order to substantiate our claim that Beck and Giddens offer a useful, but incomplete starting point for linking pertinent theoretical questions about global societal development to down-to-earth struggles about the uses of nature in late modernity, this article starts with an overview of distinctive boundary narratives underlying modernization theory and the discourses of its opponents and successors. Next, we take a close look at the various dimensions of current life politics, taking the bio-

diversity crisis and its multiple spatial implications as an example. The question here is to what extent reflexive modernization is a helpful analytical tool to understand what is going on in one of the most worrying crises of the present time. We argue that in spite of its merits in tackling new areas of space-related political conflicts, reflexive modernizers still reproduce conventional geopolitical assumptions about moral and evolutionary boundaries traversing the post-Cold War world. This leads to the conclusion that unless we revise some of its functionalist and naturalist implications, the concept of reflexive modernization will constrain rather than broaden our understanding of the complexities of the new biopolitical agendas.

Modernity and its critics: competing boundary narratives

Let us begin with two key assumptions which are at the heart of classical modernization theory as elaborated by post-World War II scholars like Rostow, Bendix, Huntington and Lerner. First, the theory implies powerful cartographic representations of administrative areas suggesting equivalent sovereign territorial states backed by robust national identities across the globe. Starting from this political fiction of a “Westphalian” global map, it is further assumed that as soon as these *spatially bounded* societies begin to embark upon the course of modernization, they would differ only gradually from each other according to the developmental stage achieved. Second, modernizers believed that the gradual development of every society is itself basically *boundless*. This optimistic outlook sharply contrasts modernization theory from older theories of capitalism which either reckoned with unresolvable internal contradictions or, following Weber, with insurmountable limits of natural resource deposits constraining economic growth (Heins, 1993: 274). In post-war modernization theory nothing was left of the mixed feelings of classic scholars who shivered at thinking of the “cold skeleton hands of rational institutions” (Weber, 1986: 561) threatening all life, or of the ever-growing amounts of “living” labour force being turned into “dead” capital (Marx, 1976). Quite on the contrary, and in spite of its indisputable traumas, modernization was deemed “not only inevitable, but also desirable” (Huntington, 1971: 290).

Modernization theorists have stressed the sources of development *internal* to societies, the mutual reinforcement of different aspects of development, the gradual convergence of modernizing societies, and finally the structural inability of pioneering societies to effectively stop the laggards from catching up. The hypothesis of structural convergence suggests that boundaries between societies are becoming more porous in the course of modernization, although these boundaries are taken to be given in the first place. They form the main points of reference for a methodology of comparing and ranking societies across the world. Yet at the same time, comparative advantages and hegemonic strategies are defined in functional terms of an emerging “operational empire” (Huntington, 1973: 344) spearheaded and symbolized by the United States which safeguards the transnational room for manoeuvre of both public and private actors — from corporations to human rights groups. At this point, the modernist view of ever-expanding spheres of action was not tempered by any theor-

etical recognition of the problem of possible limits to growth which began to worry a growing number of scholars and environmental activists from the late 1960s onwards.

We suggest that two different notions of “bounds” are at the heart of the controversy about modernization theory. Modernist literatures from sociological and political science backgrounds have always envisioned a world of boundless growth of both industrial capacities and subjective capabilities, but not the end of the territorial state’s boundaries. Quite on the contrary, the world was mapped along the domestic–foreign frontier fostered by the liberated national identity codes of a postcolonial landscape. Given the difference between territorial state boundaries and functional limits to growth and expansion, critics of modernization theory can be distinguished by the kind of notion of boundary or boundlessness they are challenging. Neo-Malthusians, in particular, have debunked the concepts of boundless growth whereas both mainstream globalizers and reflexive modernists have targeted the dominant moral geography of a world of bordered states. Before elaborating on the biodiversity crisis and the current geographies of life politics, we will briefly sketch the differences between these academic tribes with regard to their notions of territorial and functional limits.

First, the *neo-Malthusian* school has resuscitated the idea, originally put forward by Thomas Malthus, that population growth tends to outpace the growth of agricultural output. This idea has been extended from a national to a global scale and from the problem of food to those of erosion, pollution and increasing scarcities in the forest, marine and energy sectors. Against the modernist belief in unlimited progress, neo-Malthusians have tried to collect evidence for the physical impossibility of maintaining the present growth dynamics or of even expanding them from the charmed circle of western economies to the “underdeveloped” world. This remarkably tenacious line of argument is deeply imbued by a naturalist conception of the relationship between population figures and natural resource supplies which has been criticized on the more abstract methodological level by Michel Foucault and others (cf. Rutherford, 1999; Goldman, 1997) and by numerous empirical researchers focusing on specific socionatural locations (e.g. Leach & Fairhead, 2000). Arguably, neo-Malthusians have accepted the spatial code of modernization theory which draws a line between developed and underdeveloped regions. But at the same time they have re-interpreted it in a way that modernization of the underdeveloped world is no longer considered desirable. Anticipating much of the currently fashionable anti-developmental literature, they have regarded “development” as an overwhelming, larger-than-life threat to the cultural, ecological and political integrity of (Western) polities. Putting this way of thinking in a nutshell, Robert McNamara equated the dangers of unchecked global population growth, that is of life itself, with the atomic bomb, that is universal death (McNamara, 1973: 31).

Second, *mainstream globalizers* have propounded a vision of economic and technological trends hollowing out the traditional meaning of state boundaries as unquestioned markers of space. Theorists of cyberspace arguing that there has been a collapse of spatial and temporal boundaries leading to a radical space–time compression have supported this vision of a “borderless world” (Ohmae, 1990). The ultra-modernist end-of-boundaries thesis also implies the renewed belief in limitless economic

growth insofar as the new world economy is seen as thriving not only on de-territorialized spaces but also on de-materialized goods and resources made of knowledge and data flows. This vision has also influenced some currents of theorizing about ecological modernization which differ in some aspects from reflexive modernists (cf. Buttel, 2000). Accordingly, even if mankind won't tap the natural resources in outer space which are increasingly focused upon (Lewis, 1997), the world will become boundless in the two-fold sense of the waning importance of place and space and of the nonlinearity and unpredictability of future economic growth trajectories.

Third, *reflexive modernists* like Giddens and Beck are steering a course beyond the ultra-modernism of mainstream globalists and the anti-modernism of neo-Malthusianism. Against international relations realism, the nation-state as a bordered power container is reconstructed as being under pressure from an increasing number of non-state actors and transnational influences which gives rise to the hypothesis of an emerging global civil society (Heins, 2001). Global civil society, in turn, is emotionally backed by what Beck's unsung (and untranslated) forerunner Daim called a growing "feeling of borderlessness" (Daim, 1960: 466f) triggered by unprecedented global threats to human survival. Whereas this focus on transboundary challenges and alliances dear to reflexive modernists is in line with mainstream globalism, Beck and Giddens do not share the technological optimism of a boundless expansion of the abstract systems of modernity. Rather, modern societies are seen as being constrained in their further development by the cumulative, often latent side-effects of ongoing modernization strategies like the effect of greenhouse gases from across the globe in terms of atmospheric disruption. Thus, societies increasingly need to face and to actively cope with the overwhelming social and environmental "externalities" of their own development.

Like mainstream globalists, reflexive modernists assume that progress towards a re-engineering of democratic institutions will take place not against, but only in the wake of global capital expansion (Beck, 1998: 65). But at the same time and in accordance with neo-Malthusianism, the belief in boundless economic growth is regarded as a prejudice of "simple" modernity. Unlike neo-Malthusians, however, Beck and Giddens do not pit ecological concerns against modernity but try to reconcile both under the heading of "life politics". Giddens, in particular, is explicitly putting forward an end-of-frontiers thesis which says that the "invasion of the natural world by abstract systems brings nature to an end as a domain *external* to human knowledge and involvements". And yet in the same breath he mentions the extension of human control over nature coming up "against its *limits*" (Giddens, 1991: 224; italics added), because questions of personal growth are challenging the logic of the ever-expanding systems of modern statehood, economy and science. The material and geographical extension of technological and legal control over nature gives rise to concerns about how to live properly in a world where collective and individual identities need to be constructed beyond the lost signposts of unquestionable traditions and fixed cultural meanings. Nature has come to an end both as an uncharted space "out there" (the modernist frontier-concept) and as a calculable, law-like referent we can sail by like a navigator sails by the East (the neo-Malthusian naturalism).

Building on the two dichotomies based on assumptions of a limited or unlimited

Table 1
Territoriality, modernity and economic growth: the academic tribes

	World of bordered states	Borderless world
No limits to growth	simple modernizers	mainstream globalizers
Limits to growth	neo-Malthusians	reflexive modernists

functional growth and a bordered or borderless territorial world, Table 1 distinguishes the four main academic tribes supporting either modernization theory or one of its counter-discourses.

Neo-Malthusians as well as reflexive modernists do not have much trust in the problem-solving capacity of modern political institutions. However, whereas neo-Malthusians wish to conjure up the imperatives of “life itself” against a modern society apparently out of touch with nature, reflexive modernists are stressing the new set of options to be faced by individuals and groups today with regard to a wide array of life-and-death issues opened up by the loss of traditions and the advance of biotechnologies. Widespread uncertainties engendered by these options can neither be brought to a standstill by the sovereign institutions of the nation-state nor can they be relegated to the residual realms of privacy. Instead, a new agenda of life politics emerges which directs the attention of an increasing number of people to existential concerns such as ecology, the well-being of non-human species, biological reproduction and gender relations. Life-political concerns move thus to the centre stage of modern, globalizing societies, becoming one of the occasions for public mobilization. At the intersection of the global and the individual, of life laid bare and good life, people need to respond to the choices and risks offered in “post-traditional” contexts infused with invasive technologies reaching unimpeded through individual body walls as well as into other formerly opaque phenomena such as complex ecosystems, genetic codes, sexual reproduction, life cycles or germ-lines. Many of these biological fundamentals and the associated social activities have been opened up by the abstract systems of modernity for being re-formed according to new social and moral needs. However, as there is no consensus about the appropriate way of representing and assessing these intrusions, *political conflict* becomes unavoidable. The biodiversity crisis is a good case in point that serves both as an indicator of the analytical value of the concept of life politics and as a reminder of some of its crucial shortcomings.

Geographies of life politics: the biodiversity crisis

The different conceptualizations outlined so far can be illustrated and further elaborated referring to the conflicts over biodiversity and genetic resources as they have

developed during the twentieth century. A closer look at the different lines of argument concerning what is called the “biodiversity crisis” today will highlight the specific shortcomings of the different academic viewpoints. We will first locate historical developments within the frames of “simple modernization”, neo-Malthusianism and mainstream globalism before moving on to revisit these framings in the light of reflexive modernization theory and what we perceive as its strengths and weaknesses.

It should be noted right at the beginning that the following three accounts are neither isolated from each other nor excluding each other in terms of their historic and spatial settings. They do have their paradigmatic instances during the course of the twentieth century, in certain times and places where dominant currents in social theory converge with broader economic trends or state-led interventions. Yet they should not be read as a linear historical metanarrative, nor as a necessary succession of different modes of political–economic regulation in the course of the century (Pistorius & van Wijk, 1999; Görg & Brand, 2000), but as an attempt to develop the field in question in relation to the different positions in the modernization debate as they have been outlined above.

Simple modernization: plant industries and national resources

A major achievement of early agricultural societies was the selection and cultivation of wild plants which later turned out to be the nutritional basis for all kinds of social progress. Whereas this achievement was based on the meticulous observation of plant life, it was Mendel’s genetics and its rediscovery around 1900 which became the take-off point for modern, systematic plant breeding. A little later, in the 1920s and 1930s, the first, decisive phase in the development of a political struggle about control over genetic material started, when the Russian geneticist and plant geographer Nicolay I. Vavilov applied the term “resources” to “reservoirs of genes” in his research on the centres of origin of the cultivated plants (Flitner, 1995). At this point, we can aptly speak of a period of “simple modernization” (Beck, 1996) in the area of agriculture. The developments during that time were to considerable extent science-driven as the new science of genetics led to profound changes in ideas about the regulation of life and the potential control over its diversity. Linked to the progress in identifying and measuring the spatial distribution of genetic diversity over the globe, the scientific basis for plant breeding gave birth to a political issue that was soon integrated into larger ideological and economic contexts.

The leitmotif of agricultural modernization in the Soviet Union is condensed in the term “plant industry” which was widely used from the 1920s onwards. After an outright civil war had been fought against the farmers, Stalin dictated even the varieties to be planted in large areas (raions) in the name of scientific socialism (Plucknett et al., 1987: 16). But it was not only in the Soviet Union that the state was heavily involved in the use of “plant resources” for the sake of national development. In Germany, an executive order (*Saatgutverordnung*) banned three quarters of all existing plant varieties from the market in 1934. At the same time, seed companies were granted oligopolistic control over the seed market, denying farmers the right to reproduce and re-sell certain types of seeds (Flitner, 1995: 81–85). A legal frame-

work for private investment in agricultural modernization also began to take shape in the United States with the passing of the *Plant Patent Act* in 1930, providing for exclusive private rights with regard to vegetatively propagated plants (Fowler, 1994). The United States introduced its own kind of plant industry symbolized by big *Fordson* tractors furrowing the endless fields of the American Midwest. There is even some evidence that Henry Ford's concept of standardized mass production of automobiles was inspired by the pure flow of increasingly homogeneous grain across time and space and through Chicago where standardized grades of corn and wheat were established very early (Cronon, 1991; Schoenberger, 1997: 34). During the same period, Germany, the United States and the Soviet Union carried out a large number of expeditions throughout the world to collect wild and cultivated relatives of their useful plants as an input to enhancing the genetic make-up of their agricultural production systems. One of the most spectacular long-term successes of this phase of introductions was the rise of the US soybean industry which was largely based on targeted collecting missions in China and Japan during the 1930s.

Referring to the United States, Jack Kloppenburg (1988) has called this double move of curbing the rights of farmers and amassing raw materials from other parts of the world in the centres of agricultural modernization a "primitive accumulation of germplasm". Ecological considerations played a negligible role in that context, although the *dust bowl* in the south-western Great Plains region of the United States sent a first warning signal regarding the upcoming problems of industrial agriculture as early as the 1930s. Yet any fundamental limits to growth were considered non-existing. They were either seen as mere scientific and technical problems, or worse, as in Germany, as largely coinciding with the boundaries of the national *lebensraum*.

If we leave out of consideration the changed set of actors involved in today's conflicts over biodiversity, then some elements of the nationalistic discourse that prevailed during that period still sound surprisingly familiar. When Vavilov travelled to Mexico in 1931 to collect the rubber plant *Guayule* (*Parthenium argentatum*), a US-based rubber company launched a campaign in the Mexican press about the "plundering of national treasures by the Bolsheviki" (Vavilov, 1997: 147). A decade later, German military units robbed Russian collections of another rubber plant in order to boost their autarchy plans central to the war effort. Nowhere else during the twentieth century was there such a close linkage between expansionist nationalism and the politics of appropriating plant resources.

Still, it can be argued that even the international legal regime established with the Convention on Biological Diversity (CBD) 60 years later echoes one basic premise of both events by explicitly reaffirming the principle of national sovereignty over genetic resources in its preamble. The point here is that biodiversity or, more narrowly, genetic resources are in the first place a *national* resource that can and should be used for the purpose of industrial and agricultural modernization, and that this resource has to be defended against the appropriation by non-nationals. This concept of a national resource which was explicitly used by American foreign policy makers like Henry Kissinger with regard to grain as a coercive "weapon", may be just as strong and even more widely shared today than in earlier periods as the wide array

of “resource nationalisms” in the present juncture suggests (Schurman, 1998; Mandel, 1988: 70).

Neo-Malthusianism: from people and food to people and parks

Neo-Malthusian perspectives have played a leading role in conceptualizing modernization issues throughout the twentieth century, with several shifts and refinements in argument. In our context, two paradigmatic instances can be seen: the international agricultural modernization effort that followed World War II, when the world faced an unexpected return of mostly politically-induced regional famines (e.g. Kratoska, 1998), and, later on, the reformulation of Malthusianism in terms of nature conservation. Opposed to classical modernization theory, these lines of discourse have as their starting point the idea that there are natural or quasi-natural limits to growth which either make global modernization very risky if not impossible, or undesirable for its social consequences.

This neo-Malthusianism, however, is distinguished from its predecessors by the recognition that organization and technology can make a difference in the global equation between crop consumers and crop growers. While old-style Malthusians simply saw an inevitable tendency of human population to outgrow food production, neo-Malthusian scholars offered a more complicated, political argument: overpopulation would cause resource depletion and hunger which in turn would lead to political instability threatening Western interests and world peace. These modifications were taken up by the American discourse on international “development” which after the defeat of Germany and Japan in World War II replaced the older moral geographies of colonialism and state-sponsored racism. Instead of domestic peasants, far-away communists capitalizing on the poverty of the countryside were now constructed as the main enemies of global progress towards peace and prosperity. Hence, “a handful of rice” and “bread and democracy” were made the new slogans of a transnational *affluent society*.¹

Consequently, the transfer of modern plant breeding technology was seen as the appropriate response to population growth (Perkins, 1997: 133). Mexico and India were the most famous instances of practical programmes undertaken by the Rockefeller and Ford Foundations from the 1950s onwards, paving the way for a co-ordinated global effort in controlling the diversity of life forms for agricultural production. Plant diversity, or “plant genetic resources”, as they were called now, were to be collected and administered by a chain of international agricultural research institutes formally tied together in the World Bank-led Consultative Group on Inter-

¹ “Bread and Democracy in Germany” is a title by the exiled modernization theorist Alexander Gerschenkron (1943). This learned invective against the agricultural nationalism championed by the big landowners in Prussia anticipates a central political creed of the Green Revolution: “The goal of efficient agriculture is intimately connected with the principle of democracy and with higher standards of welfare” (Gerschenkron, 1943: 195). “A handful of rice” is the title of a novel by Kamala Markandaya (1966) which epitomizes the much-quoted leitmotif of innumerable charity campaigns, philanthropical institutions and humanitarian key visuals.

national Agricultural Research (CGIAR) in 1971. The Green Revolution — a term coined in the late 1960s, with red revolutions in mind — was to solve the food shortages in Asia and Latin America in a technical manner, with short-growing rice and wheat varieties that were highly responsive to irrigation and agrochemicals (Grall & Lévy, 1985; Pearse, 1980).

The urgent need to collect genetic resources, to construct “gene banks” for long-term seed storage, to introduce high-response varieties and to push back all kinds of traditional agriculture was justified by pointing to poor Third World dwellers unable to curb their reproductive instincts, thereby threatening to overcharge the carrying capacity of the globe (Hardin, 1974).

But politically reformulated Malthusianism soon gave rise to a second, slightly different sense of “limits”. While famines in Bangladesh and Southern Africa continued to shock the world through the 1960s and 1970s, also the unintended consequences of industrial-style agricultural modernization began to be perceived on a broader scale, with problems of erosion and salinization in many modern agricultural lands, and in particular with the growing side-effects of pesticide use. Rachel Carson’s *Silent Spring* (1962), probably the first green bestseller ever, had opened a public debate on toxic residues in the food chain and it soon became obvious that there were very limited “sinks”, if any, for certain chemicals, and that these substances were not confined within any political boundaries. The idea that there were *global limits* with regard to a number of environmental problems rapidly spread with the famous Club of Rome report in the 1970s. In India, too, agrarian experts began to have second thoughts about the Green Revolution, wondering how “green” it really was (Sarabhai, 1969).

Thus, both professionals and activists became aware of the risks and limits of “simple modernization”. Older European fears of “degeneration” were replaced by system-ecological concerns about a possible biological disintegration of otherwise highly sophisticated modern societies (cf. Kwa, 1987: 423). It was realized that unlike in other areas of modernization, in agro-industrial production it is impossible to fully replace “traditional” by “modern” varieties, not only because they are often better adapted to low-input agricultural systems, but because they are needed as reinsurance against the ever-changing needs of plant production that are unforeseeable even in the midterm.

But this second type of perceived “limits to growth” also opened the way for more far-reaching debates on production styles, on differences in consumption patterns and on international power relations. A strong critique of modern capitalist agriculture developed, in particular of the role of transnational corporations which were gradually taking over the agricultural production chain to form an international “agribusiness”. Part of this critique began to focus explicitly on genetic resources, Pat Mooney’s book *Seeds of the Earth* (1979) being the groundbreaking publication that directly influenced the following debates in different UN fora, primarily in the UN’s Food and Agriculture Organization (FAO). The spatial script in this line of thinking was no longer that of nations struggling and competing largely in an isolated manner, but of geopolitical blocks standing in opposition: the ‘North’ represented by trans-

national corporations from the capitalist world, and the ‘South’ exemplified by traditional small-scale farmers being deprived of their livelihood resources.

One main focus of this critique was on the new intellectual property rights regime for plant breeders that had spread from the 1960s onwards in the OECD world. Why should private companies have exclusive rights in varieties, so it was asked, while the millions of farmers who had created and maintained the diversity of useful plants on which those varieties were based should stay behind empty-handed. With the (non-binding) *International Undertaking* that had been passed after heated debates in FAO in 1983, genetic resources were declared a *heritage of humankind*, suggesting that they should be used for the common good of all people and nations and not just for individual companies’ profits. It remained unclear, however, how this concept would relate to existing private property rights on the one hand, and to national sovereignty over natural resources on the other (Kloppenborg & Kleinman, 1988).²

The concept of “Farmers’ Rights” was developed in FAO in 1985 to provide some sort of recognition for Southern farmers’ contributions to the development and conservation of plant genetic resources, and the plant breeding industry was asked to contribute to an “International Gene Fund” on a voluntary basis whenever they used such resources from Southern countries. It soon turned out that this approach would remain at a purely symbolic level and the so-called rights would confer “no rights whatsoever on anyone; not developing states, and certainly not farmers” (Stenson & Gray, 1999: 146). But if Farmers’ Rights somewhat lost their drive, similar initiatives sprang up in other UN fora under different headings, in particular as part of indigenous peoples’ struggles for social and political rights (Cleveland & Murray, 1997). At first glance, the ramified debates around Farmers’ Rights, intellectual property and indigenous knowledge that have developed from the mid-1980s onwards seem to indicate that productivist framings of the biodiversity conflict are losing their dominance along with the nationalistic development paradigm. Yet a closer reading of the manifold declarations and documents reveals that the envisaged inclusion of marginal actors is still largely conceptualized in functionalist terms by according them a narrowly defined instrumental role in biodiversity prospecting and global conservation efforts.

In this context, leading figures of the biodiversity debate have brought the neo-Malthusian argument back to the fore in yet another form. For E. O. Wilson and his followers, it is not so much the quest for food of hungry millions that demands the dismantling of traditional agriculture in the name of political stability, but rather the pressure of these faceless masses on more or less pristine ecosystems in remote areas. In “poor nations”, they maintain, such “virgin areas” could only be saved if “birth-rates can be dramatically lowered” (Ehrlich & Wilson, 1991: 761). In a certain sense, this neo-Malthusianism is much less neo again now, as it is less grounded in

² Unlike the resources of the deep sea bed to which the notion of “common heritage” had been applied earlier, plant genetic resources were largely based within national territories. And the prospects for enforcing the transfer of privately owned technologies or redistributing monetary benefits looked even bleaker in the mid-1980s than they did in the early 1970s when the discussion on ocean floor resources took off in the United Nations Conference on the Law of the Sea (UNCLOS).

terms of political stability and, in particular, de-coupled from the communist threat. Tellingly, the authors maintain that “nothing less than the kind of commitments so recently invested in the Cold War” is needed to halt current trends (*ibid.*). The biodiversity discourse thereby revives longstanding debates about the population–conservation nexus that are precariously infused with the colonial — and postcolonial — legacy of discriminatory land policies and “coercive conservation” (Peluso, 1993; see also Grove, 1998; Neumann, 1998).

Mainstream globalism: borderless worlds and receding limits

The borderless world, according to some of its prophets, is brought about by technological and economic progress unleashed by the forces of free markets. Yet it is not only to them that the post-war discourse of “development” in the South has been replaced by concepts of a deregulated, global knowledge society where subnational economic units can successfully enter niche markets irrespective of the fate of the national economies they belong to.

These trends can be illustrated with the recent developments in the biodiversity discourse. What has been discussed in the 1980s as a question of *common heritage* and thus in terms of international distributional justice, has been transformed into concepts that are largely in line with the existing trends towards a globalized liberal economy. At the same time, the ecological dimension of the issue came to the fore during the Rio process, prompting Buttel (1992) to speak of an “environmentalization” of the conflict about genetic resources. The lines of political conflict thus began to multiply making it more difficult to group them along well-established geomoral axes like East/West or North/South.

The mainstream biodiversity discourse gains momentum as it is linked to two other developments. Firstly, like at the beginning of the last century when the science of genetics revolutionized plant breeding, we are witnessing an enormous technological push with the advent of genetic engineering. Genes are turned into a convertible ‘currency’ for the food, agriculture, health and pharmaceutical sectors. The transnational chemical companies that already dominated the Green Revolution seem decided to give up their old focus on “death and dyeing” (Mooney, 1998: 141) and turn into integrated “life industries”. Secondly, neo-classic economists are now dominating the debates over the global environment. Conservation has to pay, so they say, and it does pay if we internalize the hidden cost of pollution, destruction and extinction, in short, if we get nature’s price right (*cf.* Flitner, 1998). Where these two strands join, the world becomes full of opportunities based on biodiversity and biotechnology, and we are entering a bright “win–win-scenario for natural resources access” (Marsh, 1993). The tropics are then seen as large unexplored “forestry pharmacies” and “databases” where pharmaceutical companies are searching for unknown bio-active compounds to develop new products without any harm to the environment. Nature’s worth being computed at US\$ 33 trillion, provisionally (Costanza et al., 1997), tropical forest destruction is not simply another environmental problem but just as much of an economic disaster.

Yet, this attempt at stripping socially embedded natures of any moral meaning is

contested not only by local actors depending on natural resources, but also at the level of global agencies like the secretariat of the Convention on Biological Diversity (CBD) whose experts clearly see the extent to which this policy-area, unlike climate or other issues, is liable to be infused with moral discourses:

“The climate issue is much easier to handle, here we’ve got international standards following the motto ‘Less carbon dioxide means a better climate’. When we talk about biodiversity, things are much trickier. You can’t just say ‘Less monoculture means more progress’. Here we have to deal with a whole bunch of intervening variables.”³

In spite of the cautious acknowledgement of the many non-quantitative, location-specific and moral dimensions of the biodiversity crisis conveyed by this quote, mainstream globalists are pursuing an agenda of protecting biological resources by “privatizing nature” (Goldman, 1998) through exclusive access regulations and patent regimes. Biodiversity prospecting is seen as a new and probably also the “last frontier” (Mateo, 1997) on the global map, with technologies at hand that are radically changing the picture from the old days of plant collecting. While biochemical screening and cDNA-libraries cover the micro-level, remote sensing programmes are helpful in “visualizing areas of interest from above” to then “penetrate the rainforests using global positioning system navigation aids” (Dietzmann, Schooley, & Devlin, 1997). Rare seeds from farmers’ fields or unknown insects from tropical forests are at the same time becoming part of a larger object of desire. Ethnobotanists enter the scene to screen the collective memory of indigenous peoples for their knowledge in healing and plant geography. Geneticists and scientists from private companies even tap the blood of indigenous groups in the course of the Human Genome Diversity Project (HGDP) that grew out of the larger Euro–American Human Genome Project in 1991. In searching indigenous knowledge, in determining “biodiversity hotspots” and in deciding on priority areas for global conservation new “normative cultural maps” (Takacs, 1996: 156) are created, where people, plants and policies are intermingling in manifold new ways.

As outlined above, this development is directly linked to industrial applications and corresponding property rights regimes. Marginal farmers’ plant varieties and indigenous peoples’ cures are screened, untangled and reformulated to reappear a little later as the products of laboratory scientists — and as the intellectual property of their employers. As the age of plant industries had patents on harvesters and mousetraps, the age of biodiversity adds patents on corn and mice (Kevles, 1998). At the same time, industry seems to become more directly interested in the preservation of certain natural resources. It has been suggested that we are therefore entering a new phase of capitalism wherein conservation has turned into a precondition for continued capital accumulation, or even a postmodern phase of “ecological capital” (e.g. Escobar, 1996). Whatever the analytical strength of these claims, there

³ Personal communication by an expert at the secretariat of the CBD in Montreal, 29 November 1999.

can be little doubt that the biodiversity discourse goes beyond the scope of traditional resource politics and touches upon a whole range of topics central to individual and collective identities — the way people live, love and eat, but also how they interact and perceive each other (see Table 2).

Table 2
Modernity and the biodiversity crisis: framing the issues

	Simple modernization	Neo-Malthusianism	Mainstream globalism
Master frame	The “ladder” model	“Limits to growth”	“One World”
Key concerns	selection production progress	population world food security pristine nature	sustained growth biotechnology marketing nature
Icons	large grain fields tractors	“A handful of rice”	tropical forests the double helix
Writings on the wall	hunger blockades “dust bowl”	“Bangla Desh” “Silent spring”	Amazon destruction genetic apartheid
Main lines of conflict	nations	nations geopolitical blocks (North/South, East/West) rural and urban actors	state/ non-state actors national /international actors global /local actors individual life styles
Paradigmatic instances	agricultural industrialization in large parts of the US, Europe and the SU (1920–1945)	“Green Revolution” in parts of Mexico and India (1960s–) Resettlement schemes for National Parks	global “biodiversity prospecting” (1990s – 2000f.)
Scientific– technical bases	crossbreeding theory of gene centres motorization	hybrids fertilizers genebanks contraceptives	gene transfer “life sciences” computerization
Exemplary products	winter-hardy wheat	hybrid corn dwarf rice contraceptive injection	genetically modified food prenatal diagnostics
Key players	national institutes	CGIAR-centres chemical industries	life industries WTO NGOs
Political contexts	nationalism autarchy	cold war development coerced conservation	ecological modernization deregulation “postsovereignty”

Reflexive modernization and life politics: some shortcomings

After having drawn out central conceptualizations of twentieth-century conflicts over genetic resources and biodiversity, we now return to the paradigm of reflexive modernization and the problem of life politics which is at the very heart of this influential current of social theorizing. The sections above can be summarized by pointing out the bewildering range of spatially embedded social and political actors engaged in those conflicts: not only western and non-western states, but also non-state actors ranging from indigenous peoples to farmers and non-governmental organizations, all of them wielding considerable emotional and mobilizing impact beyond the nation-state. Struggles over genetic resources and biodiversity are thus symptomatic for a proliferation of political agents with conflicting stakes in how distinct spatio-temporal practices in agriculture or health care are structured and regulated. Technologies, natural resources and property rights are subject to widely differing processes of valuation according to the social and material assets of different actors. The whole conflict has definitely escaped the guarded fora of exclusively interstate, North–South negotiations. Due to the dominant patterns of worldwide modernization, the biodiversity hotspots searched nowadays are mostly to be found in areas populated by poor, often disenfranchised or indigenous people of the semi-periphery, from the troubled north-eastern provinces of India to Mexican Chiapas and the Colombian Chocó. Like earlier forest resistance movements, current biodiversity struggles are fuel to separatist aspirations (cf. Grove, 1998: 211) as people of these areas often feel badly represented, if at all, by their governments and are in turn treated as a threat to national sovereignty. This may be one reason for the strength of non-governmental organizations in this policy-field. Consequently, biodiversity is used both as a bargaining chip by sovereign states and as a local source of self-affirmation for indigenous peoples of the “Fourth World” challenging their territorial states as well as foreign companies (Bryant, 2000).

At the same time, the new biotechnological achievements like genetic engineering or microbe-sized, high precision bio-robots able to travel through organisms have reformulated questions of individual life politics: genetically modified organisms confuse conventional notions of purity and healthy food, new medical screening technologies deepen the available knowledge about the illnesses we are prone to, and the growing control of human reproduction are reopening a whole range of questions of choice with regard to the traditional biopolitical topics like sex/gender, age and race.

The concept of life politics combines the two insights that neither individual bodies and germplasm nor states and societies can any longer be walled off from other spatially discrete bodies and polities. In blending these distinct imageries of crumbling walls, the concept goes beyond Foucault’s notion of bio-power. Foucault’s attention was basically confined to the Malthusian and neo-Malthusian practices and notions revolving around the problem of how to organize and limit the crew of the “lifeboats” of states and continents. During the twentieth century, Malthusians have argued that interventions in cases of famines might, like poor relief during industrialization, do more harm than good by removing the ultimate checks on population

growth. Since Foucault takes the maxim of “making live and letting die” (instead of the premodern “making die and letting live”) to be the core of modern bio-power, he overgeneralizes the Malthusian perspective (Foucault, 1978). He thus neglects other powerful modern imperatives of *not* letting die persecuted minorities, and not accepting the extinction of endangered species or eroded stocks of genetic resources.⁴ Here the concept of life politics turns out to be a more comprehensive analytical tool as it can account for the rise of political movements in favour of biodiversity conservation measures, humanitarian standards, gene banks and the corresponding moral geographies.

Yet although Beck and Giddens are very much aware of the crisis of sovereignty and the state-centric world, their way to conceptualize life politics misspecifies the relationship between problems of modernization and emancipation on the one hand and problems of self-actualization and identity in a reflexively ordered environment on the other. In particular, Beck and Giddens still cling to a “ladder”-shaped model of social development, which does not allow for the stage of reflexive modernization and the identity-centred agenda of life politics before the stage of simple modernization and its concern with overcoming scarcity has been completed. To be sure, Giddens concedes that classic emancipatory politics “does more than simply ‘prepare the stage’ for life-political concerns”, but he leaves all agency with the “life-style changes ... in the developed countries” (Giddens, 1991: 228).⁵ Moreover, very little consideration is given to the crossborder *interactions* and *exchanges* between political or civic groups in different zones of modernity. Thus, questions of identity remain hierarchically separated from questions of “simple modernization” and both are categorically ascribed to different spatio-temporal settings. While the “centres of modernity” are entering a phase of self-transformation, the non-West is said to be exclusively worried about redistributive issues. Beck, in particular, has come up with a number of revealing, drastic formulations. The non-West is depicted as trying desperately and largely in vain to catch up with the West, and the most desperate areas in the world are imagined to be inhabited by people with no identity at all, driven exclusively by “bare survival interests” (Beck, 1996: 28, 91). In such statements, “reflexive modernization” is close to joining hands with good old Thomas Malthus.

Against the background of our reading of twentieth century’s biodiversity stories, this hardly “reflexive” evolutionary model prompts three critical remarks. First, in our view real-world biodiversity conflicts suggest that redistribution and identity issues are *closely intertwined* instead of being attached to different developmental stages or geographical spaces. Current controversies about how to share the economic benefits resulting from bioprospecting illustrate this point (Balick & Kloppenburg, 1996). Moral struggles for recognition and self-affirmation are intimately tied to questions of distributional justice without, however, being reducible to the latter.

⁴ More recently, however, some Foucauldian scholars have dealt with such problems, see e.g. Rose (1999) on humanitarian issues.

⁵ For a geography-related discussion of Giddens’ term life-style see Werlen (1997: 245f)

Tensions concerning social and political identities are reinforced by the fact that most of the much-searched biodiversity hotspots are not only outside the OECD world but entirely beyond the reach of modernization achievements even inside developing nations. An example for the autonomy of identity aspects is the case of public and private genomics researchers selecting relatively isolated populations in remote regions as target groups for the sampling of human DNA. In many cases, research is being conducted under conditions where adequate informed consent is not being obtained. For China and India, these ‘bleed-and-run’ practices of biopharmaceutical researchers have been cynically justified by referring to the different “cultural conditions” in countries adamantly opposed to “Western” moral discourses (Hobom, 1999). As a consequence, UNESCO has drafted a Universal Declaration on the Human Genome and Human Rights which, not without irony, declares the genome of all human beings to be the “heritage of humanity”.⁶

Second, apart from the need to consider the intertwining of identity and distributive aspects, a truly reflexive way of conceptualizing biodiversity-related struggles has to explore the *second-order conflicts* among actors debating the adequate public representation of the conflicts they are engaged in. Today’s life-political conflicts are characterized by a lack of convergence among the conflicting parties about how to represent these very conflicts properly. Thus, identity arguments used by actors from non-western regions are often caricatured as rhetorical façades of rent-seekers and intellectual property pirates. Conversely, Asian officials have often suspected transnational companies and western state agencies of imposing alien cultural values where these actors claim to follow only legitimate economic interests or a broader common cause. Due to their anti-culturalist stance, Giddens and, in particular, Beck are insensitive to this kind of representational conflicts (Thrift, 1993; Alexander, 1996). Here again reflexive modernists tend to separate identity and scarcity concerns in a way that forecloses empirical analysis of the moral discourses in which both aspects intermingle.

Third, reflexive modernists generally mistake the *residual* for the *insignificant*, whereas one could argue that vanishing things (like, for example, the tropical rain forests) are often being ascribed a *surplus* of meaning. Beck and Giddens are unaware of the paradox that the rural and the natural are assuming a new political importance at the very moment when they seem to be on the brink of vanishing forever (Watts & Goodman, 1997: 7). In a telling passage on the globalization of standardized food production, Giddens illustrates his assumption that simple modernization lies behind us so that we can enter the next stage of reflexive modernity:

“The production of foodstuffs is no longer determined by natural processes; and local diets are less and less given by what is locally grown and produced, or by local customs. The availability of foodstuffs does not depend on the seasons or the vagaries of the climate, as food production and distribution become globalized.

⁶ Article 1, see the full text at <http://www.unesco.org/ibc/uk/genome/projet/index.html>.

Nor does all this apply only to the more affluent; few are exempt as most food becomes industrially produced.” (Giddens, 1994: 224)

This quote suggests a linear and simultaneous decline in relevance of the local, the traditional and the natural. Moreover, this decline is said to expand from the western to the non-western and from the wealthy to the less wealthy regions and people. Giddens is certainly right in pointing to manifold attempts to make the production of crops more independent from soil conditions or climatic cycles. From this evolutionary perspective, the problematization of the bio-industrial and corporate transformation of global food chains looks like fighting a lost cause or, at best, a brave rearguard action doomed to succumb ultimately to the forces of simple modernization. But like Foucault, Giddens wrongly believes that life politics is mainly concerned with the individualized body, and not with “the earth and its products” (Foucault, 1980: 104). This lack of recognition of socio-natural controversies results in a more general neglect of the locatedness of life-political conflicts.

Conclusion

From the preceding discussion we conclude that the paradigm of reflexive modernization is useful in highlighting new transboundary conflicts in areas where the life of our species and that of others are at stake. Unlike neo-Malthusians and other actors involved in these conflicts, reflexive modernists resist the temptation to either exoticize the non-West and its life-enhancing “tropicality” or demonize its doom-spelling demographic trends. To quote a fitting phrase by Nadine Gordimer, one could say that the “nervous, even ... respectful feeling that *life may be elsewhere*” (Gordimer, 1962: 157, italics added), which has troubled so many European minds envisioning alternately southern ‘population bombs’ or tropical ersatz Edens, is giving way to a more sober end-of-frontiers outlook.

Moreover, reflexive modernists are very clear about the fact that neither history nor modernity are coming to an end, as new, manufactured risks become increasingly unavoidable, unlimitable and hard to attribute to conventional political enemies. This leads to a crisis of the nation-state and the “Westphalian” world order as conceived by modernization theorists. Whereas this line of argument is useful in re-directing our theoretical attention away from what states do to cope with ecological crises and technological hazards, the non-state actors remain surprisingly lacklustre in most writings by reflexive modernists. More specifically, Beck and Giddens are disappointingly unambitious in taking into account the role of allegedly backward areas, remote places and residual activities in the context of life-political struggles. Life politics is defined as happening where the individual and the global meet and influence each other (Giddens, 1991: 214), but no hint is given as to what might be the role of *regional settings* and *collective* identities between the poles of self-actualizing individuals and an ethereal globality which seems detached from the real-world activities of firms, international institutions or non-governmental organizations. We thus conclude that reflexive modernization has theoretical appeal but lacks a set of

additional concepts about the collective and spatial dimensions of current life-political issues which would shed light on the vast grey areas left by Beck and Giddens between the state and non-state activities, between western and non-western regions, and between the micro-level of individual ambitions and global policy-networks.

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