

BIOLOGICAL DIVERSITY AND ETHICAL DEVELOPMENT (*)

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INTRODUCTION

In a seminal book on **The Imperative of Responsibility**¹ the philosopher Hans Jonas argues that technology has supplanted nature and threatens to destroy nature altogether. Consequently, an ethic of **responsibility for the cosmos** is urgently needed. Jonas claims that such an ethic has never before existed, a debatable point. Whether an ethic of responsibility for the cosmos has ever existed or not, however, it must relativize technology and all development models which equate human progress with technological advance.

One recurring theme in Toynbee's **Study of History** is the existence of an inverse relationship between the cultural level a society achieves and its technological attainments.² Since any human society's psychic energy is limited, when it channels most of it to solve technological problems, little is left for creativity in esthetic and spiritual domains. The price paid for technological success is often regression on other civilizational fronts.

I. AN ETHIC OF RESPONSIBILITY: FOUNDATIONS

In the past major religions constituted human beings as the guardians and stewards of nature. These religions usually trace the origins of nature to a creating God and in

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1. The University of Chicago Press, 1984.

2. TOYNBEE, Arnold J. **A Study of History**, 10 vols., abridgement by D. C. Somervell in 2 vols., New York: Dell, 1965. See, especially, Vol. I, pp. 59, 379, 382.

one way or another, they preach to humans a duty of being responsible stewards of nature's goods. In contrast, as the sociologist Peter Berger convincingly shows, modernity has now rendered the world of human knowledge secular and the religious basis for responsible stewardship has been sapped. Says Berger: an ethic of responsibility is no longer given, it must be freely chosen.

As he explains:

The English word "heresy" comes from the Greek verb *hairein*, which means "to choose." A *haireisis* originally meant, quite simply, the taking of a choice. A derived meaning is that of an opinion. In the New Testament, as in the Pauline apostles, the word already has a specifically religious connotation—that of faction or party within the wider religious community; the rallying principle of such a faction or party is the particular religious opinion that its members have chosen. Thus in Galatians 5:20 the apostle Paul lists "party spirit" (*haireisis*) along with such evils as strife, selfishness, envy, and drunkenness among the "world of the flesh." In the later development of Christian ecclesiastical institutions, of course, the term acquired much more specific theological and legal meanings. Its etymology remains sharply illuminating.

For this notion of heresy to have any meaning at all, there was presupposed the authority of a religious tradition. Only with regard to such an authority could one take a heretical attitude. The heretic denied this authority, refused to accept the tradition *in toto*. Instead, he picked and chose from the contents of the tradition, and from these pickings and choosings constructed his own defiant opinion. One may suppose that this possibility of heresy has always existed in human communities, as one may suppose that there have always been rebels and innovators. And, surely, those who represented the authority of a tradition must always have been troubled by the possibility. Yet the social context of this phenomenon has changed radically with the coming of modernity: **In premodern situations there is a world of religious**

certainty, occasionally ruptured by heretical deviations. By contrast, the modern situation is a world of religious uncertainty, occasionally staved off by more or less precarious construction of religious affirmation. Indeed, one could put this change even more sharply: For premodern man, heresy is a possibility-usually a rather remote one; for modern man, heresy typically becomes a necessity. Or again, modernity creates a new situation in which picking and choosing becomes an imperative.³

II. A NEW MODEL OF DECISION-MAKING.

Whatever may be the epistemological or theoretical foundation of such an ethic, its practical expression consists in a decision-making model which integrates three rationalities.

Three Rationalities.

Three distinct rationalities vie for supremacy in decision-making arenas; they are here personified as Weberian "ideal" types. According to the German sociologist, "ideal" types "formulate in conceptually pure form certain sociologically important types to which social action is more or less closely approximate."⁴ My classification differs from Weber's own topology since for him rationality was either instrumental, value-centered, affectual or traditional. For the limited purpose of this paper, which is to capture the essential dynamics of developmental decision-making, theoretical classifications forged by Weber and later theorists — Marcuse, Habermans and Arendt — are too abstract. Their typologies were constructed to explain the workings of complex total societies which embraced competing ideologies or rationalization systems, conflicting subsystems and institutions within society, and a multiplicity of normative relationships between class interests and the society at large. To use Marcuse's pithy formula, all

3. BERGUER, Peter L. *The Heretical Imperative*, New York: Anchor Books/Doubleday, 1980, p. 24-25.

4. WEBER, Max. *Economy and Society*, New York: Bedminster Press, 1968, p. 26.

theorists claim that their "rational hierarchy merges with the social one."⁵

My aim is not to debate social theory but, more modestly, to show how conflicting rationalities meet in arenas of development decision-making. The threefold classification here presented emerges phenomenologically from observations in these arenas. No effort is made to devise new abstract categories or to illustrate how Weber's classical categories apply to the specific field of development.

The rationalities at work in development's decisional arenas are described in their pure state, although in real life they merge in various ways. After separate profiles of the three have been drawn, their inter-relationships are illustrated.

(a) Technological rationality

Technological rationality rests on the epistemological foundations of modern science: it applies scientific knowledge to solving problems or to asserting control over nature, social institutions, technology itself, or people. Its **goal** is to perform some concrete task like building a dam, clearing a forest, extracting ore from a mine, or boosting the output of a crop. Its animating procedure leads it to treat everything other than the goal **instrumentally**, i. e., as an aid or obstacle to reaching the targeted goal. Although Weber labels the totality of ends/means thinking as instrumental rationality (**zweckrationalitat**), the qualification "instrumental" is here applied exclusively to the means chosen to reach that goal. In the view of technological instrumental rationalists, aids are to be harnessed to the task at hand and obstacles eliminated. Their rationality thus obeys a **hard** logic guided by a calculus of efficiency in the assessment of time or of the utility of any object. It matters little for the technician whether impediments to reaching the goal be material, institutional, or human. Dam engineers who find a hill in their way will dynamite it. If, on the other hand, their progress is blocked by bureaucratic red-tape, they will seek to crush or ignore it. If the obstacle is some organized human group, such as a squatters' association which mounts resistance, their technological instincts will dictate, not negotiation or

5. MARCUSE, Herbert. *One Dimensional Man*, Boston: Beacon Press, 1964, p. 166, apud in Jurgen Habermas *Toward a Rational Society*, Boston: Beacon Press, 1970, p. 86.

compromise, but the elimination of the opposition as quickly and efficiently as possible.

(b) Political rationality

The logic which guides politicians differs both in its goals and in its animating procedures from that inspiring technicians. Notwithstanding politicians' rhetorical declarations that they are committed to concrete accomplishments, their true goal is to preserve certain institutions and rules of the game, or their special power position within those institutions. To illustrate, we may consider a politician elected on the platform promise of constructing 20,000 new low-cost housing units. If, however, while trying to keep the promise, the politician meets with serious opposition — criticism from adversaries or financial obstacles — the project will be dropped. What truly matters to politicians is NOT building the houses but preserving their own influence and power, or that of their party. This explains why political actors so readily compromise, negotiate, accommodate, or engage in what Lyndon Johnson called "horse-trading". I prefer to call it "navigation:" politicians navigate between opposite shores, whereas technicians must reach the opposite shore — and this at any price! The procedural spirit of politicians is **soft**, not hard, like that of technological problem-solvers.

Political rationality as described here is exhibited by persons who wield power. Aspirants to power positions are also animated by political rationality; but their logic aims, not at maintaining the **status quo**, but at destroying or altering it. Nevertheless, to the extent that such political actors lack power, they do not function as agents of political rationality **within arenas of decision-making**.⁶ When they challenge the bastions of power, therefore, opposition political actors speak the language of technical or of ethical rationality, even if their ultimate purpose is to gain a platform from which to speak the idiom of political rationality.

(c) Ethical Rationality

The third kind of logic is ethical or humane rationality. This mode of thinking takes as its goal the

6. For more on this difference, see Denis Goulet **The Cruel Choice**, New York: University Press of America, 1985, Appendix II, "The ethics of power and the power of ethics," pp. 334-341.

promotion of values: the creation, nurture, or defense of values considered precious for their own sake — freedom, justice, the inviolability of persons, the “right” of each to a livelihood, dignity, truth, peace, community, friendship, or love. Unlike other forms of rationality just described, the ethical variety takes as its absolute goal — in the light of which all else is relative — the promotion of values, not the performance of concrete tasks or the preservation of institutions or power positions. It is called “ethical” or “humane” rationality because it feeds on moral judgements about what is good and bad, right and wrong, just and unjust.

Ethical rationality draws its themes and its legitimation from two distinct, albeit usually allied, sources. The first is some holistic belief system: a religion, philosophy, world view, symbolic code, or cultural universe of meanings. Its second font is the world of daily life as experienced by people lacking power, status, or expertise. These people demand respect as beings of worth independently of their usefulness to others. What in Spanish is called the **vivencia** or lived experience of ordinary people convinces them that asserting their dignity as persons is more important than “getting things done,” obeying rules, or preserving the status of actors in a power hierarchy or social ladder. For ethical rationality, it is more important **to be and to be well** than **to do or to be well thought of**. This adherence to values for their own sake determines the procedural spirit of ethical rationality, a spirit which relativizes the goals pursued by other rationalities and treats these instrumentally. Building a road or staying in power is judged by ethical rationality to be good or bad according to whether it helps “unimportant” people gain freedom, respect, or fair treatment.

Although all actors in decisional arenas may be **motivated by** ethical values in playing their roles, their contributions to rationality mirror their special roles and express the formal warrant they possess for engaging in decision-making. Thus technical experts come to the decision-making table, NOT to promote Utopian visions but to justify their choices on technical grounds. Similarly, “when the chips are down,” politicians will bracket their ethical dictates or “place them on hold” and subordinate their technological “good sense” to the requirements of political survival or expediency. If only by default, therefore, the dispossessed or critics of policy become privileged bearers of

ethical rationality. In development contexts, those "left out" of power and wealth are the most convincing vectors of ethical rationality because their vital interests can find no basis for expression other than their ethical justification. This category of interlocutors lacks the luxury of grounding its programmatic claims either in efficiency or power maintenance, as other decision-makers do. Figure 1 summarizes the goals and procedural spirit of the three rationalities.

FIGURE 1. Three Rationalities.

Definition of rationality:		<ul style="list-style-type: none"> — a model of thinking, — a universe of cognitive assumptions and methodical procedures, — a body of criteria to establish truth or validity.
Technical rationality:	GOAL:	Get something done, accomplish a concrete task. Apply scientific knowledge to problem-solving
	APPROACH:	Treat everything except the goal instrumentally. Eliminate obstacles and use aids efficiently. Hard logic.
Political rationality:	GOAL:	Assure survival of institutions, preserve rules of the game, maintain power position.
	APPROACH:	Compromise, negotiate, accommodate, "navigate." Soft logic.
Ethical rationality:	GOAL:	Promote, create, nurture, or defend certain values for their own sake.
	APPROACH:	Inherently judgmental: good or bad, fair or unfair, just or unjust. Relativizes all other goals and means. Logic can be hard or soft (ethic of acts, of intentions, consequences).

Three rationalities have been described: their mode of interaction in decision-making arenas is now analyzed.

INTERACTION

When they converge in common decision-making arenas, technical, political, and ethical rationality impinge upon one another, not in the mode of horizontal mutuality, but at cross-purposes and in a vertical pattern. Each brand of thinking tends to approach the others in triumphal, reductionistic fashion. Technological logic tries to impose its vision of goals and animating procedure upon the entire decisional process. Political and ethical rationality do likewise: each seeks to get the other two "partners" to accept its own favored ground rules of dialogue. This vertical interaction-pattern is illustrated in Figure 2.

THREE RATIONALITIES

Vertical Pattern: Reductionism

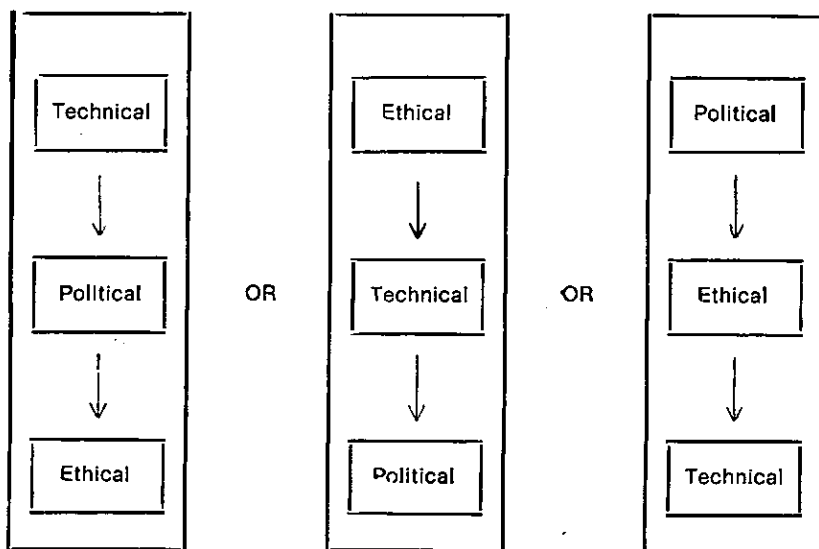


Figure 2. WHAT IS

Assumption: Each rationality seeks to assert itself and win assent from others as to the priority of its goals and approach.

Such conflict is guaranteed to produce bad decisions. If technical rationality holds sway, decisions easily prove to be neither **politically** feasible nor **ethically worthy**. Conversely, the triumph of political logic without due regard for the other rationalities may lead to decisions which are technically catastrophic or morally repugnant. Good decisions need to display many qualities, not all of which can emerge from a unilateral application of a single rationality in decisional arenas.

The triumphant reductionism just described also prevails in two other realms of multi-dimensional discourse far removed from development decision-making. These are the worlds of religious ecumenism and of academic inter-disciplinarity, where speculative discourse spills over into practical decisions. In ecumenical religious debate at stake are practical ground rules for unification of churches or, more modestly, terms under which pastoral or liturgical cooperation may occur. And in academia, specialists of many disciplines engage in a quest for integrated pluridisciplinary forms of teaching and research. Nearly always, however, the fragmented structures of the academy — organized along lines which tend to make absolute the claims of separate disciplines — lead practitioners of each to claim a superior capacity of their own discipline to serve as the unifying axis of pluridisciplinary discourse. The result, in most cases, is **either mere** juxtaposition of diverse viewpoints, **or the triumph of one epistemology** which asserts itself over the others.

In all three spheres — development decision-making, ecumenical religious discourse and interdisciplinary academic study — a new model of authentic dialogue is needed where exchanges are circular and reciprocal, not vertical and reductionist.

Figure 3 illustrates how this circular model might work.

Mutually respectful discourse among diverse rationalities rests on the recognition gained from experience that any kind of knowledge, although partial, risks mistaking itself for the whole.⁷ Yet the very partiality of any discipline ought to impose upon its practitioner the obligation to look at

7. GOULET, Denis. "In Defense of Cultural Rights: Technology, Tradition and Conflicting Models of Rationality," *Human Rights Quarterly*, v. 3, n. 4, 1981, pp. 1-18.

the reality under study from alternative sets of cognitive spectacles. One should not assume that one's own intellectual discipline possesses the most "correct" grasp of the common reality studied, but merely that it approaches that reality from one among many possibly valid cognitive vantage points. The entry into these other vantage points, however, must not be conducted in purely extrinsic fashion. Instead one must somehow "get inside" the peculiar spirit of each rationality in the effort to grasp reality as it is known from within the dynamics of many view-points. The only proper stance is active respect for other views, allied to modesty regarding the limitations attendant upon one's own preferred vision, and a willingness to reinterpret one's own disciplinary reading of reality in the new light obtained from alternative readings. Such a posture, which is the very antithesis of triumphalism or reductionism, promotes active examination of the epistemological assumptions, procedural preferences, and criteria for norm-setting which place their stamp on all disciplines or special rationalities.

To summarize: there exists a logic peculiar to three categories of decision-making actors. In most cases, the demands of their respective rationalities produce either unfruitful conflict or an unwise abdication by one rationality in the face of intellectual aggression by the other. Reductionism and abdication alike generate poor decisions.

III. UNANSWERED QUESTIONS.

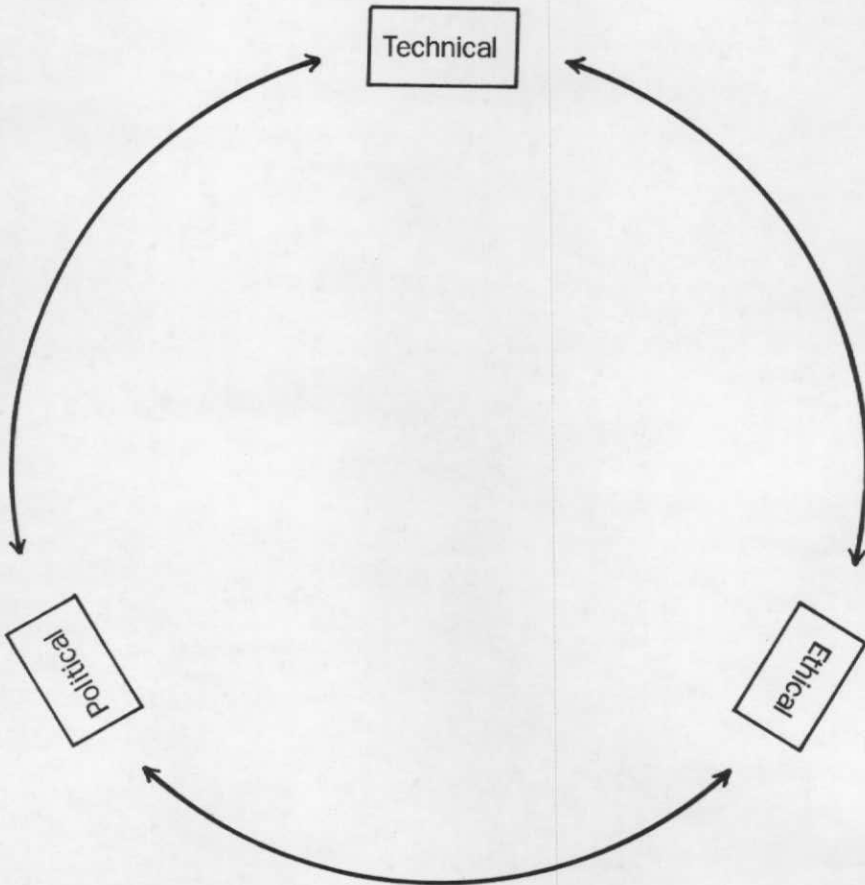
I have just argued the need for a new model of decision-making to achieve the new ethic of responsibility for the cosmos. Let me now pose several unanswered questions or unresolved problems which arise around this ethic.

3.1 How are we to weight competing ethical values, especially the values of nature's integrity and of preserving plural species with the demands of economic justice? If degrading human poverty is the worst form of pollution, the unanswered question, which can be tested only in the innovative practice of living communities of need, is how to abolish human misery without destroying nature? Do any empirical success stories exist for examination? Jeffrey McNeely of the International Union for the Conservation of Nature has inventoried cases in which nature's integrity has simply been sacrificed, not to economic justice but to the imperative of profit-making. More hopefully, he also

INTERACTION OF THREE RATIONALITIES

WHAT OUGHT TO BE

Circular Pattern: **Mutuality**



Assumption: Any form of knowledge is partial & risks mistaking itself for the whole, or dominating discourse with other forms.

FIGURE 3: What ought to be.

identifies successful instances of harmonizing the demands of nature preservation with developmental justice for poor peoples.⁸

3.2 A second unanswered question reads as follows: even if one posits an ethical duty to defend biological diversity, must the survival of any given species be given absolute value or take priority over human needs? One may obviously assign general value to protecting biological diversity without automatically assuming that all flora and fauna must be preserved at any cost. In fact, nature's own evolutionary processes, independently of human activity, have resulted in the disappearance of many biological species over eons of time. As one biologist noted recently, "virtually all wildlife today, live in a fragment of what used to be large, often continuous habitats. In today's 'ecological islands,' a species can easily increase rapidly, exhaust its food supply, starve and suffer a rapid decline, meanwhile causing many kinds of harm, sometimes even endangering the survival of other species."⁹

3.3 The third unanswered question is the most difficult and the most crucial. Jonas, when pleading for a new ethic, writes that:

"what we must avoid at all cost is determined by what we must preserve at all cost, and this in turn is predicated on the image of man we entertain. Formerly, this image was enshrined in the teachings of revealed religions. With their eclipse today, secular reason must base the normative concept of man on a cogent, at the least persuasive, doctrine of general being: metaphysics must underpin ethics. Hence, a speculative attempt is made at such an underpinning of man's duties toward himself, his distant posterity, and the plenitude of terrestrial life under his dominion. That attempt must brave the veto of reigning analytical theory against all attempts of this kind and indeed cannot hope for more than a tentative result. But dare it we must. A philosophy of nature is to bridge the alleged chasm

8. McNEELY, Jeffrey A. **Biological Diversity and Human Economy**, International Union for Conservation of Nature and Natural Resources, unpublished manuscript, Second Draft, 1988.

9. BOTKIN, Daniel B. "Rethinking the Environment, A New Balance of Nature," **The Wilson Quarterly**, Spring 1991, v. XV, n. 2, p. 62.

between scientifically ascertainable is and morally binding ought.¹⁰

The question is whether it is possible to formulate such an ethic in purely rational terms. Is any reason-based ethic powerful enough to override the technological imperative described by Jacques Ellul as the law of what **can** be **must** be.¹¹

And can any secularly grounded ethic prove strong enough to override the cash nexus and the "virus of desire" now that all stable dynamisms of desire have been shattered by development's demonstration effects? In trying to formulate such an ethic, Jonas and others seem to confer upon nature absolute rights for its own sake independently of nature's utility to human purposes.

IV. NATURE AND FREEDOM

Robert Vachon, a philosopher of inter-cultural dialogue from Quebec, believes that:

"Orientals, unlike Westerners, do not think of man, nature, and the divine primarily as realities or dimensions which are distinct and autonomous, co-existing face to face with each other. Rather, their vision is non-dualistic, situated between monism and dualism. The Oriental is more concerned with the union, harmony, interconnection, inter-relation and non-duality existing among all dimensions (of being) than with the affirmation of their distinction, inasmuch as for him, life resides rather in the harmony of the whole than in the difference of its parts."¹²

Nature, in short, is the harmony wrought among elements which stand in polar opposition one to the other.

10. JONAS, *Op. Cit.*, p. X.

11. ELLUL, Jacques. *The Technological Society*, New York: Alfred A. Knopf, 1965. *The Technological System*, New York: Continuum, 1980. *The Technological Bluff*, Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1990.

12. VACHON, Robert. "Relations de l'homme à la Nature dans les Sagesse Orientales Traditionnelles," in *Ecologie et Environnement* (Cahiers de Recherche Ethique), Montréal, 1983, Vol. 9, p. 157. (translation mine).

For Vachon, any holistic vision of reality must grant priority to totality over opposition or polarity.¹³

Viewed in this light, the opposition between human freedom and nature can be subsumed under a larger whole, namely, integral development, a normative concept embracing three elements: the good life, the optimal foundation of life in society, and the proper stance toward nature and man-made environments. As the French ecologist Bernard Charbonneau repeatedly insists, freedom itself is nature, and both form part of a larger whole.¹⁴ And in the words of Daniel Botkin, "human beings, far from being alien interlopers who disturb the timeless rhythms of nature, are intrinsic elements of the natural order."¹⁵

It is no easy task to reconcile nature and freedom because the emphasis on one or the other has given birth to two divergent ethical orientations. Those who stress the integrity of nature adhere to an ethic whose highest values are the conservation of resources, the preservation of resources, the preservation of species, and the need to protect nature from human depredations. Those who stress human freedom, in contrast, hold to an ethic whose primary values are justice (which takes the form of an active assault upon human poverty, branded as the worst form of pollution) and the need to "develop" potential resources into their actualized state. Both orientations embrace the same five values: conservation of resources, preservation of species, protection of nature, assault on poverty, and development of resources. What sets the two streams apart is the rank order they assign to these values. A "nature" emphasis locates development and the elimination of human misery below biological conservation and resource protection in the hierarchy of values. Conversely, a "freedom" orientation places development and the active conquest of justice in resource allocation above environmental protection or the preservation of endangered species in the value-scale. In truth, however, all five values should enjoy parity of moral standing. The reason is simply that any long-term, sustainable, equity-enhancing combat against poverty requires wisdom in the exploitation of resources. On the

13. *Ibidem*, p. 160.

14. CHARBONNEAU, Bernard. *Je Fus, Essai sur la Liberté*, Pau: Imprimerie Marrimpouey Jeune, 1980, pp. 149-156. Cf. also the same author's *Le Feu Vert: Auto-critique du Mouvement Ecologique*, Paris: Editions Karthala, 1980.

15. BOTKIN, Daniel B. *Op. cit.*, p. 70.

other hand, the preservation of other species cannot be held out persuasively as a priority goal if the human species is threatened with degrading poverty or extinction. Nature itself is diminished or wounded when its human members are kept "underdeveloped". Reciprocally, these same human members cannot become truly "developed" if their supportive nature is violated.

Perhaps no world-view can successfully integrate the requirements of nature and freedom except around some higher *telos*, or end-value, to which both nature and human freedom are subordinate. Because neither nature nor freedom can be taken as absolute values, diverse philosophies and religions assign different value weights to each. Even within a specific meaning system or world-view, competing interpretations arise as to the "proper" weight to be assigned to each. Indeed, different religions and meaning systems possess diverse coefficients of insertion in history".¹⁶ That is to say, these meaning systems are more or less compatible with positive valuations placed on time, history, and human efforts. To illustrate, Christianity has throughout its history harbored tendencies both toward exaggerated supernaturalism (in which realms of nature and human activity are treated merely as arenas in which human beings test their virtue or save their souls) and, conversely, toward excessive naturalism (in which God's transcendent and mysterious salvation is reduced simply to a better way of organizing human society). Similarly, there have flourished within Christianity schools of Interpretation and practices favoring either an exaggerated God-centered (or theo-centric) kind of humanism in which it was assumed that anything given to the human person was stolen away from God or conversely, favoring an imbalanced anthropocentric theism in which God became nothing but a glorified projection of whatever human value enjoyed popularity at a particular time.

Christianity is often accused of legitimizing ecological irresponsibility. But the exploitative reading of the Genesis command issued by God to Adam to "Go, multiply and dominate..." has come to Christianity only since the Enlightenment. Earlier centuries practiced a reverential respect for nature as the product of God's initial miraculous creation and of His ever-constant providential care.

16. GOULET, Denis. "Secular History and Teleology," *World Justice*, v. VIII — 1966-67, n. 1, pp. 5-18.

To confer upon nature rights for its own sake, independently of its utility to humans, and to promote a deep ecology philosophy may create the long-term risk of fostering a new totalitarian fanaticism, highly reductionist, single-minded, one which somehow provides ideological justification for running roughshod over human freedom.

V. BIO-DIVERSITY, A REQUIREMENT OF ETHICAL DEVELOPMENT.

A case can be made for bio-diversity from the vantage point of development ethics. The bacteriologist Rene Dubos¹⁷ argues that the adaptive capacity of the human organism is directly a function of its biological diversity (itself deriving from neurological complexity). Diversity is a general requirement in all living beings for flexible adaptation and survival in adverse conditions. Dubos states that the growing trend towards mass urban settlements poses a severe threat to the capacity of human organisms to survive collectively, if and when their urban support systems are destroyed or damaged. On instrumental grounds he argues that the maintenance of diverse capabilities which avoid being atrophied by being used in a diversity of environments involving diverse kinds of relationships with nature is essential to human survival. He further claims that the general lesson taught by evolution is that over-specialized animals quickly die out. His conclusion is that present models of development, of human settlement, of work, and of social organization pose an acute threat to human survival because they are over-specialized and insufficiently diverse.

A second point must be made here, as one constructs the case for bio-diversity from a normative view of development. Is cultural diversity a value for its own sake, and if so why? Cultures confer upon people their fundamental identity, their meaning, their worth and their sense of place in the overall cosmic order. Therefore, the active defense of cultural diversity with its varied meaning systems and symbolic beliefs is essential to human development. Cultural diversity is a value for its own sake because free human persons and human communities are values in themselves. Human persons do not live except

17. DUBOS, René. *Man Adapting*, New Haven: Yale University Press, 1965. Cf. René Dubos and Barbara Ward, *Only One Earth*, New York: W. W. Norton & Co., Inc., 1972.

within cultural communities. Hence if a unitary paradigm of life in community is to be imposed from the requirements of a particular view of technical efficiency, that reductionist model is highly destructive of true development. Leopold Senghor, former president of Senegal, once declared that Africans do not wish to be mere consumers of civilization. Senghor wished to point out that human civilization is not synonymous with contemporary models of modernity predicated on mass urbanism, centralization, industrial consumerism and environmental destruction.

Moreover, austerity or simplicity in using resources and in bridling aspirations to possess goods is needed in order to shatter technological determinism.¹⁸ Theravada Buddhists condemn unbridled desire (**Tanha**) because, in their view, it is the cause of misery and unhappiness. Consequently, they seek limits upon material development. It may be that the kind of development needed is one which is open to transcendence, in order to relativize economic growth and technological progress as values, as well as to de-absolutize the claims made by managerial absolutism and the modern nation state. Those who plead for austerity, simplicity, or limits upon consumption and desire all favor a respectful attitude towards biological diversity in nature.

They plead, in short, for ethical or authentic development. Two recent formulations of this paradigm of ethical or authentic development are instructive. In September 1986, the Marga Institute held a week-long seminar in Colombo, Sri Lanka, on Ethical Issues in Development.¹⁹ Theorists and practitioners gathered at Marga reached a consensus that any adequate definition of development must include five dimensions:

- an economic component dealing with the creation of wealth and improved conditions of material life, equitably distributed;
- a social ingredient measured as well-being in health, education, housing, and employment;

18. GOULET, Denis. On this, see. **The Cruel Choice**, New York: Atheneum, 1971, pp. 255-263. Cf. Erich Fromm, **To Have or To Be**, New York: Harper & Row, 1976, and Duane Elgin, **Voluntary Simplicity**, New York: William Morrow, & Co., Inc., 1981.

19. No documents have issued from the seminar. The author reports from notes taken by him at the time.

— a political dimension including such values as human rights, political freedom, enfranchisement, and some form of democracy;

— a cultural dimension in recognition of the fact that cultures confer identity and self-worth to people; and

— a fifth dimension called the full-life paradigm, which refers to meaning systems, symbols, and beliefs concerning the ultimate meaning of life and history.

For Marga, Integral human development is all of these things.

Clearly, environmental soundness must be added to this list.

Some years earlier a seminar on Latin America chose four pairs of words as essential components of development: economic growth, distributional equity, participation vulnerability, and transcendental values.²⁰ The two final sets of words require explanation. Participation is a decisive voice exercised by people directly affected by policy decisions, whereas vulnerability is the obverse side of the participation coin: poor people, regions, and nations must be rendered less vulnerable to decisions which produce external shocks upon them. The words "transcendental values" raise a vital question: "Do people live by GNP alone?" As David Pollock writes:

Let us assume that a country's economic pie increases. Let us further assume that there is a heightened degree of equity in the way the fruits of that economic pie are distributed. Let us, finally assume that decisions affecting production and consumption of the economic pie — nationally and internationally involve the full participation of all affected parties. Is that the end of the matter? does man live by GNP alone? Perhaps the latter has been the prevailing line of thought throughout the postwar period since, in the short-run, policy makers must focus primarily upon the pressing issue of increased incomes for the masses; particularly for those below the poverty line. But, despite the obvious importance of such short-run objectives, we should also be asking ourselves other, more uplifting questions. Should we not take advantage of our longer-term

20. POLLOCK, David H. "A Latin American strategy to the Year 2000: Can the Past Serve as a Guide to the Future?", **Latin American Prospects for the 80's: What Kinds of Development?**, Ottawa: Norman Patterson School of International Affairs, Carleton University, Conference Proceedings, v. I, November 1980, pp. 1-37.

vision and ask what kind of person Latin America may wish to evolve by the end of this century. What are the transcendental values-cultural, ethical, artistic, religious, moral-that extend beyond the current workings of the purely economic and social system? How to appeal to youth, who so often seek nourishment in dreams, as well as in bread? What, in short, should be the new face of the Latin American Society in the future, and what human values should lie behind the new countenance?²¹

To Pollock's list, as to Marga's, must also be added environmental soundness.

Contemporary development trends reveal three facets:

1. Economic growth and progress and equitable distribution of the fruits of that growth is occurring only in a small number of countries — the four Asian "tigers" and a few others.
2. For a large number of losers there is developmental regression, especially in sub-Saharan Africa, Latin America, and Eastern Europe. Countries with heavy foreign debts are particularly hard hit.
3. The third face of contemporary development is the co-existence of micro successes with macro failures. In such countries as Bangladesh and Brazil numerous small-scale, local micro activities may succeed economically, socially, culturally, and institutionally alongside a generalized macro or nationwide failure of development strategies which lead to uncontrolled inflation, massive recession, and increasing dependency on outside economic forces and irreversible destruction of natural riches.

At the very least, the normative views of development just outlined are compatible with the active defense of biological diversity. Not only are they compatible, however: they are the only development paradigms consonant with such defense.²² The active defense of diversity is an externality which needs to be internalized in carrying out development plans.

21. POLLOCK, *Ibidem*, p. 9.

22. SACHS, Ignacy, On this see. **Strategies de L'Ecodeveloppement**, Paris: Economie Et Humanisme Et Les Editions Ouvrieres, 1980.

Externalities

Economists define an externality as any value or consideration which does not enter a cost-benefit calculus.²³ Dramatic crises had to erupt before the US public began to understand that factories or weapons dangerously contaminate the atmosphere. Because safety and clean air were treated by corporate policy-makers as "externalities" in making production decisions, these values were deemed irrelevant. The social, psychological, and ecological costs of economic or technological activity are never irrelevant, however; they determine the very desirability of that activity. Numerous values formerly treated as externalities need to be internalized if sound social decisions are to be reached.

The principle of responsible internalization is illustrated in the case of auto safety. So long as marketability and luxury appeal were treated as major "internalities," auto designers could treat safety as a mere "externality." They could do likewise with fuel economy if they could plausibly assume that gasoline would remain plentiful and cheap. Once fuel economy became paramount, however, and public pressure grew to provide greater safety in vehicles, new constraints became "internalized," leading to different designs and to a new economic equation for assessing costs and benefits. The broader lesson is clear: **the technological imperative will lead to excessive determinism unless resistance to determinism becomes an internality in any decision about technology**²⁴

Once the countering of determinism becomes an explicitly internalized goal, planners will conclude that certain technological applications must not be adopted and that others should be slowed down or redirected. Technological development will continue, but it will not be allowed to proceed unchecked on the assumption that it brings only unequivocal benefits. Most decision-makers lack the wisdom to match their sciences, and the beginning of wisdom consists in not rushing headlong into further technological pursuits regardless of social or human costs.

23. OKUN, Arthur M. Cf. **Equality and Efficiency: The Big Tradeoff**, Washington, D.C.: The Brookings Institution, 1975.

24. For detailed justification see Denis Goulet, **The Uncertain Promise: Value Conflicts in Technology Transfer**, New York: New Horizons Press, 1989.

At stake, ultimately, is the capacity which any society possesses to absorb technologies which are simultaneously creators and destroyers of social values.

Resisting determinism is not the only externality needing to be internalized. Other developmental values must also become internalities: equity, cultural diversity, ecological health, and reduced dependency. Societies can begin to harness technology to proper ends only if they understand that technology is simultaneously a universe to be created and an artificial context for their economic and organizational rearrangements. It is difficult to control technology or to dominate nature without damaging it because the Promethean spirit is so powerfully seductive. The domination which this spirit holds out deceives people into treating technological progress as its own justification.

If modern societies continue to treat technology as they have treated nature in the past, they cannot escape technological determinism. Indeed, to adopt a Promethean stance towards technology obliges one to rely on still more technology in order to control technology itself: this is the "technological fix" mentality. We have used technology to conquer nature. Had we respected nature in the past, however, we would have devised technologies quite different from those which we actually produced. We will make similar mistakes in our efforts to moderate technological growth unless we repudiate the stance of untrammelled exploitation. Like nature itself, technology cannot be controlled with impunity unless it is first respected. This is because technology, like nature, dictates its own rhythms. Machines, tools, and computers impose their logic on those who tend them. Analogies abound in the arts. Sculptors respect their tools — chisels and hammers — and musicians theirs; that the tools and instruments are themselves of human manufacture is no excuse for abusing them. One can learn to respect technologies by designing them to last and to express esthetic as well as functional values. Such a respectful attitude is the antithesis of the cult of technological obsolescence and of pure functionality which presently dominates. Indeed "developed" societies have ravaged so much of nature's beauty that they cannot live without new forms of technological beauty to take its place. A minority of architects and designers, it is true, has always advocated making beauty an "internality" in the design of "functional" objects — dwellings, furniture, office equipment, tools, and

entire cities. In general, however, such efforts have been viewed by manufacturers and by the public as luxuries. But simplicity, beauty, and durability in everyday technologies are **not** luxuries: they are no less important than utility or efficiency.

A liberating imperative must oppose determinism by making technological design the choice arena where social-value externalities get internalized.

VI. IN CONCLUSION: TEN THESES.

The conclusions flowing from this inquiry into biological diversity and ethical development can be stated in the form of ten theses.

1. Ethical, or authentic, development requires biological diversity.
2. Ethical development also requires cultural diversity.
3. Ethical development requires plural modes of rationality for two reasons:
 - to destroy the monopoly of legitimacy appropriated by scientific and technological rationality and,
 - to integrate technical, political and ethical rationalities in decision-making in a circular pattern of mutual interaction.
4. Ethical development requires plural models of development. There is no single and necessary path to development predicated on energy intensive, environmentally wasteful, culturally destructive, and psychologically alienating models of progress.
5. Ethical development requires a non-reductionist approach to economics. As Schumacher insists in **Small Is Beautiful**, "We must conduct economics as if people mattered".
6. Ethical development requires pluralistic and non-reductionist approaches to technology. Technology is not an absolute value for its own sake which has a mandate to run roughshod over all considerations. As Ellul urges, we must demythologize technology.
7. Ethical development requires an approach to human beings which is not exclusively instrumental. Human beings are useful to other human beings and, to some degree, are used as aids in satisfying needs. But human beings have their ultimate worth independently of their instrumental value.

Indeed, if one universal value exists in human life, it is that human persons are precious for their own sake and on their own terms, independently of their utility to others.

8. The biosphere must be kept diverse both as an instrumental value to render ethical development possible and as a value *per se*. Like cultural diversity, biological diversity is a value for its own sake, although it is neither a transcendental nor an absolute value. It is, nevertheless an end value, it has value not merely as a means or as an instrumentality serving human purposes.

9. The question: "Is it possible to have piety towards nature (in the terms of William Ophuls) without accountability to nature's creator and to a supreme judge of human affairs?" cannot be answered definitively and absolutely. One recalls, however, that all great religions have preached stewardship of the cosmos and responsibility for nature's integrity and survival on the basis of ultimate human accountability to nature's creator or providential conductor.

10. If ethical development is the only adequate support system for biological diversity, reciprocally, biological diversity is the only support system for ethical development.

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