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REFLECTIONS ON THE 2050 PROJECT

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*Gilberto C. Gallopín*¹
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INTRODUCTION

○ This short paper including my personal comments on the 2050 Project has been written at the request of the Management of the Project.

I was particularly invited to elaborate on my critical remarks of 2050P, expressed verbally in conversations with the Director of the Project and other persons directly or indirectly involved with it.

The material that was made available to me, and which I used as a base for my critique, includes:

Document 1: "The 2050 Project. Transition to Sustainability in the Next Century. A project organized by: World Resources Institute, The Brookings Institution, Santa Fe Institute. May 1993." 10-93.DSC, October 1, 1993. (32 pp).

Document 2: "Executive Summary. The 2050 Project. Transition to Sustainability on the Next Century. A project organized by the World Resources Institute, The Brookings Institution, and the Santa Fe Institute." 10-93.SUM (4 pp).

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Document 3: "The 2050 Project. Report on Project Activities. September 1993." (3 pp).

Document 4: "The 2050 Project. Transition to Sustainability. Vision Essays/Guidelines for Essayists/Essayists."

○ Besides reading this written material, I have been involved with the early discussions of the Project, as a participant in the Santa Fe Summer Institute in July 16-24, 1991, when the major features of the 2050P were defined.

○ It might be useful to clarify at this point that I am a biologist, an ecological systems analyst, a coauthor of one of the existing world simulation models, the director of a Latin American environmental modeling project, and a researcher on problems of environment and development. Therefore, my critique should be interpreted as coming from someone who is in principle sympathetic towards modeling studies (including global modeling), and towards the use of systems analysis as a valid tool for addressing sustainable development.

○ My comments come from a Southern perspective, but also from a global concern. It is my conviction that mankind is embarked in an extremely dangerous course, and that there exist no separate solutions, one for the South, another for the North. Either a global solution is found, or there will be no solution at all. This solution (or set of solutions) obviously must include regional, national, and perhaps local specificities, but it must be articulated globally.

This is why I felt a responsibility to accept the invitation and share with the Management of the Project and other colleagues my viewpoints in written form. I also appreciate the expressed openness of the Project to external critique.

○ I believe a ***global collaborative project aiming to explore the feasibility of the transition to sustainability in the next Century, and to develop global and regional policy recommendations and action plans for the next decade***, is both very much needed and potentially significant in terms of improving the long-term chances of survival for mankind.

Unfortunately, I very much doubt the 2050P, at least as described and initially

implemented, can fulfill this role. This does not detract from the important contributions the Project could make towards progress to sustainability, and it does not question the excellence of the institutions and researchers involved.

As in any other policy-oriented research project, and more so when global reach is claimed, there are two basic criteria for judging success: one is its scientific quality and the other is its political acceptability and credibility (which is essential for implementation). I have no doubt that some (possibly many) of the outputs from the Project will represent significant contributions to scientific knowledge. My concerns concentrate essentially upon the second criterion, given the Northern bias of the 2050P and some unrealistic claims made, not only along the North/South dimension, but also regarding methodological issues. I will elaborate on this in the rest of the document.

○ I will group my comments under three broad headings: globality, conceptual issues, and methodological issues. Except when otherwise stated, references to pages and paragraphs allude to Document 1.

GLOBALITY

○ The 2050P is described as "truly global in scope and content." (page 4, paragraph 1). That might be so intended, but it is obvious that perspectives from the South are not going to be on an equal basis with those of the North. This still seems to be the case despite a number of recent initiatives specifically directed to involve people from the developing world, including the recruiting of the Deputy Director. According to Document 1, "Input will be sought from experts in developing as well as developed countries." In the same paragraph, it is stated that "Developing country partners will be identified to collaborate on each major component of the project and experts from different regions will be involved directly in analysis of policy options." Providing inputs and collaborating on predefined components is rather different from participating in the overall design and conceptualization. Analysis of policy options begs the question of who defines the options (and the answer is: a small group from the U.S.A. - Document 3, page 2, paragraph 3). All of this seems to point out to a rather subsidiary role of Southern viewpoints in the fundamental core of the project.

○ The initiative to request experts from all parts of the world and a wide range of disciplines to assay the human dimensions of sustainability in their geographical and political regions (page 6; section Visions of a sustainable world) is commendable. However, this is very different from developing global visions including different viewpoints from the South and the North. It cannot substitute for the absence of those viewpoints and the potential synergy and serendipity within the core activities.

There is a profound difference between giving a vision of sustainability for a pre-defined region², and providing a vision of sustainability for the world.

It is a common expectation that researchers and thinkers from the industrialized nations are the ones to address the global issues and provide global visions (in addition to dealing with the developed regions issues) and the researchers and thinkers from the South would address the problems and visions for the South. While a number of reasonable explanations about how this come to be could be forwarded, this fact nevertheless detracts from the possibility of (and the need for) building a common global vision of sustainability (or even alternative visions of global sustainability).

○ Another problem is related to the difference between developing a collective vision of sustainability through a interactive process, as presumably the core group and Steering Committee will, and developing regional visions by individual essayists. Obviously, the latter situation is likely to result in less cohesive and perhaps less articulated positions.

○ Moreover, in Document 3, page 2, last paragraph, it is said that the essays will be used by the project staff to formulate four or five alternative visions of sustainability. The visions will thus be just inputs to be used and processed by the core staff. For the characterization of global sustainability, persons will be commissioned "to write essays on the human dimensions of sustainability in their social system. This process should provide the grist for several different visions of sustainability which core staff (which will be carrying out the integrated policy

² Potential essayists belong to the regions, all from the South with the exception of Canada, Eastern Europe, Australia, and New Zealand - the latter two countries being listed as Southeast Asia (see Document 4).

analysis) will formulate." (Document 1, page 19, paragraph 1).

○ While it is stated that at least one expert or institution from a developing country will collaborate on each base study (page 7 and followings; section Base studies), all principal investigators seem to come from the North (at least from institutions in the North). Under those conditions, the contributions from the South are bound to be subordinate, even assuming active encouragement from management.

○ Another of the most critical and value-laden aspects of the 2050P which is clearly reserved for the core staff is the Industrial Structure base study. This study "will explore major forces affecting the structure of economies on global and regional scales over the next several decades. The analysis will explicitly address similarities and differences between industrialized and developing countries. It will examine key factors affecting national competitive position, such as labor, infrastructure, demand conditions, the conditions in the nation governing how companies are created, organized and managed, and investment, among others. Characterization of the cultural factors affecting business and government practices will be an important part of the analysis. The character and focus of the industrial activities base study make it closely related to the development scenarios that will be part of the integrative policy analysis. Therefore, this base study will be conducted by the project core staff." (page 9, paragraph 6). Document 3 (page 2, paragraph 3) identifies the group that has been assigned the task of developing a set of scenarios to guide the assessment. All its members belong to institutions in the U.S.A.; none comes from the South.

○ The initiative of commissioning critical reviews from experts in each region, after policy findings and recommendations have been formulated, is good (page 19, paragraph 4). While it is not nearly enough to give globality to the 2050P (being essentially reactive to a consolidated product), critical reviews from alternative perspectives will be necessary. However, they should not be restricted to answer whether the data used in various parts of the analysis are appropriate and whether the policy findings and recommendations apply to their region, as stated in the document. A critical review of the basic assumptions and conceptualization should also be performed.

Here again I see the problem of dispersed reactions to an articulated and consolidated product.

○ The aspects of 2050P expected to contribute directly to the regional specificity of the analysis are useful and clearly justified (page 21, paragraph 2). Still, as I indicated above, the major and basic decisions and conceptualizations rest only with the core group. And this will affect "the success and credibility of any recommendations about achieving a global sustainable society" made by the Project.

○ There is an important point here. I can easily understand that the organizers and the management of the 2050P may feel a need for control of the process and activities of the Project in order to insure funding, coherence, reliability, and quality of the outputs. However, because the three leading institutions and all principal scientists belong to the North, and are therefore unavoidably biased to some degree, a conflict between project management interests and true globality may exist.

This conflict cannot be solved simply by inviting inputs, arranging collaboration, or other such "mitigating" measures. I believe this must be recognized frontally.

Personally, I think it fair enough that the co-organizer institutions chose to retain control of the 2050P (that was my feeling during the Santa Fe Summer Institute), and to conduct it in the way they believe correct. Again, I see no problems with that, giving the leading and active role they played. But this does not make the 2050P global in contents and perspective. It makes the 2050P another Northern Project about global issues.

CONCEPTUAL ISSUES

○ I agree totally with the concepts expressed in the Introduction of Document 1. However, regarding the last paragraph of the Introduction, which says that the "period between now and 2050 must be one of profound change if human societies are to cope with these problems and if those living in the latter half of the next century are to inherit a world that is environmentally secure,

economically prosperous, respectful of human values, and at peace", a remark is in order. It is important to realize that the period between now and 2050 is already one of profound change, as demonstrated by the impacts of the technological-economic revolution and the socio-political transformations we are witnessing. The point is not one of change or lack of change, but of the direction of the necessary changes. It is quite clear that the current changes and trends are not really conducive to sustainable development.

In the same vein, equating current trends with business as usual (page 25, paragraph 4) might be misleading. Current trends are not merely a linear continuation from the past; they imply deep and fast changes (positive and negative) away from the historical trajectory.

○ It is widely recognized that environmental degradation is associated at least as much to lifestyles and patterns of consumption, than to the sheer number of people. The definition of the base study on Population and Human Capital (page 7, paragraph 2) is obscure in this respect. While the issue of patterns of consumption seems included, it is not clear how and to what degree. Maybe the title is misleading. I think that, besides "empirical data on age, specific patterns of consumption in developed and developing countries," the study should include a major exploration of the necessary and desirable changes in patterns of consumption, and it should tie that with the visions. Perhaps this is covered in the briefly mentioned cross-cutting study on "cultural and lifestyle and their relationships to consumption" (Document 3, page 2, paragraph 4). If not, that would indeed represent a serious omission.

○ The description of the base study on Food and Agriculture (page 7, paragraph 4) says that the study will look at the full range of issues impacting worldwide availability of food. However, the emphasis seems put on food production efficiency and food losses. There is no mention of the socio-economic and political determinants of access to food. While these might be included in the scenarios (see page 25, paragraph 3), this base study should identify the critical factors and their linkages.

○ The tone set for the Project in the Ecosystems base study (page 8, paragraph 6) is, in my view, too passive. It poses the question of whether will

human societies be able to back away from current activities that are beginning to disrupt the functioning of ecosystems critical to the maintenance of such "services" as climate regulation, hydrological cycle balance, cleansing of air and water, pollination of crops and other plants. However, what will be needed is much more than backing away from current activities. New links between society and nature, truly new socio-ecological configurations, will be required if sustainable development is ever going to be attained.

○ I argue that sustainable consumption must be reached at the global level both from above and from below. That is, per capita consumption should increase in those regions where it is under basic sustainable levels, and reduced in those regions where it is above them. The stance of 2050P regarding this ethical issue that links consumption with equity is unclear to the reader. It is stated (page 18, paragraph 3), that the most effective policies to stimulate development of a sustainable system in one place may not be as effective elsewhere. This is absolutely right. However, the interpretation offered in terms of the relative impacts of providing free high efficiency fluorescent tubes with which to replace incandescent bulbs in California, Calcutta and Kathmandu worries me. It states that this strategy may help to reduce energy demands in California, but it might not be the most cost-effective way to achieve major reductions in electricity demand in Calcutta, and may even increase electricity use in Kathmandu. Is the 2050P implying that electricity use (and, by extension, material consumption) must be reduced everywhere? Even in the regions where it is still below the minimal levels for satisfying the basic human needs? This is a very critical conceptual issue with significant political connotations which the Project should explicitly address.

○ I find the differentiation of sustainability as an attribute of a system, and sustainability as a goal for which to strive, confusing and even epistemologically incorrect, particularly when exemplified by ecological sustainability and sustainable development respectively (page 19 bottom, and page 20 paragraphs 1 and 2). An attribute of a system can also be adopted as a goal (i.e., to introduce or to maintain that attribute of the system). The way ecological sustainability is presented in the referred section is precisely as a goal (... "people talk about achieving or protecting ecological sustainability..."). Sustainability may be also an attribute of a process (such as development). In

the same sense as before, sustainable development may be a goal. But sustainable development as a goal should not be confused (as I believe it is in the text) with the goals of sustainable development ("e.g., specified level of well being, meeting people's needs").

○ The setting aside of the "Predetermined Elements" (page 22, paragraph 3 and followings) from other aspects is very useful in a heuristic sense. I also like the explicit consideration of "Inevitable conflicts" (page 23, paragraph 2). The unfolding of conflicting trajectories might be best addressed through what I call "prospective of breaking points." This is also associated to the interactions between different physical and socioeconomic "megaprocesses" rippling now at the global level.

○ The "samples of possible scenarios" (-continued strengthening of market economies, -emergence of negotiated exchange, -advancement of environmental awareness and goals) that might be considered by 2050P in the integrative policy analysis, look very alike to me (page 24 bottom and 25 top). They are not really alternatives; they might even be put together as the description of different aspects of a basic scenario. This is one of the reasons why the South should be centrally involved (if globality is sought). Their views and perceptions of alternative futures can drastically broaden the perspective. The North-South dimension is not explicitly addressed in the description of the samples of possible scenarios. As an illustration of how different other approaches could be, see the following description of three global scenarios for roughly the same time horizon as the 2050P, taken from a paper of mine on global warming.

A growing number of people believe that the current decades represent a turning point for the future of mankind. In my view, qualitatively different futures are open today, and will crystallize in the next few decades. Those alternative futures are not limited to global warming; they are associated to basic social options at the level of mankind. Global warming would be addressed differently in each future. In simple terms, those alternative scenarios can be characterized as:

a) The total or partial extinction of the human species.

The most obvious cause is nuclear war. While the possibility of global warfare seems to be vanishing quickly, there is really no guarantee that nuclear threats could not arise again in the future, in response to new conflicts, either political, economic (perhaps associated to access to critical natural resources) or environmental.

Global warming appears only second to nuclear war, at least potentially (WMO 1988). If global warming approaches the higher range of current estimates, and no massive and timely cooperation is implemented, the direct and indirect effects of climatic change could result in hundreds of millions of human deaths (mainly in the developing countries).

b) Global barbarization.

This scenario involves the entrenching of the rich countries (and the rich elites within poor countries) within "bubbles of richness" surrounded by misery (an imagery that is appearing in movies and the fiction literature with disturbing frequency). The current techno-economic revolution, with its trends towards more energy- and material-saving processes, makes in principle possible a greater autonomy of the rich countries vis-a-vis the developing world; already most of the world trade occurs within the North³. However, the global environment is fast becoming the tighter space of global interdependence, within which no delinking by any country or group of countries is possible. This ecological interdependence may turn out to be perceived as a serious and concrete threat by the industrial world (which, in any case, is responsible for having depleted most of the global ecological capital -WCED 1987-). Because of this planetary ecological interdependence, for the first time in history, poverty in the South directly threatens the well-being of the people in the North⁴.

This possible future scenario contains the possibility of an active attitude from the advanced countries towards maintaining the impoverished majority of the world population at low levels of production and consumption, in order to minimize further advances in global environmental degradation (specially regarding those dimensions that could affect the rich countries). Of course, this would require the adoption (either directly or through the complicity of local Southern elites) of Draconian measures to control social dissatisfaction. Enforced demographic control and imposed preservation of critical ecological areas could be pursued.

This scenario would then result in unprecedented human suffering and inequities, and it would be ridden by growing North-South conflicts. Consequently, it is likely to be unstable, finally developing into one of the other two trajectories discussed here. On the other hand, given the current high level of sensitivity to human values and rights, this path could result in such psychological and moral mutilations of the human species (including the "winners") that the long-term viability of civilization could be compromised.

c) The great transition

This alternative future becomes possible through the growth and flowering of the perception

³ In 1988, the rich countries accounted for about 83% of the world imports and exports; the low- and middle-income countries accounted for the remaining 17% (The World Bank 1990).

⁴ Tropical deforestation, high energy inefficiency, and obsolete technology, are characteristically associated to the contribution of developing countries to global warming. Those are caused, at least partially, by poverty and lack of resources.

(still incipient but already visible along the planet) of the global irrationality of the current trajectory of the world, of the growing interdependence between the elements which form the basis for the new global system, and of the enormous technological and economic accumulated potential of mankind (WCED 1987, Starke 1990). This growing preoccupation among citizens, scientists, politicians, religious and governmental leaders, international organizations, business enterprises, together with the surprising proliferation of non-governmental environmental and community-based organizations of different kinds, and the liberation of economic resources through the reduction of military expenses, represent some of the most meaningful signs of hope for the future of mankind. This is a visible expression of a burgeoning sense of global belonging, of a new, embryonic conscience for a global society.

The mobilization of the human capacity and creativity (the most important resource of the planet) channeled through a new sense of belonging, translated as political will, and capitalizing on the constructive potential of technology and its new developments, and the massive economic resources liberated from the arms race, is certainly capable of generating the transition to a higher stage of human civilization, a level of humanness never known in the past. This will require reaching much higher degrees of equity between countries and persons (a basic prerequisite for the social and political sustainability of development), and to establish new peaceful mechanisms of conflict resolution replacing the obsolete and demerital concept of "Mutually Assured Destruction" by that of "Mutually Assured Solidarity".

The unfolding of the forces of solidarity at the level of the human species would allow new forms of cooperation, the satisfaction of the material need of all human beings, and the reaching of a new, indefinitely sustainable, harmony with Nature. It would make possible a polycultural and polyphonic world, a world spiralling up indefinitely, a new civilization based upon the sustainable use of the planetary resources, renewing itself and forever regenerating the fountain of life of which it is a part and upon which it depends.

The future world economy could be richer than today's, on the basis of a deeper definition of richness: rich in life, rich in creativity, rich in human values, rich in self-realization. All of this is technically and economically possible. Economic growth need not be stopped: while demographic growth and material economic growth (once a basic level necessary for the fulfilling of the material needs of the world population is reached) must stabilize eventually, cultural, psychological, and spiritual growth is not constrained by physical limits. A zero-growth material economy within a positively-growing non-material economy is the logical extension of the current trends of increasing the relative weight of services and other economic activities not directly based on material consumption.

The world response to the issue of global warming could be a test indicating which scenario is most likely to materialize in the next few decades. Recent trends are not encouraging.

Even ruling out the first scenario on the grounds of the 2050P criterion "no catastrophes" (page 10, paragraph 7), the two remaining scenarios differ drastically between them. Both of them, I believe, are realistically possible within

the time span of the project. I am using them to illustrate the spread of possible alternative futures; this is not a proposal to include them in 2050P.

○ Another example of the contrasts that can result from shifted perspectives is the choice made by the authors of the Latin American World Model⁵ of life expectancy at birth as a general indicator of well-being and human-needs satisfaction (and the objective function to maximize, subject to a number of socio-economic and physical constraints), instead of GNP used by the other global models.

METHODOLOGICAL ISSUES

○ It is said that 2050P is ground breaking and unique in that it will not use an extrapolation approach (page 3, paragraph 3). It should be noted that already in 1976, the Latin American World Model did just that. One of the major features of the LAWM was that it was normative rather than extrapolative. It posited a desirable scenario, and investigated its feasibility in terms of natural, economic, and human resources.

○ The writing of a paper outlining how each topic is affected and affects the issues and analysis covered by the other base studies (page 11, last paragraph) is certainly a very good (and not very common) mechanism to foster integration.

○ I find the section "Modeling of Complex Phenomena" (page 13 and 14) somewhat vague in terms of getting an idea of the type of models expected (with the exception of rule-based systems). Which techniques for visual presentations of information, which "innovative computational techniques" will be the models based upon is left to the imagination of the reader.

On the one hand, it is claimed that models will be based on innovative

⁵ Herrera, A.O., H.D. Skolnik, G. Chichilnisky, G.C. Gallopín, J.E. Hardoy, D. Mosovich, E. Oteiza, G.L. de Romero Brest, C.E. Suárez, L. Talavera. 1976. "Catastrophe or New Society? A Latin American World Model". IDRC-064e, International Development Research Centre, Ottawa. The model is also summarized and discussed in Chapter 28 of "The Global 2000 Report to the President of the U.S.," Pergamon Press, 1981.

techniques and composed of many independent agents so that the new models will be much better able than previous ones to mimic the real world interplay of independent entities.

On the other hand, the Santa Fe Institute and Brookings Institution models are described as non linear and adaptive, using a few simple rules, yet capable of producing complex interactions. Are those the ones that are expected to mimic the real world behavior? How are they going to be used? Unless my knowledge about those models is very outdated, a huge gap exists between the very interesting behavior of adaptive models, and their potential for mimicking the real world.

On the whole, it is very unclear to me how the different modeling approaches will be linked (or even related) to the rest of the Project. Perhaps this has been already defined, or maybe this is in itself part of the research?

○ I agree very much with the statement (page 14, paragraph 3) regarding the need to take a "crude look at the whole" (maybe because I was one of the pushers of this at the Summer Institute). This crude look at the whole, if successfully implemented, might in fact become one of the most important parts of the project, because it could constitute the synthetic and relational mesh providing coherence to the large set of activities and data generated. Without such a focusing or linking device the Project runs the risk of culminating with a disparate assortment of elements. It is not clear to the reader how the different parts of the Project (not only the different modelling approaches) will be fitting together.

○ Latin America is too aggregated in comparison to the other regions (page 21, paragraph 1). Central America and the Caribbean should be separated from the rest of Latin America.

CONCLUSION

○ The 2050 Project is a very interesting and timely effort, despite my critical observations, but it is not really a global activity; it contains too much of a

Northern bias.

○ If my concerns are valid, what then about the need for a truly global project as described in the Introduction of this paper? That need still exists, and the alternatives I see to fulfill it are, briefly, the following:

a) The 2050P is modified so as to become a truly global cooperative project.

b) A new truly global collaborative activity with symmetrical participation from the South and the North is initiated (of which 2050P could be one element).

c) A new, complementary, Southern-defined and implemented activity is initiated, to address the same issues as 2050P, with adequate human and financial resources. This activity could then interact on an equal basis with 2050P, resulting in global cooperation and common (or alternative) visions.

Other possibilities exist, such a facilitating inputs from the South through different *fora* and mechanisms, but I believe those will fall very short of what is needed, in terms of fostering a global partnership, understanding, and commitment for sustainable development.

○ The alternatives listed above have different constraints. The first one faces the difficulty of a built-in asymmetry in the 2050P, the momentum given by its early start, and the potential (and understandable) reluctance of the co-organizer institutions to substantial change. The second faces the difficulties to identify funding opportunities, in addition to the problem of fitting an already defined and ongoing project into a new context. The third faces the difficulties of obtaining funding, and of avoiding the risk of becoming a merely reactive project.

○ I think that support for alternatives b) and c) should be considered by representative international institutions having significant involvement from the South, such as, for example, the United Nations University and the Third World Academy of Sciences from the academic side, and UNDP or UNEP from the development policies side. Support for Southern-based activities could also be

considered by organizations like IDRC of Canada or SAREC from Sweden.

○ In this way, 2050P could maintain its original course and still accomplish its goals, filling a more natural niche within a broader, and more representative, context.

