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Targets, Timetables, and Effective Implementing Mechanisms: Necessary Building Blocks for Sustainable Development

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Necessary Building Blocks for Sustainable Development

*by John C. Dernbach**

Introduction

The concept of "sustainable development" provides a framework for simultaneously reconciling and furthering the broad goals of peace and security, economic development, social development, and environmental protection.[1] Most observers recognize that we are more likely to protect the environment when we can show that environmental protection will further security, economic, and social goals, or at least will not interfere with them.[2] In developing countries, for instance, where poverty causes or contributes to environmental degradation, and where financial resources are especially scarce, environmental protection is much more likely to be accomplished when it is combined with economic development. In developed countries, the greater efficiency and conservation required for sustainable development are more likely to occur when it is plainly more economically attractive than current high levels of materials and energy consumption.[3] The concept of "sustainable development," moreover, is the internationally accepted framework for making these broad goals mutually reinforcing - endorsed through internationally agreed texts such as Agenda 21, a product of the 1992 United Nations Conference on Environment and Development.[4]

This framework, however, needs improvement. There is a virtual absence of effective internationally-agreed goals for environmental protection and social well-being. Few, if any, such goals exist in Agenda 21 or in binding multilateral agreements.[5] The achievement of sustainable development will require a long-term, continuing global commitment, which is not possible without the implementation of long-term international targets and timetables. This article discusses why effective targets, timetables, and implementing mechanisms are a crucial component in sustainable development.

Why Targets And Timetables Are Needed

International agreement upon specific environmental and social goals is necessary to achieve sustainable development. "Goals," in this context, refer to specific, measurable targets achieved by specific dates or according to specified timetables. Thus, a target and timetable is a goal whose achievement or lack of achievement can be determined to a reasonable level of certainty. For example, a target and timetable might be expressed as "achieving A by Year C" or "reducing B by fifty percent by Year C."[6]

When targets are vaguely defined, timetables can usually be achieved through minimal activity. A goal of "making efforts toward D by Year E," for instance, can be met by almost any effort at all. Similarly, without specific timetables, targets are merely aspirational statements of goals. A goal of simply "achieving F" is an example. Without a specific date, in a practical sense, there is nothing to achieve and little incentive to achieve it. There are other ways to water down the commitments contained in targets and timetables, using a variety of qualifying phrases and exceptions. Obviously, the strongest targets and timetables have no built-in escape clauses.

The establishment of effective targets and timetables can accomplish at least six valuable tasks: (1) identifying priorities; (2) clarifying objectives of decision makers; (3) demonstrating commitment to sustainable development and thus giving it greater credibility; (4) giving operational meaning to sustainable development; (5) clarifying the role of law; and (6) for difficult long-term objectives, providing benchmarks of progress through short-term or interim goals. All of these are needed to achieve sustainable development, and none are likely to occur without the establishment of effective targets and timetables.

Identifying Priorities

The process of setting goals necessarily forces a decision maker to think strategically about how to set and achieve them. A strategy for sustainable development[7] would identify prioritized issues or goals. In doing so, decision makers reduce numerous pressing tasks into a smaller and manageable number of objectives. Priority setting permits governmental and nongovernmental actors to concentrate their limited time and resources on a smaller number of tasks. Additionally, in principle, priority setting allows those actors to address tasks more effectively.

A threshold dilemma is the existence of more needs and problems than any government or other institution can handle at once. For example, Agenda 21 includes chapters addressing consumption, air pollution (including climate change), land resources, deforestation, desertification, mountain ecosystems, agriculture, biological diversity, oceans, fresh water, toxic chemicals, hazardous wastes, solid wastes, and radioactive wastes.[8] Agenda 21 also contains chapters on trade, poverty, human health, housing, and biotechnology.[9] It is difficult to

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imagine how any decision maker could give priority to all of these things and still accomplish much of significance.

To address this problem, Agenda 21 states that national governments "will develop their own priorities in accordance with their prevailing conditions, needs, national plans, policies, and [programs]."[10] For every country, priorities are different. Virtually all countries, in varying degrees, are experiencing worsening problems with poverty and environment because of unsustainable development.[11] The immediate task then becomes responding to the greatest threats, or "damage control."

The European Union ("EU") has adopted a sustainable development strategy with a significant "damage control" element.[12] For example, EU priorities include global warming, public health, poverty, aging of the population, loss of biodiversity, and transport congestion.[13] These priorities resulted from an analytical process that focused on three criteria: severity of the problem, the extent to which severe and adverse effects are likely to be felt by subsequent generations, and the extent to which the problem is common among EU member countries.[14] The methodology is problem-oriented and is directed against many of the same problems that international sustainable development efforts have targeted, especially climate change, biodiversity, and poverty. For the EU, then, the first step in the strategic process is problem identification and priority setting.

Clarifying Objectives

General descriptions of priorities are useful, but goal setting also requires decision makers to think clearly about what they want. Clarity moves, or ought to move, decision makers beyond rhetoric and generalizations toward goals that are both precise and meaningful. Clarifying objectives is necessary to ensure that goals make sense, that progress toward goals is measured reasonably accurately, that goals can be achieved within the time specified, and that achievement of the goals will actually address the underlying problems.[15]

Any serious effort to foster sustainable development requires the establishment of clearly defined objectives. For instance, the National Research Council's 1999 report, *Our Common Journey: A Transition Toward Sustainable Development*, identifies five key objectives: (1) accelerating fertility reduction so that the world's current population grows only to eight billion by 2050 rather than the nine billion currently projected; (2) providing "adequate water, sanitation, and clean air" for the expected seven billion people who will live in urban areas in 2050, which is two to three times the number of people who now live in urban areas; (3) increasing agricultural productivity in output per hectare by two to three times current productivity levels, on a sustainable basis, by 2050; (4) doubling the historic rate of efficiency improvements for materials and energy use; and (5) restoring and maintaining the functions and integrity of ecosystems that have been dominated by humans, and protecting the least affected ecosystems from land conversion.[16] The Council describes these goals as necessary, ambitious, and achievable by 2050.[17] The Council's five goals represent an effort to convert the broad goals of sustainable development into achievable program elements. Three of the five are stated in quantitative terms, and the other two (relating to the urban environment and biodiversity) could also be converted into quantitative terms.

Similarly, the EU sustainable development strategy contains more precise objectives for each of its six identified priority areas.[18] The objectives for one priority area are illustrative. For climate change, a primary EU objective is reducing greenhouse gas emissions by eight percent below 1990 levels in the time period of 2008-2012, as specified in the Kyoto Protocol.[19] Describing Kyoto as only "a first step," the strategy states that the EU should aim for a one percent annual reduction in greenhouse gas emissions until 2020.[20] It also calls for a tax on energy products by 2002, the creation of a European system for tradable carbon dioxide permits by 2005, and an end to fossil fuel subsidies by 2010.[21] These objectives are in addition to increased research and development concerning renewable energy and more stringent energy conservation standards for buildings and appliances.[22] While these objectives would need to be carried out in each individual country within the EU,[23] they nonetheless provide a concrete set of targets and timetables for addressing climate change.

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The establishment of achievable objectives moves the debate from generalized to specific means of addressing problems. As an example of generalized objectives, under the Rio Agreements, countries (particularly developed countries) are to "reduce and eliminate unsustainable patterns of production and consumption."[24] According to Agenda 21, "the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries."[25] This unsustainable pattern has led to proposals to increase the efficiency with which materials and energy are used by factors of four[26] or ten[27] before 2050. These reduction proposals are useful indicators of the magnitude of the challenge, but they do not help answer the question of which materials and energy sources should be covered. Is consumption of electricity from windmills the same as consumption of electricity from fossil fuels? Is consumption of nickel or aluminum the same as consumption of sand? Quite plainly, environmental impacts of consumption depend on what is being consumed, and how it was produced.[28] The underlying challenge is understanding the spe-

cific types of environmental impacts that consumption creates and addressing the sources of those impacts directly.[29]

For the production and consumption of energy in developed countries, Lynn Price and Mark D. Levine suggest the path toward sustainability can be measured according to three indicators: (1) the efficiency with which energy is used; (2) the percentage of overall energy demand that is met by renewable energy; and (3) the level of carbon dioxide emissions.[30] Policies addressing energy consumption should directly address these issues and result in greater efficiency, more use of renewables, and lower levels of carbon dioxide.[31] Progress on the first two indicators, in fact, is essentially captured by progress on the third.[32] Thus, sustainable production and consumption of energy depends primarily on reducing carbon dioxide emissions from fossil fuels.[33] Put differently, an international or national objective of reducing fossil fuel emissions by a specific amount by a specific time (like the EU objective) is also a key means of moving energy production and consumption in a sustainable direction.[34] Absent a technological breakthrough, reducing carbon dioxide emissions requires reducing the use of fossil fuels,[35] particularly fuels like coal, whose burning creates more carbon dioxide emissions than other fossil fuels.[36]

Clear objectives also help address issues that might otherwise be polarized by competing ideological views. By focusing on carbon dioxide emissions, for instance, decision makers can move away from an abstract discussion of consumption—often an ideological and divisive issue. For some, challenges to consumption are also challenges to "the good life" made possible by a high standard of living.[37] Yet for others, challenges to consumption are necessary because gluttony and waste threaten the planet's future.[38] Such debates are not constructive. By focusing not on consumption itself, but on specific objectives, such as carbon dioxide emissions, decision makers can ork towards reconciliation among these competing positions.

Targets and timetables provide a way of discussing and deciding how ambitious we want or need to be. An example occurred in the Pennsylvania legislature during the mid-1980s. There, the legislature debated the merits of a proposed program requiring large-and medium-sized municipalities across the state to establish curbside recycling programs for glass, metal, paper, and plastic.[39] An important issue in that debate was whether the recycling rate goal for that program by January 1, 1997 should be ten percent or twenty-five percent. The latter was eventually chosen[40] because it was more serious, seemed to better correspond to the magnitude of the waste problem, and was achievable, even though it was more difficult than the ten percent goal. When the twenty-five percent goal was later achieved, the state set an even higher goal.[41]

Specific objectives also focus efforts of governmental and nongovernmental actors over the long term.[42] Political and other leaders enter and leave office, but properly established targets and timetables remain in place.[43] Targets and timetables are particularly important when there are many public and private decision makers whose activities need to be coordinated or, at least, consistent.[44] Goals are a management tool for focusing the efforts of administrative agencies, corporations and other organizations, and even national governments and the international community. Goals become the basis around which budgets are developed and implemented; personnel are hired and allocated; programs are created, modified, or harmonized; and rewards and punishments are meted out. Specificity and clarity reduce the likelihood of confusion or misunderstanding about what the objectives are and thus increases the likelihood that they will be achieved.

Finally, international targets and timetables help ensure that individual nations are working together and motivated by a common objective. While national targets and timetables are also necessary, particular countries or groups of countries cannot successfully address global problems such as climate change or the loss of biodiversity themselves. If some major emitters of greenhouse gases reduce their emissions, and others do not, it may be impossible to prevent major climate change. The international cooperation that comes with international targets and timetables may also provide developed countries with opportunities to reduce compliance costs and provide a means for developing countries to receive financial or technical assistance.[45]

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Demonstrating Commitment

Goals are necessary to measure whether a particular effort succeeds.[46] Targets and timetables also provide a way of measuring progress or lack of progress toward goals.[47] Thus, an agreement to a target and timetable is ordinarily a commitment to achieve it.[48] When a country agrees to adopt a specific goal, it is essentially agreeing to achieve it. For legally binding agreements, the reason is simple: failure to achieve a specific goal or target would put a nation in noncompliance with the agreement.[49] Failure to comply with specific goals in nonbinding agreements subjects a country to political penalties and other repercussions.[50] By demonstrating greater commitment, targets and timetables are a way of providing additional credibility to decision makers when they claim to be interested in moving toward sustainability.[51] Perhaps conversely, quantitative targets are so significant that the United States ratified the Climate Change Convention because it did not contain quantitative and, therefore, enforceable targets.[52] The United States also filed reservations to portions of Agenda 21 (a nonbinding agreement) that contained a quantitative goal.[53]

Giving Operational Meaning to Sustainable Development

Specific environmental and social goals also provide a way of clarifying the meaning of sustainable development. Much of the criticism directed toward sustainable development is based on the claim that it has multiple meanings or no core meaning at all.[54] Sustainable development requires the integration of social, economic, and environmental goals in decision-making.[55] But what, specifically, are those social and environmental goals? Providing context-specific answers to that question, for particular economic sectors, natural resources, countries, or the world, would provide a more precise definition of sustainable development. More basically, goals would provide a way of putting the sustainable development framework into effect.

Another source of ambiguity is the tension between procedural integration and substantive integration, particularly for the environment.[56] At times, Agenda 21 and the other international texts suggest that sustainable development requires the environment to simply be considered in decision making processes (procedural integration), whatever the substantive outcome.[57] At other times, the same texts suggest that sustainable development requires not only consideration of the environment, but also the achievement of substantive environmental goals.[58] Because the transition to a sustainable society is likely to take at least two generations (or fifty years),[59] and because the substantive goals required for sustainability are in many cases extremely challenging, it is tempting to describe procedural integration as sustainable development.[60] Specific, substantive environmental and social targets and timetables can correct that tendency by providing a precise method for assessing claims that particular activities are sustainable, and for measuring progress (or lack of progress) in achieving sustainable development. In that way, specific targets and timetables can give credibility, or added credibility, to sustainable development.

Targets and timetables, however, are not a substitute for the conceptual framework provided by sustainable development. In fact, goals can and should be measured against the framework, as set forth in international texts for sustainable development, including Agenda 21 and relevant treaties. Additionally, goals can and should be evaluated by the likelihood that they will achieve the purposes of sustainable development reversing environmental degradation, reducing poverty, and reducing the gap between rich and poor.[61] Still, targets and timetables, if properly established, provide a specific and measurable way of putting the conceptual framework into effect.

Clarifying the Role of Law

Use of specific objectives clarifies the role of legal and policy instruments. In general, legal and policy instruments provide a means of achieving specific objectives; the instruments themselves are not the ends. As obvious as that may sound, a major problem with the environmental debate in the United States is the extent to which specific legal instruments have become associated with specific positions and objectives. All too often, regulatory reinvention debates in the United States are about economic instruments versus environmental regulation, with relatively little specific discussion of other instruments.[62] These debates often sound like, and are, debates about less environmental protection versus more environmental protection, even though specific and substantive environmental goals are often not discussed. The means, in other words, are all too often a stand-in for some unstated environmental objective. This is an extremely confusing and unhelpful way to proceed, and yet it happens all the time.

When we can agree on substantive environmental goals, it becomes reasonably clear that the cheapest, most effective instruments will do just fine, regardless of what they are.[63] Successful implementation is more likely if decision makers are willing to be both creative and flexible in understanding what legal and policy tools are available, and in choosing the right mix of laws and policies for their particular purposes.

Achieving Long-Term Objectives Through Interim Goals

Achieving sustainable development is not a short-term objective. The National Research Council's conclusion that a transition to sustainability is possible by 2050[64] is a daunting statement about the length of the journey. This two-generation period is a realistic time frame within which to set targets, attempt to change course, and measure success or failure. Yet many environment and development stresses will become much more challenging during this period.[65] A transition toward sustainability is not the same thing as sustainability itself.

Achieving this transition would mean, by 2050, that the world would be in the midst of a "gradual and continuous" shift from an unsustainable society to a sustainable society.[66] While long-term objectives are important, they are fraught with difficulties. The obstacles appear to be, and often are, extremely challenging. As a result, people can be dissuaded from trying to achieve them. Long-term objectives can also seem so overly ambitious as to suggest that sustainable development is impossible. In addition, long-term objectives are often beyond the time range that decision makers are even willing to consider – beyond their retirement date, beyond their political term of office, and beyond the immediate problems they confront on a daily or weekly basis. For many issues, too, we do not have a very clear idea of what the final sustainable development objective should be. The purpose of the United Nations Framework Convention on Climate Change, for instance, is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [human caused] interference with the climate system."[67] No one is particularly sure what that level is.

Interim or short-term goals are a way of addressing these difficulties. They divide a larger problem into smaller and (if the interim goals are properly set) achievable pieces. They help steer society in a general direction even if the precise destination is not yet known. Thus, the goal-setting process can result in interim goals, whether or not long-term targets and timetables are also established. Interim goals also provide an answer to the claim that sustainable development is impossible. By achieving discrete goals, we can learn how to better address specific problems and gain the confidence and experience necessary to build on initial achievements.

Implementing Mechanisms for Targets and Timetables

Targets and timetables are useful only if they are effectively implemented – if the targets and timetables are actually achieved. Monitoring and public reporting of progress (or lack of progress) toward targets and timetables is one way to help ensure that they are met. Legal mechanisms to ensure compliance are also important, and it is far from clear that political commitments are an effective substitute for such mechanisms.

Monitoring and Public Reporting

A widely recognized means of inducing desired environmental outcomes is to require and publicly report information about specific activities.[68] Public reporting of releases of toxic chemicals into the environment is required under the Emergency Planning and Community Right-to-Know Act in the United States, even though the releases themselves are likely to be legal.[69] Public reporting of these releases has led companies to significantly reduce the amount of these chemicals released into the environment.[70] Consequently, the implementation of goals should be accompanied by an effort to gather and publicly disclose information that measures progress in meeting goals.[71] Specific goals, including public reporting of data concerning success or failure in achieving goals, also provide a basis for resisting efforts to undermine those goals by weakening implementation.[72]

Legal vs. Political Commitments

The appeal of placing targets and timetables into international treaties is undeniable. The ratification process for a treaty, by which individual countries agree to be bound under international law by its provisions, helps ensure that countries take the commitments in the treaty seriously and have the domestic legal means of implementing it.[73] Beyond that, a treaty may contain any number of mechanisms to enhance the likelihood of compliance. These include regular meetings of the conference of the parties; the use of technical bodies to resolve scientific, technical, financial, and other issues; the required use of dispute resolution mechanisms; procedural mechanisms to encourage parties to come into compliance; financial assistance to developing countries to assist their compliance; and even trade restrictions and sanctions.

The challenge of international targets and timetables is that nations usually are unwilling to agree to be bound by them under international law. Benchmarks or measurable standards of environmental performance are used only on a limited basis in international environmental law.[74] The relatively recent adoption of framework conventions for biodiversity, climate, desertification, stratospheric ozone, and other problems masks the reality that only one convention (on stratospheric ozone) has resulted in effective and widespread use of targets and timetables.

Targets and timetables contained in other agreements, particularly plans of action adopted at international conferences, tend to lack most of these compliance-inducing mechanisms. Ordinarily, these conferences or meetings result in goals, an action plan to achieve those goals, and perhaps a statement of principles. The lack of a treaty structure makes it impossible to induce compliance through any kind of required procedure, and thus such mechanisms are not used.[75] While it is true that nations negotiate such agreements, and give their assent to these agreements at conferences, they are not subject to a ratification process and are not legally binding. They are "soft law," not "hard" or real law. Their effect, if they have one, is primarily political, not legal.[76] Still, there are reasons to believe that nonbinding agreements may work to some degree. As already suggested, the precision of even nonbinding targets and timetables sets them apart from general goals or goals without timetables. Targets and timetables are likely to have greater political importance than vaguer objectives because they make it possible to determine whether the goal has been achieved.[77] They can also be a focal point for international cooperation even when these targets and timetables are not legally binding. Targets and timetables directed at poverty, for instance, appear to have had some positive effect in reducing global poverty.[78]

Finally, whether binding or nonbinding, the achievement of targets and timetables ordinarily requires some kind of institutional mechanism to monitor and ensure compliance.[79] For a treaty, this is likely to be the secretariat or administrative body for the treaty. For nonbinding agreements, there often exist agreements to meet again in five years to discuss progress, and a United Nations body may be obliged to monitor and report on efforts in the meantime.

Conclusion

Sustainable development will require time and concerted effort to come to fruition in the real world. But this effort is essential because there is no alternative to addressing global poverty and environmental degradation. The challenge is not to simply identify the missing pieces in the framework; the challenge is to fill them in – at the international, national, state or provincial, and local levels. Targets and timetables focus the quest for sustainability on discrete, achievable tasks, and thus should – and hopefully will – provide a means to successfully address the world's pressing poverty and environmental challenges.

Endnotes: Targets, Timetables, and Mechanisms

[1] John C. Dernbach, *Sustainable Development as a Framework for National Governance*, 49 Case W. Res. L. Rev. 1, 9 (1998) [hereinafter *Framework*].

[2] *See generally, Framework*, *supra* note 1, at 31.

[3] *See generally, Framework*, *supra* note 1, at 49-50.

[4] UN Conference on Env't & Dev., Agenda 21, UN Doc. A/CONF. 151.26 (1992), *available at* http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm (last visited Nov. 4, 2005) [hereinafter Agenda 21]. The participating countries also agreed to a set of twenty-seven principles, known as the Rio Declaration, to guide the implementation of Agenda 21. *See* U. N. Conference on Env't & Dev., Rio Declaration on Environment and Development, UN Doc. A/CONF.151/5/Rev.1 (1992), reprinted in 31 I.L.M. 874 ¶ 8.7, *available at* http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm

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(last visited Nov. 4, 2005) [hereinafter *Rio Declaration*] (recommending that countries adopt national strategies for sustainable development).

[5] BD. ON SUSTAINABLE DEV., POLICY DIV., NAT'L RESEARCH COUNCIL, OUR COMMON JOURNEY: A TRANSITION TOWARD SUSTAINABLE DEVELOPMENT 44 (National Academy Press 1999) [hereinafter OUR COMMON JOURNEY].

[6] This article focuses on longer-term targets and timetables. A great many environmental treaties require compliance that more or less coincides with the date that these treaties go into effect. My focus, instead, is on timetables that often stretch a decade or more from the present date. Many of the hardest problems we face at the international level need to be addressed in longevity, to achieve even a modicum of success. These include, but are certainly not limited to, poverty, climate change, and loss of biodiversity. *See Framework, supra* note 1, at 32.

[7] AGENDA 21*, supra* note 4, at ¶ 8.7.

[8] AGENDA 21, *supra* note 4, at chs. 4, 9-15, 17-22.

[9] AGENDA 21, *supra* note 4, at chs. 2-3, 6-7, 16.

[10] AGENDA 21, *supra* note 4, at ¶ 8.3. *See also Rio Declaration*, *supra* note 4, princ. 11.

[11] *See* U. N. ENV'T PROGRAMME, GLOBAL ENVIRONMENTAL OUTLOOK 3 (2002), *available at* http://www.unep.org/geo/geo3/english/index.htm (last visited Nov. 4, 2005); The Secretary-General, *Implementing Agenda 21: Report of the Secretary-General,* UN *Commission for Sustainable Development Acting as the Preparatory Committee for the World Summit on Sustainable Developmen*t, ¶4, 2d Sess., UN Doc. E/CN.17/2002/PC.2/7 (2002).

[12] AMARTYA SEN, DEVELOPMENT AS FREEDOM (1999); *See also* Comm'm of the European Cmty., *A Sustainable Europe for a Better World: a European Union Strategy for Sustainable Development: Commission's Proposal to the Gothenburg European Council* Com (2001) 264 final, at 2 (May 15, 2001), *available at* http://europa.eu.int/eur-lex/en/com/cnc/2001/com2001_0264en01.pdf, (last visited Nov. 4, 2005) [hereinafter *European Union Strategy*].

[13] *European Union Strategy*, *supra* note 12, at 4.

[14] Comm'm of the European Communities, *Consultation Paper For The Preparation Of A European Union Strategy For Sustainable Development,* at 14, SEC (2001) 517 (Mar. 27, 2001), *available at* http://europa.eu.int/comm/environment/eussd/consultation_paper_en.pdf (last visited Nov. 4, 2005).

[15] *See* William F. Pederson, *Regulation and Information Disclosure: Parallel Universes and Beyond*, 25 HARV. ENVTL. L. REV. 151, 177 (2001).

[16] OUR COMMON JOURNEY, *supra* note 5, at 12-14.

[17] OUR COMMON JOURNEY, *supra* note 5, at 1-14.

[18] *European Union Strategy*, *supra* note 12, at pt. III.

[19] *European Union Strategy*, *supra* note 12, at pt. III; *See* Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, UN Doc. FCCC/CP/197/L.7/Add. (1998), reprinted in 37 I.L.M. 22, *available at* http://unfccc.int/resource/docs/convkp/kpeng.pdf (last visited Nov. 4, 2005) [hereinafter Kyoto Protocol].

[20] *European Union Strategy*, *supra* note 12, at pt. III.

[21] *European Union Strategy*, *supra* note 12, at pt. III.

[22] *European Union Strategy*, *supra* note 12, at pt. III.

[23] *European Union Strategy*, *supra* note 12, at pt. 2.

[24] RIO DECLARATION, *supra* note 4, at princ. 8; *see Agenda 21*, *supra* note 4, at ch. 4.

[25] AGENDA 21, *supra* note 4, at ¶ 4.3.

[26] Business Council For Sustainable Dev., *Getting Eco-Efficient* 10 (1993), *available at* http://www.p2pays.org/ref/23/22632.pdf (last visited Nov. 4, 2005) (concluding that industrialized countries may need to reduce materials consumption, energy use and environmental degradation by more than ninety percent by 2040 just to maintain overall impacts at current levels).

[27] Factor 10 Club, *Carnoules Declaration* (1994) (concluding that resource productivity in industrialized countries needs to increase by more than a factor of ten in the next thirty to fifty years to achieve sustainability).

[28] *See generally* AMIT KAPUR & THOMAS E. GRAEDEL, *Production and Consumption of Materials*, in STUMBLING TOWARD SUSTAINABILITY, (John C. Dernbach ed., 2002) at 63, 65.

[29] *See id.*

[30] LYNN PRICE & MARK D. LEVINE, *Production and Consumption of Energy*, in STUMBLING TOWARD SUSTAINABILITY, *supra* note 28, at 79, 85-86. *See also* AMUYLA K.N. REDDY, *Energy and Social Issues*, in UNITED NATIONS DEVELOPMENT PROGRAMME, WORLD ENERGY ASSESSMENT: ENERGY AND THE CHALLENGE OF SUSTAINABILITY 38, 41-57 (Jose Goldemberg et al. eds., 2000).

[31] *See* PRICE & LEVINE, *supra* note 30, at 94-98 (outlining measures to address the three indicators

[32] *See* PRICE & LEVINE, *supra* note 30, at 93.

[33] *See* PRICE & LEVINE, *supra* note 30, at 93.

[34] *See* PRICE & LEVINE, *supra* note 30, at 94.

[35] *See* PRICE & LEVINE, *supra* note 30, at 81; *see also* Programme for the Further Implementation of Agenda 21, UN GAOR, 19th Special Sess., Annex ¶ 23, UN Doc. A/S-19/29 (1997) ¶¶ 42-46.

[36] *Cf.* REDDY, *supra* note 30, at 45.

[37] *See, e.g.,* Bradley A. Harsch, *Consumerism and Environmental Policy: Moving Past Consumer Culture*, 26 ECOLOGY L.Q. 543, 556-57 (1999).

[38] *Cf.* John R.E. Bliese, *Conservative Principles and Environmental Policies*, 7 KAN. J.L. & PUB. POL'Y 1, 16 (1998).

[39] For a brief early commentary on Pennsylvania's recycling program, *see* Mark S. Singel, *State Recycling Program Off to a Good Start*, Harrisburg Patriot, Nov. 9, 1989, at A17.

[40] Municipal Waste Planning, Recycling and Waste Reduction Act, 53 PA. CONS. STAT. ANN. § 4000.102(c)(1) (West 1997); *See* Thomas J. Elliott, *Annual Survey of Significant Developments in the Law: Environmental Law*, 61 PA. B. ASS'N Q. 13, 13-14 (1990).

[41] Pa. Dep. of Envtl. Prot., *Lt. Gov. Schweiker Announces 35 Percent Recycling Goal*, Oct. 24, 1997, http://www.dep.state.pa.us/dep/deputate/polycomm/update/10-24-97/102497u7.htm. (last visited Oct. 29, 2005).

[42] *Cf.* AGENDA 21, *supra* note 4, chs. 23-32.

[43] *See* Nat'l Comm'n on the Env't, *Choosing a Sustainable Future* 47 (Island Press 1992) (describing how a goal-based strategy lends continuity to environmental policy).

[44] *Cf.* Bradford C. Mank, *Protecting the Environment for Future Generations*, 5 N.Y.U. ENVTL. L.J. 444**,** 446-47 (1996).

[45] Kyoto Protocol, supra note 19, arts. 6, 12, 17. Many international environmental agreements specifically provide financial or technical assistance to developing countries to comply with requirements under those treaties; *See, e.g.,* UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, May 9, 1992, art. 11, S. Treaty Doc. No. 102-38 (1992), 1771 U.N.T.S. 108, reprinted in 31 I.L.M. 849, *available at* http://unfccc.int/resource/docs/convkp/conveng.pdf [hereinafter Framework Convention].

[46] See William F. Pederson, *Regulation and Information Disclosure: Parallel Universes and Beyond*, 25 HARV. ENVTL. L. REV. 151, 177 (2001), at 178.

[47] *See* Robert M. Sussman, *The Government Performance and Results Act and the Future of the EPA: A Second Look*, 29 ENVTL. L. REP. (ENVTL. L. INST.) 10, 347, 10, 355 n.57 (1999).

[48] *Cf.* Christina S. Chen, *Comment, Persistent Organic Pollutants: Regime Formation and Norm Selection*, 13 CONN. J. INT'L L. 119, 148 (1998).

[49] *See* LOUIS HENKIN, HOW NATIONS BEHAVE: LAW AND FOREIGN POLICY 54-56 (2d ed. 1979).

[50] *See id. But cf.* Paul R. Williams, *Can International Legal Principles Play a Positive Role in Resolving Central and East European Transboundary Environmental Disputes?*, 7 GEO. INT'L ENVTL. L. REV. 421, 425 n.13 (1995).

[51] Margot Wallstrom, *Conclusions of World Summit on Sustainable Development in Johannesburg* (Sept. 25, 2002).

[52] Exec. Rep. No. 102-55, at 14-15 (1992) (Senate Foreign Relations

Committee Report recognizing that some Committee members "think that additional measures are warranted," but nonetheless supporting the Convention's ratification).

[53] Bureau of Public Affairs, U.S. Dep't of State, U.S. Statement for the Record on the UNCED Agreements, Dep't St. Dispatch, Supp. No. 14, July 1992, at 35, 35 (refusing to commit to increasing levels of official development assistance to 0.7 percent of gross domestic product).

[54] *See, e.g.,* Samudu Atapattu, *Sustainable Development, Myth or Reality?,* 14 Geo. Int'l Envtl. L. Rev. 265, 271 (2002), at 271; Jim Bailey, *Sustainable Development: Searching for the Grail or a Wild Goose?*, 24 Envtl. L. 1159, 1162 (1994), at 1162; Jennifer McIver, *Environmental Protection, Indigenous Rights and the Arctic Council: Rock, Paper, Scissors on the Ice?*, 10 Geo. Int'l Envtl. L. Rev. 147, 162-63 (1997) at 162-63.

[55] John C. Dernbach, *Sustainable Development: Now More Than Ever,* in Stumbling Toward Sustainability, *supra* note 28, at 45.[hereinafter Dernbach, *Now More Than Ever*].

[56] *See id.* at 51-53.

[57] Agenda 21, *supra* note 4, at ¶¶ 8.5-8.6 (calling for environmental impact assessments); *See Rio Declaration*, *supra* note 4, at princ. 17. For additional discussion, *see* Dernbach, *Now More Than Ever*, *supra* note 55, at 52.

[58] *See e.g.,* Rio Declaration, *supra* note 4, at princ. 11 (calling for the enactment of environmental legislation by the States); *see also* Dernbach, *Now More Than Ever*, *supra* note 55, at 53.

[59] *See* Our Common Journey, *supra* note 5, at 3.

[60] *See* Dernbach, *Now More Than Ever*, *supra* note 55, at 52.

[61] *Cf.* Nat'l Comm'n on the Env't, *supra* note 43, at 1 (stating that the national goals of sustainable development are "economic growth and environmental improvement").

[62] For discussion of recent examples of such debates, *see* Jonathan Z. Cannon*, EPA and Congress (1994-2000): Who's Been Yanking Whose Chain?*, 31 Envtl. L. Rep. (Envtl. L. Inst.) 10, 942 (2001); Thomas O. McGarity, *Deflecting the Assualt: How EPA Survived a "Disorganized Revolution" by "Reinventing" Itself a Bit*, 31 Envtl. L. Rep. (Envtl. L. Inst.) 11, 249 (2001).

[63] *See* Kenneth R. Richards, *Framing Environmental Policy Instrument Choice*, 10 Duke Envtl. L. & Pol'y F. 221, 222 (2000).

[64] Our Common Journey, *supra* note 5, at 6-7.

[65] Our Common Journey, *supra* note 5, at 3.

[66] Our Common Journey, *supra* note 5, at 59.

[67] Framework Convention, *supra* note 45, at art. 2.

[68] *See generally* Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 Geo. L.J. 257 (2001).

[69] 42 U.S.C. § 11,023 (2000).

[70] Lynn Goldman, *Toxic Chemicals and Pesticides*, in Stumbling Toward Sustainability, *supra* note 28, at 403, 415-16.

[71] Rio Declaration, *supra* note 4, at princ. 10 (stating the importance to sustainable development of public participation, public information, and access to justice). *See also* The New "Public": The Globalization Of Public Participation (Carl Bruch ed., 2002); Elena Petkova Et Al., World Res. Inst., Closing The Gap: Information, Participation, and Justice In Decision-Making For The Environment (2002).

[72] *Cf.* Pederson, *supra* note 15, at 179 ("[L]ack of goals helps perpetuate captivity of [government] agencies to interest group pressure.").

[73] Lawrence E. Susskind et al., International Environmental Treaty Making (1992).

[74] Richard W. Parker, *Choosing Norms to Promote Compliance and Effectiveness: The Case for International Environmental Benchmark Standards*, in International Compliance With Nonbinding Accords 145, 157-58 (Edith Brown Weiss ed., 1998).

[75] *See* John C. Dernbach, *Targets, Timetables, and Effective Implementing Mechanisms: Necessary Building Blocks for Sustainable Development*, 27 Wm. & Mary Envtl. L. & Pol'y Rev. 79 Part III. B.

[76] Pierre-Marie Depuy, *Soft Law and the International Law of the Environment*, 12 Mich. J. Int'l L. 420 (1991).

[77] *See* Geoffrey Palmer, *New Ways to Make International Environmental Law*, 86 Am. J. Int'l L. 259, 269-70 (1992).

[78] Our Common Journey, *supra* note 5, at 38-40; Dev. Assistance Comm., Org. For Econ. Cooperation and Dev., *Shaping the 21st Century: the Contribution of Development Co-operation* 7-8 (1996), *available at* http://www.oecd.org/dataoecd/23/35/2508761.pdf (last visited Oct. 29, 2005).

[79] *Cf.* A. Dan Tarlock, *Ideas Without Institutions: The Paradox of Sustainable Development*, 9 Ind. J. Global Legal Stud. 35 (2001).