

## **Sustainable Development Thirty Years From Now — Exploring the Development of Knowledge, Values and Institutions**

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### *Introduction*

The vision of a more sustainable world, one in which economic development safeguards livelihood for all, where social development secures a harmonious community life and where the surrounding environment is healthy enough to provide humanity with its multitude of environmental services and harbour a rich diversity of life forms, can be deduced in countless statements in forums from the United Nations — one of the latest examples being the Millennium Declaration — to our local municipality, from the mission statements of NGOs, business corporations, religious communities, to think tanks like the Club of Rome.

It is worth to reflect however, on the fact that it has only been for less than a century that humanity has had channels through which it can as a collective express global visions for humanity's future life on this planet in fora like the League of Nations and the United Nations. Yet, before that throughout the ages such visions have been expressed through individual sages, poets and prophets. Furthermore, it has only been for about three decades that the development of scientific and technological tools has allowed the formulation of alternative scenarios that can explore in more quantitative terms possible development paths towards — or away from — those visions. At the same time it is during these past hundred and more so years that human activity, based also on scientific and technological developments, has gained such character and scale as to threaten the very viability of the Earth System she is a part of. This means that humanity has in the same phase and time period of her development both created the numerous global scale pressures on the human-environment systems and the tools to allow her to gain insight on the present and long-term consequences of those pressures.

Fortuitous as this seems, we have in most cases not chosen to use this good fortune to avert the most detrimental behaviour and activities. Access to these tools have not as

yet led to any radical change in the time-horizon of politics, policies and planning, but there are efforts made in that direction. Agenda 21 was envisioned to be an action programme for the 21<sup>st</sup> Century, the Millennium Development Goals formulated concrete numerical goals for a 15 year span and in the framework of the Climate Convention policy-makers are exposed to the Intergovernmental Panel on Climate Change scenarios which stretch one and a half century. The many efforts of scenario development should therefore be likely to gain in importance rather than wane into the oblivion of unheeded warnings of scientists.

The development of scenarios are all based on different assumptions of how what actions societies will take, or abstain from taking. One of the recent global scenario efforts developed a business as usual scenario which implies a continued emphasis on free market development and economic globalization is complemented with a security related scenario with increasing barriers between people and societies and a transformation scenario where an enlightened and compassionate humanity uses her full arsenal of skill and resources to achieve a more sustainable and just development (Raskin et al., 2002). These and similar scenarios look at the totality of society and how differently it may develop due to changes in the overarching priorities. In this paper I will do something far less ambitious, far more explorative but in my view essential. I will explore alternative scenarios of how three key aspects of human society — knowledge, institutions and values — could develop in the next 30 years. Each of these arenas is facing particular challenges in the context of the era of increasing globalisation and mutual interdependency. Each of these arenas can either foster progress towards sustainable development or effectively prevent it. I develop two scenarios for each arena. One which follows the continuation or even strengthening of current trends, the 'business as usual' scenario. The other scenario describes a more 'business as optimal' scenario, where radical shifts have been made to address the new challenges arising from mutual interdependency and move in the direction of sustainable development.

### *Knowledge generation*

Knowledge, and particularly scientific knowledge and its technological applications, have by many been considered to be an absolutely essential element in any type of effort to create more sustainable development paths. Its role in the identification and understanding of what we are doing to our planet and ourselves is needless to elaborate on, but belief in it as a panacea for finding solutions is ignoring several factors. Firstly, science and technology have enabled humanity to create the problems in the first place, and she has over the past two hundred years developed her societies so that their very structure, physically and economically, depend on the most

environmentally detrimental activities. And even after becoming aware of this, and in some cases having developed alternative technologies, by and large human societies have not been able to make decisions to revert the situation. The solution thus lies beyond mere access to science and technologies and more in the realm of values and institutions (see below). Secondly, access to science and technology is by no means universal. Quite the opposite, the knowledge and technological divide between those with resources and those without, whether within countries or between the North and the South is enormous (Serageldin, 1998; Arunachalam, 1999). This divide is illustrated in stark colours by the following UNESCO derived data (Westholm, Tchatchoua, and Tindemans, 2004). While developing countries' share of World GDP in the year 2000 was 42 percent, they only contributed 20 percent to the world's Global Gross Expenditure on R&D (GERD). Developing countries with 79 percent of the world population has only 28 percent of researchers in the world.<sup>1</sup> These numbers of averages, however, blur a stark difference among countries in the two groups. In the South a few countries, like China, India, South Africa and Brazil completely dominate the science scene (Westholm, Tchatchoua, and Tindemans, 2004). This means that many countries are standing completely at the margin, or even outside the margin of scientific activity (Altbach, 1987; Arunachalam, 1999).<sup>2</sup> This situation prevents a large majority of humankind to make their own scientifically informed choices about development paths and the technologies that enable them. It means that science and technology in many cases is generated in one ecological, socioeconomic, cultural and political context and transplanted across to very different contexts. This reduces the richness of science and diversity of technologies and very often this means that they are less appropriate for use in those new contexts.

The 'business as usual' scenario for the arena of knowledge generation and technological development entails a continuation of increasing knowledge divides rising between the haves and the have-nots, the North and the South, the experts and the public, the producers of knowledge and the consumers. In the year 2035 science continues to be held in high esteem and is an activity confined largely within the walls of universities, whose qualitative hierarchy with a few dozen of global ivy league centres of learning serve as the constant legitimiser and lure of the whole academic community. A few of today's developing countries such as India, China and Brazil will

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<sup>1</sup> For a more detailed discussion on the 'size' and impact of the knowledge divide in the field of environmental sciences, see Karlsson (2002).

<sup>2</sup> An illustrative example is that in the whole continent of Africa, with 53 countries, there are only nine merit-based academies of science (Hassan, 2001) and among the Arab countries seven countries account for 85% of that regions GERD — which still amounts to only 0.2% of the world total — while the remaining 15 countries account for the remaining 15% (Westholm, Tchatchoua, and Tindemans, 2004).

by the year 2035 have joined the global knowledge and technological production enterprise even if their universities have strived in vain to reach the status of Cambridge, Oxford, Yale or Harvard. Those global ivy league universities however, will in their student and faculty bodies have developed into miniature reflections of the composition of mankind, with their strategy to harness the best intellectual capacity from across the world. Their funding and research focus however, are still moulded along national and private donor preferences, their theories and methodologies are faithfully true to their culturally narrow intellectual history. The vast majority of developing countries are still confined to the marginalised periphery with regard to contributing to the global scientific enterprise. In the best cases they have through charitable organisations received access to the online scientific libraries of the world but their research is still made according to donor preferences which precludes them from both making contributions to basic research and theoretical development. Their publications still seldom reaches the first class journals and while the 'grey' literature of project reports where most of their results are published is now easily accessible on the internet it has little influence on the development of their disciplines. Their best students always leave for universities in the North and their faculty face the burden of the largest classes and the least resources per student in decades. Universities in all countries are further drawn more and more from the collective 'quest' of advancing the frontiers of knowledge as a public good, to join the private sectors' focus on development of patents and commercialised knowledge, or selling education to the highest bidder. The bulk of universities and R&D units of governments pay little more than lip-service to the role for sustainable development that they were charged with in Agenda 21 at the end of the last century.<sup>3</sup>

The business as optimal scenario goes along the path of universalising the access to knowledge through education including in the process of science and development of technology, closing the knowledge divides and bridging the gaps between local and global knowledge, indigenous and scientific learning, and scientists and policymakers' understanding of what is useful and usable knowledge.<sup>4</sup> In the first decade of the 21<sup>st</sup> Century the initial steps towards a radically altered path of knowledge generation were taken at both individual and collective levels in several countries and with time this development took hold across the world. Some scientists and scientific organisations, partly as a result of the debate around the 1992 and 2002 Earth Summits, started to pay attention to the role of scientific knowledge in its broader scope, including both

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<sup>3</sup> See chapters 31 and 35 in Agenda 21 (UNCED, 1993).

<sup>4</sup> Part of the scenario below builds on a statement to the World Summit on Sustainable Development by the International Environment Forum (International Environment Forum, 2002).

natural *and* social sciences for understanding the social and economical pillars of sustainable development, understanding their components and interrelationships and what the policy options were in any of these domains. They deepened this understanding in various fora, in dialogue with both other scientists, universities, and policy makers across all countries and benefits in terms of better policies, institutions and governance soon emerged. The universal character of this dialogue process also deepened the resolve among all actors to find ways of closing the knowledge and technological divides. In the year 2035 significant progress has been made in this regard. The divides have been significantly reduced if not entirely obliterated. All countries have one or several universities which draws students from around the world for their scientific excellence and dedication to serving the communities around them. The industry of scholarly publishing (primarily online) is by and large a not for profit enterprise supported by both scholars whose universities offer their time for this as a contribution to the common good, and by volunteers who act as mentors for young authors or translators for authors who do master English, the de facto universal language of science. The incentive systems in universities have moved away from individually oriented target of maximum published papers to qualitative targets which encourage both collective research processes and engagement in service to both the local and the global community. Key actors which supported this dramatic change were the funding organisations of research and governments who allocate resources. They started to view the production of science as a global public good which could be significantly enhanced if all countries became partners in its production on more equal terms and thus within the framework of the United Nations they set up a number of global and regional research councils which channelled research to the best research teams and institutions across the continents, even if their methodologies and models were different from those that wealthy countries could afford.

A paradigm shift has also taken place regarding who can participate in the scientific enterprise. Societies have moved far beyond the assumption that only scientists can do science. The approach of science, learning to think in terms of process, to weigh evidence and draw conclusions, has been made directly accessible to all levels of society, also groups which lack the vocabulary and scientific heritage of Western science. This innovative science education has made the value of local and traditional knowledge even higher for local communities and has supported them to approach the globalised context in which they live. This integration of science in local communities has also significantly contributed to closing the knowledge divide between the North and the South concerning environmental change, both local and global. With the help of e.g. high school students across all countries who, as part of their education, gather

basic data on environmental and social parameters under the guidance of researchers and with support of the educational infrastructure, the cadre of observers and the amount of data collected has increase dramatically. This local in-situ collected data together with the advanced satellite based monitoring systems gives both local, national and global communities the data to develop indicators on how they are progressing towards sustainable development. The availability of local scientific institutions everywhere has given everyone access to science and its benefits. Decisions in local communities are taken with the best available information according to their capacity, placing the local situation in its larger geographic, national and global context, and integrating all relevant factors. Decisions at the global level are made with a balanced, rich body of knowledge accumulated and assessed from all regions.

### *Value spheres*

Values is a broad concept referring to “what people think to be good” as Graham (Graham, 1981:4) defines it. In decision-making values are expressed in the way people and organizations prioritise, that is what is considered *more* valuable compared to other things. I use the term ‘value spheres’ to describe who and what is included in people’s concern. These value spheres differ in size; they may have their outer border at the individual, the family and household, or extend to the same country or to the whole human race. The challenge that globalisation has brought to light, but hardly created, is that we are influenced by the values as manifested in behaviour and actions of a whole lot of other people far away. In the same way that our values and action influence them. But the value spheres do not extend as far as our influence and the result is a mismatch in values. This becomes even more apparent when we make the same argument along the time dimension into the future. The role that people’s values play in creating more sustainable development is, I would argue, significant, but it is constrained by both the lack of access to knowledge as well as faulty institutions. If there is a veil of ignorance between actors and the effects of their actions on the environment and other people, it precludes even the most altruistic people from making rational decisions (Karlsson, 2000). And if institutions and structures are creating incentives for unsustainable behaviour and limiting the possibilities of alternatives, then values do not extend very far.

The business as usual scenario for the development of values looks at a future with the backlash of isolationist nationalism, cultural and religious intolerance and unbridled consumerism with increasing clashes of civilizations and between civilisations and nature. The year 2035 paints a bleak picture of sustainability in all three of its dimensions. The great leap towards global solidarity which world leaders laid out in the Millennium Declaration of the year 2000 remained a pious hope which was never

realised. Even the small sacrifices it would have taken to implement the Millennium Development Goals by 2015 were never made and the disillusionment among the protagonists of the goals and their beneficiaries were so grave that no further efforts of World Summits could rekindle the faith in that humanity wanted to work towards a better future. The apathy among the younger generations which came from the resulting feeling of helplessness and abandonment often turns into activism of the most destructive kind; racial and religious tension escalated often accompanied by senseless violence. The anti-globalization movement that took shape in the early years of the century never found a listening ear from the establishment and with time withdrew their efforts from the global arena and tried to establish some islands of isolated communities living parallel rather than as part of the wider society. A similar fate has met many religious communities who have been unable to see their role in society and thus at the request of their clergy secluded themselves as best they can to preserve their values and traditions for themselves. But in some cases, specially where many such communities are neighbours, they feel threatened by each other's mere presence and tension turn into frequent clashes, verbal, judicial, financial, political and even violent at times. In the political contexts of nation-states, religious and cultural diversity is seen as a burden if not even a threat and major efforts are made to create not unity but more uniformity.

Meanwhile the majority of people have continued the unbridled adherence to materialism as both lifestyle and ideology. Concern for fellow humans living now or in the future was never accepted to be part of human nature and thus there were no serious attempts to encourage citizenship values in the educational curricula. A persons' human rights is interpreted as the right to consume and over-consume. For the third of the planet's population who can afford it this means unlimited access to food, housing, transport and entertainment. For those who have not yet achieved the level of wealth to pursue this level of consumption the aspiration to reach it is ever reinforced by the 'media-bath' which surrounds them from all sides. The dominant urban culture has taken humans even further from feeling related or even dependent on nature, with the exception of a selected few wealthy groups for whom the right to consumption includes the right to consume unspoiled nature in the few remaining patches of protected rain forests and coral reefs. They occasionally still raise their voices against the degradation of the Earth's ecosystems and exhaustion of its resources but their voices drown in the noise of the cities which never sleep and allow 24-hour consumption. Those few farmers who are still tilling the soil are to some extent as far away from nature as the urban dwellers, in their high-tech production systems where diversity is banned and monoculture produced by the genetic labs is the rule. A

few groups of indigenous groups are still nurturing their age-old knowledge of and feelings for nature but they live isolated in protected parks and their wisdom is never heard.

The business as optimal scenario on the other hand looks at a future which moves in the direction of expanding value spheres and global solidarity, tolerance and less materialist focus on human development allowing bridges to be built between nations, cultures and religions, and between man and nature. The many initiatives at the turn of the millennium which promoted the explicit expansion of the universal values of human rights to include values related to our responsibility towards both the living planet and to future generations, have now thirty years later finally paid off. The long and arduous work to encourage the values, such as those expressed in the Earth Charter, in both educational and political systems, in the private and public sectors, and among adherents of all religions, is now yielding fruits. The school curricula in all countries now explicitly seek to encourage the values of world citizenship, the religious education within all faiths are putting increasing emphasis on learning about the unifying elements among them, and citizens are starting to elect leaders which are more dedicated to service than power. Human development in all its dimensions, physical, intellectual, emotional and spiritual, is the emerging ideology, and material consumption is approached with moderation, only seen as one element of life. The willingness to reduce excessive consumption levels in some of the wealthiest countries has allowed the sharing of work, more people have work but work less and can thus spend more time with their loved ones and in engaging in community affairs or enjoying nature. Small urban centres are the preferred way of life in many regions but many are still trapped in the big congested metropolis areas. While continuously facing a number of challenges, particularly the dwindling capacity of the Earth's ecosystems to produce services — such as a stable climate system, clean water, healthy food chains and the increasing scarcity of several key natural resources such as oil — the spirit of multilateralism which has grown stronger for every decade has allowed the development of a number of strategies to address these jointly. While progress is slow it is sufficient to convince the majority of people and countries that they are on the right path.

### *Institutional design*

The institutions, those formal and informal norms, rules, laws and codes of conduct that societies' are permeated by, which existed in the early 21<sup>st</sup> century were fragmented and often contradictory both between different policy sectors and between different governance levels. Institutions were seldom in place that addressed either the root drivers of environmental and social degradation at the level of social organisations

where these were created, or that took advantage of the capacity to act among certain levels and stakeholder groups. Such mismatches in institutions was one of the major challenges in the efforts to design institutions that would support more sustainable development paths. When there are local driving forces for global problems it is necessary for global governance that reaches down to influence the local actions. For issues with local-global linkages in both effects and driving forces, the challenge is for institutions at the local and global level need to be mutually supportive.

The business as usual scenario for the development of institutions led to an increasing plethora of issue specific laws and rules governing every small sector of society, with local, national and global policies going in competing and clashing directions. The pessimistic prophecies from the early struggle around the Kyoto Protocol and the creation of a competing regime by some of the major players came through in the decade ahead. The Climate Convention lived on but only managed to produce a well functioning system of measuring and reporting greenhouse emissions, not a substantial reduction in CO<sub>2</sub> emissions. This took the steam out of most other Multilateral Environmental Agreements which though still living on until today, in 2035, face a set of opposing institutions both at the global and national levels. The institutions that were set to liberalise trade achieved their goal but at the price of ruthless competition between countries for lowest production costs and a race to the bottom in environmental and human rights protection. There have been a few attempts to develop institutions which regulate the ever larger Multi-National Corporations (MNCs) but they ended in vague declarations which were never implemented. The MNCs, many of which are much larger than countries, have thus been able to develop their playing field in almost complete freedom and can select to pay taxes in the tax havens which suit them. The strengthening of regional trade, and sometimes political, blocks which started in the early 21<sup>st</sup> Century was at the expense of local governments who saw their role diminish. Political decisions were centralised to national and regional levels, with occasional symbolic efforts to global cooperation. Sometimes those global governance efforts went beyond symbolism as there was tension and always looming conflict over the one resource which regions, except central and western Asia, were self sufficient in; fossil fuel. The institutions governing the educational systems supported nationalism and to some extent regional identities but sought to support the dominant culture and language at the expense of minorities.

In the business as optimal scenario we are looking at three decades where both the sectoral and cross-level fragmentation and mismatches have been addressed by integration and coherence in policies and governance horizontally and vertically. The

principle of subsidiarity, which was first applied in the European Union, started to be used also in global deliberations and within the framework of a stronger and reformed United Nations it was used as successful a tool to provide a “conceptual alternative to the comparatively empty and unhelpful idea of state sovereignty” as it had been to some degree in the EU (Carozza, 2003:40) and one which rather tried to balances the effectiveness and legitimacy criteria see Jachtenfuchs (1995), for allocating governance to specific levels from the local to the global. Today, in 2035, each governance level is seen to have a crucial and unique role but they are mutually supportive. For issues where it is difficult for local stakeholders to know enough about the global externalities of their local actions to incorporate such considerations in their decisions and institutional design, the role for the global governance level has become the level of choice. And institutions have increasingly become assigned to those levels where decisive decisions are made on driving forces and where stakeholders have the capacity to establish and enforce institutions . As higher governance levels is often not able to incorporate the global context in their institutional design, the need for heterogeneity in institutions adapted to the particular level and context indicates that the role of stakeholders at the local levels is widely accepted. Furthermore, while there is unity in overall direction and goals for sustainable development, there is a rich diversity of approaches in various cultures to address the same sustainability challenges supported by open and transparent decision-making processes, often with participation of all stakeholders. Institutions are in place which support a much broader participation in the generation of knowledge (see above) and which encourage the expansion of value spheres in the younger generations. There is now what could be referred to as a multilayered system of governance which involve a nested hierarchy of mutually supportive policies and institutions initiated at all governance levels (Karlsson, 2000).

### *Conclusions*

Can conclusions be made about what the future will look like? Which scenario is more likely than the other? Which are the surprises in the system which will change it beyond any of these visions? The only certain conclusion I make is that human potential to do good is far beyond our imagination. It is time to look harder for it, unveil it, encourage it and live it. That is how we make the future. If we so chose...

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