Towards a vision of a sustainable university

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Abstract *Sustainable development is the biggest challenge to universities in the twenty-first century. As many different definitions and interpretations of the concept exist, it is not surprising that the strategies of the universities that are beginning to strive for sustainability show some differences. Various universities have already become engaged in the process of integrating sustainable development in their activities. Some examples of such universities are presented, including the experiences of the University of Amsterdam. The diverging strategies of sustainable universities are classified to clarify the differences and to stimulate and advance the debate. Inevitably, management, research, education, communication and operation of any university with a genuine interest in sustainable development will have to change. However, if, as it seems, universities are deeply involved in current world-wide patterns of unsustainability, could it perhaps be that existing university structures need to be replaced by a completely new type of "universal knowledge network" which is derived from a totally different paradigm of their role and function? In this article some clear indications are given about the meaning of sustainable development in this context in order to provide directions and guidelines for university strategies and practices. The consequences of the concept for universities are indicated and, finally, a possible model for a sustainable university is proposed.*

Introduction

Sustainable development is one of the biggest challenges of the twenty-first century. Several universities have begun the debate about the content of this concept and the ways in which to integrate it into their university policy, organisation and activities.

This paper presents some examples of different university activities and of universities that have chosen to work on sustainable development. It also deals with some of the experiences with the integration of sustainable development at the University of Amsterdam.

The paper does not discuss the definition of sustainable development, the various interpretations and the international debate on these matters. Rather, it presents a view on sustainable development and presents an *aide-mémoire* summarising its constituent issues.

The focus is then on classifying university involvement in sustainable development as a general framework for assessing university status or progress. In presenting this classification, the paper deals with some fundamental questions about the very existence and character of universities: the sustainable development debate undoubtedly has consequences for the university as an institution. Finally, a model is provided for a sustainable university (a "Sustainity") – the university of the future.

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The role of universities

As a recent publication of the Association of University Leaders for a Sustainable Future clearly indicates, there are many ways in which universities can be involved in sustainable development, e.g. management, planning, development, education, research, operations, community service, purchasing, transportation, design, new construction, renovation and retrofit (ULSF, 1999). In engaging with the issue, a university may have a particular focus, a programme or even a holistic mission.

Basically, a university is an organisation with a purpose that it fulfils by implementing programmes within the context of the operation of faculties, possibly located on a campus. The broad focus of university activities is upon education. According to UNESCO, education serves society in a variety of ways:

> The goal of education is to make people wiser, more knowledgeable, better informed, ethical, responsible, critical and capable of continuing to learn. Were all people to possess such abilities and qualities, the world's problems would not be automatically solved, but the means and will to address them would be at hand. Education also serves society by providing critical reflection on the world, especially its failings and injustices, and by promoting greater consciousness and awareness, exploring new visions and concepts, and inventing new techniques and tools. Education is also the means for disseminating knowledge and developing skills, for bringing about desired changes in behaviours, values and lifestyles, and for promoting public support for the continuing and fundamental changes that will be required if humanity is to alter its course, leaving the familiar path that is leading towards growing difficulties and possible catastrophe, and starting the uphill climb towards sustainability. Education, in short, is humanity's best hope and most effective means in the quest to achieve sustainable development (UNESCO, 1997).

How some universities are facing the challenge

Universities are dealing with the challenge of sustainable development in many different ways. Approaches may vary from aiming to function as an environmentally friendly company to formulating principles and signing declarations, establishing totally new institutions, or focusing the mission and management of an existing university on the quest for sustainability.

The Fachhochschule Aalen in Germany (1998) has made environmentally friendly operations central to its strategy. Its focus is on the usage of paper, heating, lighting, water, and procurement. While at Brown University (1996) attention is given to principles of "environmental responsibility". The principles concern, among others, resource conservation, renovation and construction, resource efficiency, and economic and environmental costs of decisions.

Meanwhile, the University of Florida (Hanrahan *et al.*, 1998) is an example of a university that has signed a declaration promising to make environmental education and research a central goal of the institution. The university's Center for Construction and Environment is co-ordinating an effort to "green" the curriculum, operations and research agenda. The methodology of "greening" the university here involves holding stakeholder meetings, making an

environmental audit, auditing courses for environmental content, and creating educational publicity projects. The objective is to embed environmental literacy into virtually every curriculum and every segment of campus operations.

Yet another approach has been taken by the University of Hertfordshire. Recognising its responsibilities to sustainable development this university has developed a Sustainable Development Policy. This policy considers environmental issues in the context of best value for money, equal opportunities and health and safety. According to this policy, the University of Hertfordshire is committed to integrate sustainable management principles into the university's housekeeping practices. It encourages students to recognise the environmental impacts of their studies, aims to encourage collaborative interdisciplinary research on sustainable development themes, and initiates staff development programmes. Finally, it intends to promote best practice in relation to sustainable development within the university and the local community. Where appropriate, it will build partnerships with the local community to promote sustainable development (University of Hertfordshire, 1995).

Twenty-five universities in the UK are involved in "The Higher Education21" project (HE-21), which began in the spring of 1997 and will generate and promote examples of best practice for sustainability across the higher education sector. The emphasis of HE-21 is on continuous improvement. They have developed a set of headline sustainability indicators covering the environmental, social and economic aspects of sustainability. Their indicators consultation exercise revealed a strong consensus for a number of process indicators associated with the establishment of an environmental management system which are relevant to all HE institutions. Operational staff have been identified as an important target audience for sustainability indicators. A precondition of partnership of the HE-21 project was a senior level commitment to making demonstrable progress within the lifetime of the two-year project (1997-1999) (Forum for the Future, 1998).

Some universities, however, appear to go beyond operations, principles, declarations and environmental management systems.

At the University of Waterloo, Canada, for instance, a vision for a Sustainable University of Waterloo has been articulated. It states that by embodying a set of desired characteristics, the university can lead the greater community in becoming a model for sustainability.

Five key principles are central to their vision of a sustainable University of Waterloo. They are: "Awareness, efficiency, equality, co-operation, and natural systems. Our vision of sustainability encompasses social, economical, ecological and political issues as all equally important as they are inextricably linked in our everyday lives". They look at changes to the University of Waterloo political environment where the decision-making process is the result of a multi-disciplinary body, and they consider social aspects of the campus and community links with the campus of the future.

The various physical components of the university system are also an important part of their vision. Throughout the campus the use of alternative energy systems and a reduction in energy consumption are promoted. Source reduction initiatives and the use of reusable materials are employed in waste management. The development of an eco-purchase system that promotes sustainable production practices by conducting all university business with environmentally responsible companies plays a significant role in carrying sustainability practices into the community. A system of facility auditing has been implemented and university bodies will be encouraged to develop their own concepts of sustainability.

One result is that the campus of the future will look very different. All lawns are being replaced by natural landscaping, native plant species are being used to encourage wildlife to live in the university grounds and the number of new buildings will be limited.

The last key in their vision for the university is the importance of ecological education. A basic ecological education for all students, faculty and staff is required (University of Waterloo, 1995).

At the University of Michigan (1999), USA, the "Sustainable University of Michigan" initiative has been taken, motivated by serious environmental concerns, and stimulated by a series of speakers on sustainability during the Winter 99 semester at the University of Michigan Business School. Several speakers challenged the university to "expand its leading role into the realm of environmental and social responsibility". A "Sustainable University of Michigan" agenda was drafted, which suggests concrete ways of establishing campus-wide support. The university is strongly encouraged to adopt the recommended strategies, which are considered essential first steps in demonstrating the University of Michigan's preparedness to deal adequately with the social and environmental challenges of the twenty-first century. The implementation suggestions are:

- to add environmental sustainability to the existing mission and vision statement of the University of Michigan;
- to adopt a separate "Sustainability Goals and Mission Statement";
- to establish a full-time "Sustainable Campus" co-ordinator;
- to sign a University of Michigan version of the Kyoto Protocol;
- to set up a task force with representatives from teaching, research, financing, facilities planning, utilities, construction management, housing, grounds and waste, purchasing and transportation.

At the Appalachian State University in North Carolina, USA, local summer internships are being developed for students in the sustainable development programme. Placements include: agriculture, micro enterprise development, the development of a permaculture and appropriate technology training centre outside Asheville. Several students have internships in Honduras and Guatemala. Students expressed their support of the sustainable development

programme through student government, passing a resolution calling upon Appalachian State to reinstate the agro-ecology programme and to expand the sustainable development curricula offerings at undergraduate and graduate levels. The university mission statement was amended by including environmental protection as an important part of its mission. In 1996 the sustainable development programme entered a phase of concerted curriculum planning and community outreach, establishing a speakers and lecture series and expanding student internships. A full-time, one-year "Sustainable Communities Co-ordinator" was appointed to create a rural/urban model of participatory planning and action around sustainable development projects on land-use planning, sustainable agriculture, and micro-enterprise development. This co-ordinator would also help to expand the model in western North Carolina and link the communities to the international sustainable communities movement. Thus it is anticipated that sustainable development will continue to play a vital role at the Appalachian State University (1999) on the verge of the twenty-first century.

At the University of Technology of Sydney (UTS), Australia, the mission of The Institute for Sustainable Futures (ISF) is "to work with industry, government, and the community to create sustainable futures, through programs of research, consultancy and teaching". Its objectives are:

- to undertake and promote scholarly activity and research of the highest quality directed towards the identification of sustainable futures;
- to foster public debate on issues relating to sustainable futures for Australia and the world;
- to conduct research and consultancy work focused on social, economic, and scientific issues concerned with improving/quality of life of all social groups in ecologically responsible ways;
- to advise on the development of curricula at the UTS to ensure that UTS graduates are alert to issues of economic, social and ecological sustainability.

The central consideration of the ISF (1999) is that there is now a large body of scientific evidence that human activities are destroying the life support systems of the earth. The composition of the atmosphere is being changed, soils are being lost, species of plants and animals are being extinguished or threatened, and air and water are being polluted. A minority of the present generation is using up much of the earth's resources, disadvantaging the majority of the present population and all members of future generations. Since the economic system depends on the integrity of ecosystems, it too is unsustainable. According to ISF, one of the greatest challenges of the twenty-first century is to achieve ecological sustainability while creating societies that offer a reasonable standard of living for all their peoples.

In an essay called "Sustainable development and the mission of the university", Soraj Hongladarom from Chulalongkorn University in Thailand

argues that another paradigm or set of basic premisses for development that can serve the needs of humans sustainably is needed. This new paradigm requires a complete reversal of the current way of thinking: "We need, that is, to look at nature, not as the other to be conquered, but as an integral part of us. We cannot separate ourselves from nature; in fact we need to view nature and all its creatures as a total whole, all constituting us. Only through this means can human life be sustained." Hongladarom stresses that the élites of Thailand need to be brought to see things in a new way: "They need to see the truth that material development does not lead to survival. This task of reorienting the belief system has to be performed by the universities. . ." He proposes that a university programme should be set up which deals exclusively with the need for sustainable development (Hongladarom, 1994).

Experiences at the University of Amsterdam

At the University of Amsterdam, the UNEP – Working Group on Sustainable Product Development (UNEP-WG-SPD) has provided a platform for various initiatives for the stimulation of the integration of sustainable development in research and in education at the university. It has organised meetings to assess common interests and to explore possibilities for co-operation, and held workshops to discuss sustainable development themes, in which many experts from outside the university have participated. It has also conducted a survey of sustainable development research at the University of Amsterdam to keep all interested parties informed about existing programmes and projects (Elsen, 1998). The Working Group started several joint initiatives with the Centre for Environmental Studies at the university to integrate sustainable development in education, and organised national workshops on the integration of sustainable development in higher education and also on sustainable entrepreneurship. Unfortunately, as a result of university reorganisation, the Interfaculty Department of Environmental Science has been almost totally dismantled and the UNEP-WG-SPD International Centre faces an uncertain and insecure future. Virtually all new schemes will take place only if they can attract enough students.

The most recent UNEP-WG-SPD initiative is the formulation of a plan for the establishment of a new Centre for Sustainable Development at the University of Amsterdam, which will co-ordinate and stimulate sustainable education, research, community involvement and university operation and building. It is anticipated that this new Centre, with its focus on the future, on developing countries and on fundamentally new solutions, will be supported by the faculties, by the board and by much interest from students.

Sustainable development

Sustainable development is about limits

There clearly are limits to the extraction and use of non-renewable material and energy resources, as there are limits to the destruction, degradation and

pollution of the environment. There are also limits to how we influence living organisms, complete ecosystems, eco-zones, the entire biosphere. Disregard of these limits leads to exhaustion, elimination, and extinction.

The most extensive, internationally organised, limitless action in the history of humanity has been "development". Traditional development strives for expansion of material wealth. However, if material wealth is limited by our environmental capacity, it should also be limited by our ethical capacity. The accumulation of people and society's material wealth is built on the poverty of over one billion people on earth. Much development is based upon exploitation.

With this limitless development and the related enormously increased global use of and dependency on fossil resources, humanity in the last 50 years has increasingly become linked to the geological past of the earth. The consequence is that, through global warming, we have also become linked to humanity's geological future.

Development, in its traditional sense – which is mere economic development – has often alienated people from their resources, social networks and local knowledge in their natural surroundings. At the end of the millennium, the only solutions or fixes which seem to have been applied are "end-of-pipe", "end-of-product life" and "end-of-development" approaches, where action is taken after the fact. We need action with foresight.

The lessons for sustainable development are that there are both limits and links that must be known, acknowledged and observed. This should always be considered at the earliest stages of new developments aimed at sustainable solutions. We must find alternative ways to fulfil our needs within the limits and constraints of our ecosystems. We must revive, rediscover and respect the links with people and with nature.

Sustainable development is about interdependence with nature

Human beings are linked to their natural environment in many ways. Nature reacts to human actions upon nature. The design and extent of human actions influence the character of the nature's response. In the traditionally developed world, and in the process of development, people have largely become disconnected from their natural context, the surrounding ecosystems, and also disconnected from their social, cultural, economic and historic context. Development has brought disconnection.

Wisdom, knowledge and information about the interdependence and interconnections between human activity and the natural environmental systems are crucial to our survival. Therefore, with every culture that vanishes from the earth or that is disrupted, and with every natural area lost and with that its links to people, humanity loses wisdom and knowledge that are vital to its survival. As the evidence of current unsustainable systems of production and consumption clearly shows, formal science certainly is not the magic stone. Informal knowledge, indigenous knowledge, and other knowledge systems are equally important. It is precisely the wisdom and knowledge that are embedded in respect for the natural environment that will be essential for sustainable

development. It concerns knowledge about how to work closely with nature, rather than completely reorganising its eco-systems or interfering with its complex genetic framework (von Gleich, 1995).

Sustainable development is about fundamentals

Humanity must formulate totally new principles for fundamentally different systems of production and consumption, including:

- substantially lower levels of material and energy intensity;
- much less through-put;
- much more use of the sun and renewable materials for inherently sustainable processes, products and services.

At the basis of these principles is the concept of sustainable product development (SPD) which is defined as "resource, context and future oriented product development, aimed at the fulfilment of elementary needs, better quality of life, equity and environmental harmony".

In *Design for Sustainable Development: Practical Examples of SMEs* (van Weenen, 1998), I deal with the practice of SPD by small and medium-sized enterprises (SMEs). The book explains the concept of sustainable enterprise and presents practical examples of sustainable SMEs from around the world. As some of the examples show, it is possible for SMEs to develop a systematic business strategy that simultaneously integrates and realises economic, social and environmental objectives without threatening their viability. The conclusion is that sustainable SMEs are not characterised so much by traditional environmental performance, by environmental optimisation or even by "eco-efficiency", as by values, vision and mission that are concerned with quality of life and work, democracy, participation, solidarity, reciprocity, equality and equity.

Sustainable development is about equity

UNDP's Human Development Report of 1998 is devoted to human consumption patterns. It states that consumption must be shared, guaranteeing basic needs for all, it must be strengthened by building human capacities, and it must be sustainable, without mortgaging the choices of future generations (UNDP, 1998). The report recommends the development and application of technology and methods that are environmentally sustainable for both poor and affluent consumers. Sustainable growth of consumption and production depends on major advances in cleaner, material-saving, resource-saving and low-cost technologies that meet the requirements of the poor.

According to the UNDP, well over a billion people are deprived of basic consumption needs. Under-consumption and human deprivation are not just the lot of poor people in the developing world. More than 100 million people in rich nations suffer a similar fate. The global population is projected to be 9.5 billion in 2050, with more than 8 billion in developing countries. Although poor countries need to accelerate their consumption growth, they need not follow the

path taken by the rich and high-growth economies over the past half century. If poor countries can leapfrog in both consumption patterns and production technologies, they can accelerate their consumption growth and human development without the huge cost of environmental damage.

Sustainable development is about life

To sum up, sustainable development is about life: about "L" for Limits, "I" for interdependence, "F" for fundamentals and "E" for equity. This set of issues reflects the importance of dealing with material concerns, acknowledging the relationship between humanity and nature, being committed to addressing fundamental causes, and considering ethical values.

L is for limits. Many people in the industrialised world seem to have lost their sense of quality of life, which has become totally materialised, electrified, and motorised. What is required is a rediscovery, revaluation and dedication to the real values of quality of life, the interests of the poor, of the lot of future generations and the conservation and enrichment of natural ecosystems. "Quality of life" of course includes meaningful work and good quality jobs. There should be more acknowledgement and appreciation of the values of human resources and their social and cultural diversity.

I is for interdependence. Sustainable enterprises must be established. Sustainably using primary natural resources, such enterprises will base their production on those that are locally available, on and near the site where the enterprise has been built. These resources involve local ecosystems, ecosystem functions and components, and include every variety of natural phenomena to which the sustainable enterprise is adapted, including the air, the sun, water, and other geophysical and biological conditions and combinations thereof. It would involve establishing links to natural processes, and integrating the production process with the surrounding ecosystem. Everything is interdependent; thus a sustainable enterprise could continuously benefit from and help to sustain its natural conditions and ecosystem functions.

F is for fundamentals. Concepts, paradigms and systems must be changed by making sustainable development a central objective of all university education, research, management and communication. Education, too, must be sustainable, from sustainable elementary schools through to sustainable universities. The input composition of society's use of resources must be reformulated towards a more sustainable metabolism for industry, organisations and households. The uses of resources that contribute to depletion, a high resource use level, pollution and environmental degradation, should be reduced with priority.

E is for equity. The world is currently characterised by a chronic lack of equity between the developed and the developing world. To achieve greater equity, the industrialised countries should support developing countries and practise eco-development with them by realising and maintaining direct contact and co-operation with organisations and enterprises in developing countries, ensuring that the product or service of the enterprise involved can

also be developed and used by them. Every Northern company should have a Southern partner with whom they work in equality and practise reciprocity while developing new solutions. A fair and equitable distribution should be realised and the benefits of using resources among communities, nations and generations shared. There is a clear need to make up for past and present inequalities between the industrialised and the developing world in resource use. A future, more equitable distribution of resources among nations and generations must be realised. This particularly concerns the use of resources that have the potential for saving lives, alleviating world poverty, or contributing to the quality of life of huge numbers of people.

In summary, sustainable development can be achieved by acknowledging limits, by respecting interdependence with nature, by addressing fundamental aspects of production and consumption, and by actively working with developing countries practically to realise a more equitable distribution and use of resources.

Classification of universities

In attempting to analyse its engagement with sustainability, the questions that any university could put to itself are:

- Why should we be involved?
- What could we do?
- How would it be organised?

The sustainable university classification model presented in Figure 1 is meant to provide some guidance for classification of different universities. Also, universities may use it as an aid for assessing the dimensions, status and level of their commitment. The issues of sustainable development (LIFE) can be placed on an axis of increasing challenge. This is the "Why" axis or the axis of university objectives concerning sustainable development. The related next question is "What?" This is presented as the axis of university engagement. The third dimension then concerns university commitment, which is covered by the "How?" axis, the axis of organisation.

Of course, every university has its own culture, tradition and context. But the questions Why?, What? and How? still apply to all, whereas the responses will differ.

Why should we be involved?

The set of issues within the concept of sustainable development, as indicated above, provide the imperatives for university action. Dealing with the limits of resource extraction and use seems the obvious thing to do. Acknowledging the interdependence with nature appears to be a higher level of awareness. This in turn stimulates the consideration and development of alternative concepts, paradigms and systems of production and consumption. However, the biggest

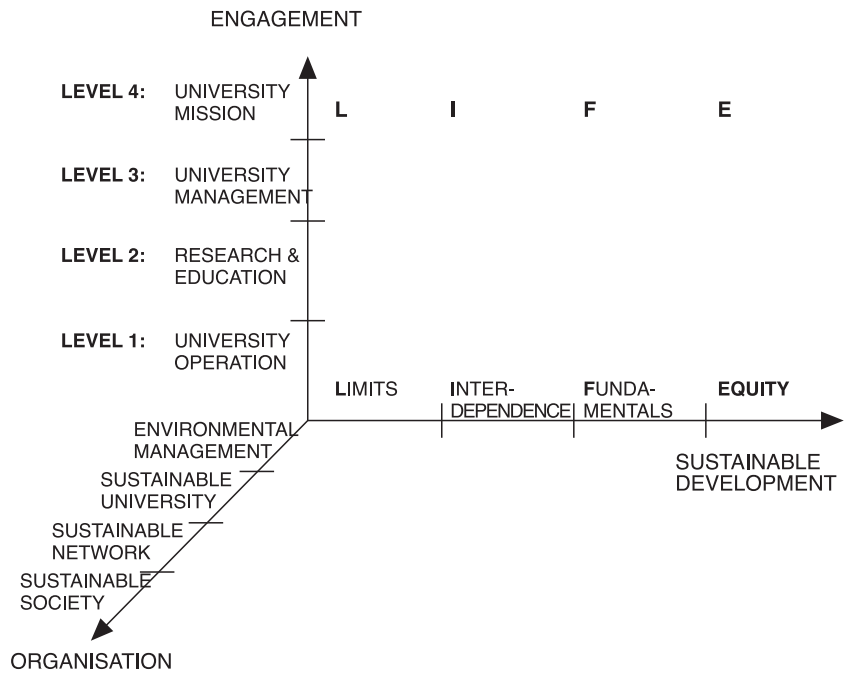

Figure 1.
The sustainable university classification model

challenge for universities will be to deal convincingly and practically with the inequalities between the industrialised and the developing world, now and in the future.

What can we do?

Concerning the levels of university engagement, the primary approach is to consider the physical operations of the university. The university is assessed as an organisational unit that uses materials and energy, facilities and space. It relies both upstream and downstream on suppliers and on service providers. Actions could be taken such as: refraining from using products, materials or substances, using alternatives, reduced usage, improved usage, reuse and recycling (van Weenen, 1990; 1995). This is shown as level 1 activity of university operation.

At level 2, the university adds to the attention to its operations, its core interest in research and education. This is what a university is all about. Part of this level can be a combined approach of levels 1 and 2: university operation as part of research and education. The objective is to provide in-house work and to stimulate, support, steer or start university development concerning for example, buildings, facilities, the campus, infrastructure and transport.

Level 3 of university engagement involves university management. In formulating or reformulating its policy, university management can set the conditions and mechanisms to stimulate, assess and evaluate progress in the integration or the organisational redesign required to meet the challenge of

sustainable development. At this level, serious consideration might be given to involving outside experts, the community and non-government organisations (NGOs). This would serve to strengthen existing staff with new sustainable development capacity and to provide training for university managers.

Where a powerful advisory body exists and there is a sufficient number of engaged staff and demanding students, then the university – should it not choose to do so of its own free will – can be urged and convinced to adapt or rewrite its university mission statement. A strong and convincingly formulated mission statement provides mental support to the whole university community and to the outside world, nationally and internationally. Thus it clearly contributes to its overall profile the main characteristics of the university concerned. This is Level 4, the highest and most holistic level of university engagement.

How would it be organised?

Having obtained sufficient internal support and having secured knowledgeable participation in the actions required, the axis of "organisation" now comes into focus.

At the first level of "university operation", the attention to limits can be formalised organisationally through an environmental management system. Although such a management system might lead to preventive action, this need not automatically follow. It still depends on the knowledge and engagement of the people involved and on the policy of the university management responsible.

However, there is a clear distinction between the practice of environmental management as the accommodation of environmental concerns within the existing university paradigm and sustainable development as a new paradigm that shapes the university (Roome, 1998). If the interdependence between societies, humanity and nature is considered as a central theme to be ingrained in research, education and operation, with the objective of actively contributing to sustainability, then simply implementing environmental management by itself is not enough. It would be better to discuss, formulate and implement the characteristics of a sustainable university.

It is an attractive prospect, if not a future precondition for the existence of universities, for them to function within a sustainable network. This first and foremost involves all university stakeholders, such as students, teachers, other staff, patrons, funding bodies and employers. In addition, sustainable university networks would consist of universities with similar profiles and fellow subscribers to international sustainable development declarations. Finally, researchers, educators, managers and students all would bring in their own networks of contacts.

A new platform for sustainable university presentation, co-operation and action is provided by the Internet. Such a sustainable network would preferably be organised and embedded in a sustainable society, which is a society that continuously and dynamically seeks to find a mutually beneficial balance

between human elementary needs and the quality and infinite availability of natural resources – resources that will be guaranteed and constantly improved, thus securing and enriching societies' sustainable inheritance.

The "university" versus the "sustainity"

A university is an educational institution that provides instruction and facilities for research in many branches of advanced learning, and awards degrees. As its name suggests, it is concerned with the universe: all existing things, including the earth and its creatures and all the heavenly bodies. It is a centre of universal knowledge. Historically universities began as centres for studying the universe. On the verge of the twenty-first century and with the benefit of hindsight, we know that, although traditional science has made numerous important contributions to the improvement of the quality of life of many people all around the world, it has also contributed to the creation of a very unsustainable world.

With this in mind, taking a university as a starting point, three general ways can be identified to respond to the challenge of sustainable development:

(1) the "evolutionary" approach, in which an attempt is made to start a process for the integration of sustainable development throughout the university;

(2) the "key" approach, in which those people and disciplines are focused upon that are expected to most enthusiastically and appropriately respond to the challenge;

(3) the "pioneer" approach, in which a totally new organisational context is realised that is potentially most fruitful and promising for the realisation of a major contribution to sustainable development.

The key question is how any organisational response to the challenge of sustainable development is possible that starts from the same paradigms and assumptions that helped to create our prevailing unsustainable systems in the first place. The answer to this question is obviously "with difficulty". The paradigms and assumptions have to be changed. The challenge for universities as organisations is to develop sustainably while at the same time changing the paradigms and assumptions on which they, as organisations, are based. Like pulling yourself up by your own bootstraps, it will be a difficult action to carry out.

This seems to suggest that only the most radical of the above approaches – the "pioneer" approach – offers any hope of a real solution.

Such a totally new organisational context could be provided by the power of the Internet. This could provide a central working and meeting place linking to an enormous variety of networks all around the world, valuing formal and informal knowledge systems equally. The main mission of such an international centre would not be to purvey universal knowledge to an élite, but rather to focus on how to realise a sustainable future for everyone. A suitable

name for such a sustainable future oriented organisation would be "Sustainity" rather than "University". Thus, in the twenty-first century a fundamental shift would occur from "University" to "Sustainity".

Using the model of a sustainable elementary school

In seeking a physical model for their realisation "Sustainities" might not have far to look. Such holistic sustainable organisations would require buildings and locations that are ideally placed in their natural and cultural context. The physical structures, buildings, facilities, processes, products and services should in all respects reflect a holistic and integrated vision of a sustainable use of human and material resources. In principle, the same concept that has already been developed for a sustainable elementary school could be followed. The school is a sustainably built and operated building, in which sustainable elementary education is provided. The building and its surrounding natural and cultural context serve for demonstration, illustration and experimentation of the concept of sustainable development (van Weenen, 1999; *Common Ground*, 1998).

A similar idea has been presented by Ali Kahn (1997), who describes the Greentown Community Learning Centre. She suggests that the disciplines taught should encompass much broader educational domains which better reflect life – such as housing, food, energy, waste management, recreation and leisure. Thus new contexts would be provided for disciplinary enquiry.

The sustainable elementary school model would present the natural design of new "Sustainities". Some related curricula can also be used as a source of inspiration for higher education, such as the curriculum of learning for a sustainable future (LSF)(1999) in Canada. A clear commitment to co-operation with developing countries should be paramount among these educational concerns – not in terms of a crude and unconditional transfer of knowledge and resources but rather in terms of genuine co-operation and equality aimed at jointly contributing to the realisation of a fair world.

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