Climate, Sustainability, Survival and Development – how to make the right decisions for the future?

Henrik Kærgaard, M.Sc. Director, Cross-Cutting Development,

NIRAS, Consulting Engineers and Planners, Denmark,
hka@niras.dk, +45 20 45 71 47.

Abstract:
To day we are at a point in time where drastic changes are necessary in our global community in an increasing number of areas and also in remediation. When we try to work with these changes, however, we face a framework of laws and regulations that (in the presently rich countries of the world) were created in national societies of post-war-industrial-growth – and often we also face the old leaders and rulers of this society! The challenge is, however, to make significant moves towards a long-term global society of balanced knowledge-sharing and collaboration, economy and ecology – a completely different scenario! Of course the existing laws and regulations are generally not very helpful here – and when we seek to make the necessary changes, the bureaucratic challenges here are so awesome that nothing happens, basically because all the changes involves agreement between 4 – 8 different governmental ministries with totally different focuses, policies, cultures and priorities…

This is widely known to be organisationally very difficult if not impossible, and this basically implies that we very often cannot rely on regulation as the basic tool for change in the present situation. The only possible alternative (if we want to do something in due time…) is to invite all the stakeholders in a given problem or project and try to collaborate closely in order to find a possible solution under the given administrative circumstances. This may look complicated but is in fact often possible to accomplish – and if well managed and facilitated can lead to surprisingly productive results through innovative and inspiring social processes. So, in order to make something happen under the existing deadlock in bureaucracies mainly driven by fear of making mistakes, we simply have to ***move from a society based on regulation to a society based on negotiation and collaboration!*** In order to do this we have to make a lot of changes too – but at least we can start to make a difference. To make sure this difference is made in a productive direction (or at least not in a destructive…), a rather simple and commonly accepted tool for sustainability assessments in stakeholder groups and communities will be a great advantage.

This paper elaborates further on the above made statements and also provides a starting platform for a sustainability assessment tool – not an exact approach of course, but a concept that is more or less ready for use in cases where exact and precise answers are not needed (or where the recognition that such answers are impossible to reach has been made). The tool will deal with all the ***three basic dimensions of sustainability, namely the ecologic, the social and the financial/economic*** – and will also assist with the basic challenge of finding ***solutions that are both ecologically sound, socially acceptable and economically feasible or better.***

This is the true development challenge of our time, and it has to be realised in a hurry and in a very adverse framework of laws and regulations – so how can we get started to day!

INTRODUCTION – AND SOME RATIONALE…

WARNING! – THIS IS NOT A SCIENTIFIC PAPER…

WHY? – BECAUSE SCIENCE DO NOT HELP MUCH WHERE WE WILL BE GOING…

The question of the title of this paper should be at the top of our minds all the time, when we make decisions, and in our professional as well as our private lives. The reason for this is that we all have to make decisions every day – and sometimes very important decisions too – and currently we have to deal with a considerable number of absolutely unpredictable and completely confusing issues every time. A few examples could be: the climate change challenge, the issue of sustainability, the globalisation as such, the global economic crisis, the increasing population of the world, the numerous environmental degradation issues all over the Earth, the poverty challenge, the education challenge etc., etc. – there is no end to this and they all have both global, regional and local implications. All these issues influence our daily lives and our common future increasingly, and if we do not have them at the top of our minds when we make important decisions, we will inevitably often make the wrong decisions…but who can overlook all these matters? – and who can stand to deal with them all the time? – and how can we deal with them at all?

Unfortunately this question is the most complicated question of our time. Moreover all signs indicate that the complexity will only increase further in the future – and therefore this is also a question where we all have our own answers, often clearly coloured by our rather short-sighted interests and preferred priorities and the like, simply because we cannot deal with it otherwise. The pressing problem is, however, that we have to deal with it in a serious and responsible way, because if we do not, things will start to go really wrong (if they have not started already).

There have been many attempts to make solutions for this complex question in the latest decades. Unfortunately, the solutions available so far for answering this question are generally so complicated, that even the experts behind them cannot handle them in practical situations. This is generally because all these methods strive to be scientifically correct, which always leads to extremely complicated methods and indicator systems – systems with several hundred indicators are not uncommon, and it goes without saying that such systems are inoperable, basically because they cannot be understood, they are impossible to use, and they can provide you with virtually any result you might want. Consequently they are simply not useful.

Why take up this topic at a conference on Green Remediation? – because it is as important here as anywhere else – and by the way, what on Earth is “Green Remediation”? – what does the word “green” really mean here? Is it the colour? – is it something with trees and grass? – is it about ecology, environment or what? Do we have a clear definition? No, it is just one of these seemingly positive words that we use, because we do not know what else to do about it all – and as we do not know what to do, we use words as “green”, “sustainable”, “bio-dynamic”, “ecologic”, etc., etc. Then at least it looks a little nicer, and maybe it even is? But is it the right solution? – or at least a solution that moves in the right direction?

Often we simply do not know – but of course sometimes we do…but why is it so difficult and maybe even impossible to deal with this complex question in a scientific manner?

Here we have to examine what science is, what it is not, and what it may be used for. There is lots of knowledge about these somewhat philosophic questions, but this knowledge is hardly consulted to day anymore, because to day we are all convinced that science is equivalent to truth, and that if things are handled scientifically, it can not be done better. Unfortunately, this is pure rubbish as every branch of science is simply a tool that is reasonably practical to use inside a given framework of assumptions and rules – but it has nothing whatsoever to do with truth…this may easily be seen from the fact that scientific truth is a variable that changes with time – and it even changes faster the more you do research inside a specific field.

Moreover the amount of potential hypotheses to explain a given observation are often many, sometimes in fact unlimited – so for each question we find useful answers for, several more questions arise. In fact we are not converging towards an overall scientific truth, we are actually diverging towards rapidly increasing scientific chaos – our understanding of the world becomes more and more confused and less and less useful for the task of living our lives properly, positively and in a state of relative happiness or of managing our societies, companies, communities and our social relations in general.

The reasons for this is rather simple: It turns out that if you look deep into the basis of every branch of science they are all built on a number of basic presumptions. These basic presumptions can not be proved, but expresses a sort of accepted “common sense” for the branch of science in question and forms its foundation – but they are not true in an absolute sense. Some of these basic presumptions are common for a number of scientific branches, but in general it turns out, that the “common sense” varies a lot between different branches especially when we move from natural science to social science and further to humanistic science. Therefore a psychologist will be very surprised – sometimes downright angry – when confronted the “common sense” of a biologist, an engineer, a medical doctor, an economist, and architect or even worse…so the whole construction of sciences does not have a common foundation and coherence but is a castle made of sand…we have created a new mental Babels Tower and it does not make sense, at least not anymore…

It is even possible to construct a specific science from different sets of basic presumptions and still make it work, as it was demonstrated by a number of mathematicians in the late 1800 in the case of geometry. Here e. g. Riemann created his own geometry on a different basis than the traditional geometry of Euklid and made it work – in fact it turned out to provide a better description of the universe according to Einstein, than the geometry of Euklid. This created a very deep and general philosophical crisis in mathematics and in science in general as it clearly showed, that geometry is not the truth, but merely a working tool in the science work shop – and a tool that has to be changed as our perception of the world changes. This crisis was never solved and it is still not – in stead we seem to have chosen to forget it…even though the German mathematician Kurt Gödel in the 1930’es finally proved, that a consistent mathematic system can not be constructed without containing a number of irrational and non-provable elements – rationality can not exist without elements of irrationality in it…but

maybe the truth is still out there somewhere…? No, it is not and we have to find completely new ways to comply with a new reality!

The implications of all this is that we may consider a given science as the truth under given circumstances and in a given period of time – but only provided that we keep ourselves inside the framework of assumptions that are currently accepted as "the truth" inside the science in question. This is in fact a rather strong limitation in most situations – to day a limitation that makes science in general rather useless for most purposes (yes, I really wrote this!!). The problem here is of course, that life as such and the issues we have to handle in our lives, do not respect the boundaries of science, which are merely mental constructions we have made in order to try to keep our world simple and easy to understand and deal with. A noble ambition – but to day an ambition that have failed us totally and we have no other alternative than to give it up. Of course, we may still use science in situations that are so simple, so restricted and so controlled that they may be handled inside a rather simple and primitive framework of presumptions – however, we increasingly seem to run out of this sort of situations…

In stead we face an increasing number of situations that can only be handled across several scientific disciplines – and often disciplines with very different basic assumptions as e. g. technical sciences, biology, ecology and other natural sciences, sociology, psychology, medicine, political science, philosophy etc., etc. Here we are completely on our own – simply because the combined basic presumptions of just very few of these sciences do not consist a firm scientific foundation, but simply plain rubbish – science can simply not help us out, and there is no rational solution that can be found by using a rational and logic system. And it does not help us to work further on this, do further research and development in the various sciences, develop new and more complex models etc., etc. – this traditional approach is a dead end here and there is no way out in this direction!

Consequently we need a totally new approach…and the answer is not complicated and was well known among the ancient Greeks – especially the ones called the Sophists. What we do is to pick a professional representative from each of the relevant branches of science, place them together with the owners and stakeholders of the problem in question and stimulate and inspire them to come up with a useful solution through a curious, positive, creative and innovative mutual dialogue. The problem with this approach will often be, that they do not understand each other and find it extremely irritating to have been placed among a number of stupid, alien and non-empathic lunatics that cannot understand very simple and straightforward things that most school children should be familiar with…

…they will normally need facilitation from a very robust, interdisciplinary thinking, chaos-resistant, empathic, tender, caring but also authoritative person that can facilitate the creative working process that they will normally be absolutely and totally alien towards – simply because it is so much against their traditional way of working, thinking and practising, that it is almost like entering a new, strange and frightening world.

The science establishments are to day ***not*** innovative and creative, but much more conservative, conserving and thinking along traditional lines – science as it is mostly to day does ***not*** facilitate creativeness and innovation but in fact a barrier – and a very strong barrier

too. Knowledge is ***not*** a vehicle for innovation, it is a problem – what stops you from being innovative and creative is simply all the things you have learnt in your life in schools, training institutions, universities etc., etc., so if you want to be innovative, the basic challenge is to forget all the crap all these institutions put into your head and start thinking and perceiving from fresh and virgin land and mind again – nor more and no less! Keep your mind alive – stay clear of all kinds of institutions!

Interdisciplinary problem solution demands interdisciplinary working processes – and collaboration between professions – and if we want to solve the problem/question in the title of this paper in to days turbulent and crazy world, we consequently have to work intensively and creatively across all professional disciplines – not sometimes and occasionally, but everyday in a foreseeable future. This is the one and only road towards a true and real global knowledge society – and this road and its destinations are both far beyond science in the traditional way. Science is history in exactly the same manner as the ancient Greek and Roman gods are history, as the Scandinavian Asa-belief is history and as most institutional religions and the Stone Age are history.

This has very profound implications for the development, management and organisations of our societies as they are all based on the scientific belief and the division of sciences in various disciplines in order to keep things simple and limit responsibility for the real world out there…this is extremely clear from the construction of public bureaucracies as they are all over the world to day: Divided into a vast number of disciplines, sectors and professions and in a steep hierarchy that makes interdisciplinary working processes totally impossible – and downright dangerous for the individual that would dare try!

With the challenges ahead of us in to days world and the vision of a global knowledge society as our common future, these organisations simply consist the worst threat against humanity that we face in the coming decades – the next revolution must be against the Weberian Bureaucracy and we better start it now! These bureaucracies are to day characterised by having

- a far too steep hierarchy to make useful decisions in due time;
- an organisation divided into numerous professionally defined divisions and departments with each their perception of reality and no intentions and incentives to change these perceptions;
- a strong and real threat of punishment and maybe worse if you cooperate seriously with other divisions/departments;
- a belief that management by rules (based on science of some obscure kind…) is a possible way forward - and with so many rules that nobody can find their way through…;
- considerable corruption and focus on personal interests in many countries;
- …and no qualifications whatsoever to handle anything but very, very detailed and simple problems…

…so we simply have to develop a completely new type of organisation for the knowledge society. This process seems to be in motion in a lot of private companies all over the world although a clear picture of a useful result is not ready yet, but it has hardly begun in any

public organisations yet and this is necessary to get started in order to be able to handle the complex challenges of our present and future world.

But what are the characteristics of these new organisations? I do not know, but I take the risk to come up with the following proposals:

- The main task of these organisations will be to facilitate a productive and continuous dialogue between the decision makers (politicians) and the stakeholders (the service providers and the citizens) about the future development – they will be facilitators (where they to day are mostly manipulators and generally do whatever they can to prevent the dialogue to take place…);
- A complete disruption of the Weberian bureaucracy will have to take place as the main competence of the new organisations will be interdisciplinary working processes, i.e. working processes across divisions in today's bureaucracies – similarly administration will be a minor issue (and allocated to computers mainly) and management of and participation in interdisciplinary development projects will be a main issue for most employees, who will also have to be able and willing to work all over the whole organisation and often in many projects at the same time;
- Political committees will be project committees with a life time corresponding to the projects in question and will be held directly responsible for project results – only State Governments, City Councils or the like will be permanent units working only with policy issues and long term strategy development and never ever involved in specific projects, issues and cases;
- Budget allocations will be given almost exclusively to projects and not to sectors/divisions as today, so if a sector does not have enough development projects, it will simply be absorbed by other and more development oriented sectors – over time the traditional sectors will vanish completely as their main contribution already today is sub-optimising, creation of barriers for development, frustrating the best employees and generally fighting to keep status quo at all costs…
- A crucial characteristic of the new organisation will be that both economic resources and staff are flowing freely all over the organisation to where the important challenges and tasks currently is;
- There will be three types of managers in these organisations:
    - Project managers, who develops, implements and manages projects and also facilitates the dialogue between decision makers, service providers and citizens – the project managers have no or few employees;
    - Service managers, who continuously manages and develops important service areas in the system – the service managers are also HR managers and developers and responsible for the employees of the system;
    - A top management team that in a close dialogue with the politicians coordinates and facilitates the best possible function of the system as a whole;
- Good governance and transparency will be a necessity and a natural prerequisite for these new organisations, and corruption, fraud and unprofessional behaviour will be dealt with swiftly, efficiently and professionally at all levels.

…and those who develop these new organisations first will take the lead and pass everybody else in the fast lane – and hopefully be able to create enough profit and compassion to pay for the necessary aid to keep the rest of us alive, at least at a subsistence level!

A POTENTIAL METHODOLOGY TO KEEP ON TRACK…

…so we have to work in innovation teams across professional disciplines – and we have to facilitate these working processes as they are heavily against our scientific tradition (but fortunately these processes are under development and increasingly used in many professional environments!). But we also need to keep our work on track in some way – we have to check with ourselves on the way that we are moving at least approximately in the right direction, and how do we do that?

Here we may use a "dialogue tool" – some sort of rather simple method we feel comfortable with and that helps us to keep on track. We have some positive experiences here using simple tools built on the definition and description of sustainable development from the Brundtland Report of 1987. One of these tools is presented in the following as a ***"sustainability test"*** for projects, investments, initiatives etc. – not as ***the*** solution, but as a possible solution and an example of something that can work in practical situation…***and remember, there is no analytical and scientific tool for these complex and interdisciplinary problems, and there will never one, because it cannot be constructed as it can be proved that it cannot exist…!***

Sustainable development is a development that allows us to live and prosper without hampering the living and prospering of our children and the children of our children…thus it is about initiating a mode of development that creates more values that it consumes. This may be exemplified by making concrete estimates of the long term value of the investments of your company/project – the more values left when all is paid for, the more sustainable were your investment. It is also important to focus on the values your development project may create for stakeholders and citizens locally, regionally and globally – the more benefits in the broadest sense your project creates, the more sustainable is your investment.

Sustainability must be estimated in three dimensions that are all of equal importance and mutually interlinked: ***Economic sustainability***, ***social sustainability*** and ***environmental sustainability***.

Sustainable economy is focused on the values left when all is paid for – the more that is left, the more sustainable the economy of the investment. This could be expressed as the number of years you can drive in your car with reasonable operational and maintenance costs, after the loans are paid off. It is also important to assess the values and assets that you do not pay for, e.g. inconveniences for other people and parties, natural resources spent underway, competences and quality of life improved etc. – the so called "externalities".

Social sustainability is about the social framework and processes your initiative or project is part of and may be reflected in the involvement and handling of stakeholders and other interested parties in relation to your project. A sustainable project is created in a dynamic

dialogue between all the stakeholders involved and they are all satisfied with the working process and the results when the project is realised.

Environmental sustainability is about creating a positive trade-off for the environment so that the net environmental impact of your project after completion is positive or at least neutral. All local, regional and local environmental impacts of the project should be assessed in an integrated process.

It is a wide spread notion that sustainability is expensive, but that is not the idea at all. On the contrary the focus is to find ways by which we can be both more responsible and do everything properly in a long term view and at the same time increase the profit! Sustainable development is in other words simple common sense and in perfect harmony with the trends and perspectives of the Knowledge Society. ***It is however not simple to perform in practice and is in its essence extremely innovative and demanding in relation to current practice in most private and public enterprises today – therefore it is also a very profound and basic challenge to all of us.***

About the test

The test consists of a questionnaire, containing 12 questions, covering the 3 dimensions: ***Economic sustainability***, ***social sustainability*** and ***environmental sustainability***. Your project/initiative will be assessed in all three dimensions if you provide answers to all 12 questions. The test is general and may thus be used for all types of projects. Of course this simple test can not give you very specific and precise conclusions and recommendations for a specific project – however, it can give you some ideas and inspirations regarding the basic nature of sustainable development and some possible implications for your project. And it is very simple and easy to use:

Answer all 12 questions. You shall only pick one answer to each question. Take your time to read each question and to consider the possible answers carefully. Choose the answer closest to your own real project situation. When all 12 questions are answered, you can compute your projects score simply by adding the numbers 1-5 of the answers you have chosen. You can score from 12 to 60 points, 12 points representing the most sustainable performance and 60 points the least sustainable performance. Hereafter you may review your project with special focus on the weak scores of the test and find ways to improve it – through creative and innovative work in your interdisciplinary team! The questions and answers are as follows:

Economic sustainability

Question 1: Has a total and overall assessment of the economic consequences of the project been performed over the total life span of the project?

1. A socio-economic cost-benefit assessment of the project over its entire life span has been performed – and this has been of crucial importance for the final design and implementation of the project.
2. A socio-economic assessment has been performed where all relevant aspects of the projects have been reviewed and assessed over its life span, and the most important issues were analysed more thoroughly. This assessment was used in the final design of the project.

3. A financial analysis of the project has been performed where the investments and the operational phase have been included as a whole. In addition some project-external economic aspects were briefly assessed. The analysis was used in the design of the project.
4. We have considered the value of economic assessments, we have the financial resources more or less in place, and we have started implementation. Later we will find somebody to address certain issues a little more closely of we get the time and resources.
5. We have started implementation without major economic and financial assessments, and we believe we can afford it or can find the money one way or another.

Question 2: What is the forecast for the financial value of the project to the investors when all investments have been written off and all original loans and costs paid (the future value)?

1. We believe the future value will be much higher than the original investment.
2. We believe the future value will be higher that the original investment.
3. We believe the future value will be of the same size as the investment.
4. We believe the future value will be less than the investment.
5. We believe the future value will be far less than the investment.

Question 3: Has the project positive economic value to other stakeholders than the direct beneficiaries or the investor? – e. g. in the form of creation of jobs, capacity and competence development, increased value of assets etc.?

1. The project has very significant positive socio-economic value to a broad spectrum of stakeholders locally and regionally as well as globally.
2. The project has significant positive economic value to at least one group of stakeholders.
3. The project has no significant economic value to other parties than the investor.
4. The project involves risk of significant negative economic consequences to certain stakeholders.
5. The project has significant negative economic consequences to a number of stakeholders or parties and/or society or very significant or fatal economic consequences to one stakeholder.

Question 4: How is the profit generated from the project reinvested during and after project lifetime?

1. More than half of project profit is reinvested in activities being more sustainable than the project itself; also activities in third world countries are involved.
2. More than half of project profit is reinvested in activities being equally sustainable to the project itself.
3. About half the project profit is reinvested in activities being equally sustainable to the project itself.
4. Less than half the project profit is reinvested and only partly in sustainable activities.
5. Project profit is not reinvested.

Social sustainability:

Question 5: Has a stakeholder analysis been performed and a plan for stakeholder involvement in project development been produced?

1. A comprehensive stakeholder analysis of the project has been performed at a global scale and all stakeholders have been informed about the project and have received invitations to participate in the project development process and implementation.
2. A thorough stakeholder analysis of the project has been performed and important stakeholders have received project information and invitations to participate in the project development process and implementation.
3. A project stakeholder assessment has been performed and important stakeholders have received invitations to participate in the project development process.
4. An assessment of the most important stakeholders in the project has been made, and some of these have received information about the project.
5. We have assessed who has the ability to obstruct project implementation and are considering means to prevent this.

Question 6: Have the stakeholders been given real influence on project development?

1. All stakeholders have been involved in a comprehensive, participatory, committing and engaging common development process that has formed the vital basis for project design and implementation.
2. The important stakeholders have been involved in a comprehensive, committing development process that has been a vital basis for project design and implementation.
3. The important stakeholders have been involved in a development process leading to the project design and development concept.
4. Certain stakeholders have been involved in project design.
5. No stakeholders have been involved in project design.

Question 7: Are the stakeholders involved in the operation phase and future development of the project?

1. The operation and future development of the project is taking place in a dynamic and engaged co-operation with all stakeholders, each being clearly conscious of their respective roles, influence and responsibility. The further operation of the project is dependent on stakeholder participation.
2. The operation and future development of the project is taking place in a dynamic co-operation with the most important stakeholders and with a reasonable distribution of responsibility.
3. Important stakeholders are actively involved in the operation and future development of the project.
4. Important stakeholders are to a certain extent involved in the project from time to time – other stakeholders are dissatisfied with project operation and future development.
5. Most of the stakeholders are dissatisfied with the project – some of them are actively opposing it.

Question 8: How is the expected project impact on society assessed to be in a long term perspective?

1. The project will significantly contribute to a more sustainable organisation and function of society and its institutions locally and regionally as well as globally.
2. The project will contribute to a more sustainable organisation and function of society locally and regionally.
3. The project will not influence organisation and function of society locally, regionally and/or globally in a negative direction.
4. The project has not dealt with the organisation of society in a more sustainable direction, neither locally, regionally nor globally.
5. The project will have significant negative effects on the organisation of society in a more sustainable direction locally and to a certain extent at a larger scale.

Environmental sustainability:

Question 9: Has the project important energy- and climate change- related environmental impacts locally, regionally and globally?

1. The project will significantly contribute to a reduction of total energy consumption and climate change impact and/or a change in a direction of more sustainable energy sources inside its areas of focus, locally and regionally as well as globally. Furthermore the project involves important technological innovations.
2. The project will contribute to a reduction of total energy consumption and climate change impact and/or a change in a direction of more sustainable energy sources inside its areas of focus locally as well as regionally.
3. The project will contribute to a more sustainable energy consumption and production inside its areas of focus, although primarily at a local scale.
4. The project will not have important energy- and related environmental implications in a more sustainable direction.
5. The project implies risks towards hampering of a more sustainable use of energy.

Question 10: Has the project important implications regarding reduction of use and dispersion of substances hazardous to environment and health?

1. The project will significantly contribute to reduction in the use and dispersion of substances hazardous to environment and health inside its areas of focus locally and regionally as well as globally. The project will moreover contribute to a new view on the use of such substances.
2. The project will contribute to reduction in the use and dispersion of substances hazardous to environment and health inside its areas of focus locally as well as regionally.
3. The project will not use or disperse any substances hazardous to environment and health that occur on any local, national or regional list over substances to be avoided.
4. The project does not involve any initiatives aimed at limitation of the use and dispersion of substances hazardous to environment and health.
5. The project involves risks of increased use and dispersion of substances hazardous to environment and health.

Question 11: Does the project involve significant consumption of biological resources (fibres, rubber, liquids, foods etc.) or significant implications to ecosystems of local, regional or global importance?

1. The project only uses biological resources produced in a sustainable manner and has directly contributed to a promotion of these types of production at local, regional or global level. Further the project contributes to conservation of one or more important ecosystems.
2. The project only uses biological resources produced in a sustainable manner and is not harmful to any important ecosystems locally, regionally or globally, neither directly nor indirectly.
3. The project only uses biological resources produced in a sustainable manner.
4. The project uses some biological resources and we have made sure that some of these are produced in a sustainable manner.
5. The project uses some biological resources and we believe this is sustainable.

Question 12: Has the project significant consequences for mineral resources and related environmental issues locally, regionally or globally?

1. The project only uses mineral resources that are plentiful and it has been secured that all resources can be recycled with due considerations towards environment, durability and resource management. The production of the resources only demand few energy resources and all these issues are documented.
2. The project primarily uses resources that are plentiful and only consumes moderate energy resources during production. Most materials may be recycled.
3. A sustainability assessment has been performed and there is a reasonable balance between resource consumption, durability and recyclability in the project.
4. We have not dealt with sustainability issues regarding the use of mineral resources in this project but have used common sense and reasonable economic considerations.
5. The project has purchased the cheapest mineral materials in a reasonable quality that we could find and has not given any considerations to negative environmental and human impacts.

The basic idea of this test is simply to provide a basis for a productive dialogue on the complex issue of sustainability of something – and to do this through a very simple breakdown of the 3 dimensions of sustainability in each 4 key parameters. The questions and answers here are rather elaborated and the test may be simplified further simply by giving scores 1-5 for the 12 questions (i.e. without using the pre-designed answers). However, it is important that the scoring is made in the interdisciplinary innovation team as the scores have to be evaluated from all professional aspects of the project.

A FEW GOOD EXAMPLES…

Do we have good, productive and inspiring examples of projects with an overall high score on sustainability? – yes, we fortunately have! A few that I personally find inspiring and useful are mentioned here:

- The Danish Wind Power industry was created by a continuous innovation effort from many stakeholders through the 1970’es, 1980’es and 1990’es and is to day a very strong

- The www and many related services as e.g. Skype, the Google search engines etc. This overall global system of course uses a lot of energy and therefore also emits large amounts of CO2, but there is no doubt that it also saves a lot. It has established a platform for a whole range of new business concepts and ideas that have already created vast economic and financial results all over the world (economic sustainability) although also some "bubbles", it has created social patterns and processes for social interaction that are completely new to the world and the implications of which have only been explored at a very preliminary level (social sustainability), and it provides services that allows intense communication across most of the world without travelling or at least with a much lower level of travelling for meeting activities etc. than earlier possible, so it saves lots of energy and CO2-emissions and may save even much more in the future (environmental sustainability).
- In climate initiatives in the transport sector the main focus it presently on new engine technology and new energy carriers – and this is of course also important. However, another possibility is to increase co-driving in personal cars. This will necessitate a change in behaviour that is not easy to create, but this development could be facilitated by various IT/www-systems to make it easier to locate possible co-drivers and make arrangements. The benefits of increased co-driving – e.g. 2,4 persons per car in stead of 1,2 which is the standard in the Copenhagen rush-hour traffic – would be: Reduced costs of transport for the individual, companies and society, reduced number of cars and heavily reduced needs for construction of new roads etc. (economic sustainability), reduced emissions from transport and reduced amount of vehicles on the roads (environmental sustainability) and creation of new networks through driving, both internally in organisations and in society, resulting in increased knowledge sharing (social sustainability).

This does not take miracles, witchcraft or anything like that – ***it just takes preparedness for innovation and change through new working processes combined with a new mindset for thinking in sustainability terms***. This mindset is briefly introduced in this paper and – maybe more important – the reasoning behind the necessity for this new mindset is presented and argued in the introduction. Think it over and consider it – and you will see that it is possible and can be done – and it is even fun!

…so what are we waiting for?

PROPOSALS FOR FURTHER READING…?

ZEN – and the Art of Motorcycle Maintenance. Robert M. Pirsig, 1974

Mind and Nature. Gregory Bateson, 1979.

On Divination and Synchronicity. The Psychology of Meaningful Chance. Marie-Louise won Franz, 1980.