1812, 1912, 2012 - Three Moments in the History of Industrialism

Hornborg, Alf

Published in:
Glimpsing Paths: Being and Acting in Times of (Un)Certainty

2012

GLIMPSING PATHS

BEING AND ACTING IN TIMES OF (UN)CERTAINTY

AN ANTHOLOGY BY CEMUS

CSD Uppsala.
Uppsala Centre for Sustainable Development

UPPSALA UNIVERSITET

SLU

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Published by Cemus/CSD Uppsala
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ISBN: 978-91-980391-1-5

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Usefulness

Foreword

There is no such thing as a value-free narrative. No writing can ever be divorced from value. Depending on one's frame of reference, the same thing can be described in innumerous different ways. An oak tree can be a living creature with whom you have a relationship and history, a dead resource awaiting effecient use in the global economy, or an anonymous number in an ecologist's equation. Each narrative has its own premises – unspoken decisions about what to include and what to exclude, what is to be regarded as important and what is not.

The same is, of course, true for sustainable development. Sustainable development is alternatively framed as mainly a cultural, political, technological or even economic issue – or, as all of the above.

That there are no narratives divorced from value is not the problem. But when access to forums of debate and decision making – media of different sorts, political institutions, university boards, etc. – is uneven, it becomes problematic. The power of definition tends to dictate not only what (or sometimes who) we should see as the problem, but also what solutions can be regarded as credible.

This book grew from these insights. In the spring of 2011, the idea of creating an open forum for debate on sustainable development in the form of a book started to take form. The idea was to allow anyone to contribute on the theme of being and acting in times of (un)certainty, with the diversity of contributors being an explicit goal. The theme itself was designed to emphasize that the crises humanity is facing – climate change, economic recessions, revolutions, failed climate negotiations, peak oil, etc. – does not merely have effects on politics and technology, but also has emotional, psychological and cultural impacts. We wanted to open up the debate on where our societies are heading to these, in a way, more personal narratives about how it is to be alive in these times – alternatively pictured as on the verge of global collapse, and as the glorious result of human progress.

Cemus being a part of Uppsala University, we knew, of course, that the book – even though it was open to anyone to contribute – would include primarily contributors from the university sector. We also knew that the majority of its readers would be academics. This insight laid the foundation for another aspect of the diversity of this book, namely the diversity of forms of expression. The book was open to any form of expression that could fit comfortably between the covers of a book – a sort of freedom that is rare in the context of university publishing. Just like interdisciplinary research can reach new kinds of understanding, so, we hoped, could an "interform" book lead to synergies and new perspectives.

In the end, we received a lot of material to work with and we needed, therefore, a way of making the decisions about what would go in the book and what wouldn't that reflected the ideals of diversity. An editorial committee was therefore put together, with student-, research- and Cemus representatives, which would together decide on the book's content.

The book is divided into five general sections; aspire, motion, worth, wild and usefulness. Compiling and working with the different contributions, these sections slowly took shape. Each section represents themes, forms and foci of a great variety, but with something more

or less obvious holding the different chapters together.

This is a book with a unique and ambitious aim. Sometimes profound and heart-warming, sometimes challenging. Either way, inviting.

Dive in.

Markus Nyström, editor

ASPIRE


NIKETOWN
HIT THE ROAD, NOT THE WALL.

What should we aspire to?
Are there reasons do be hopeful?
What does it take to make us act?

Sources of Hope and Meaning

Ulrich Nitsch
is a retired professor in environmental communication, now living in the countryside in southern Sweden. Born in Leipzig in 1938, he lived his first six years in Nazi-Germany, a country at war. The experience taught him to be suspicious of authorities, conscious of the individual's own responsibilities, and aware that societies "can go totally astray".

What he sees as the most urgent issue at hand is the prevailing inequity in the world: "no ifs and buts, our first priority should be to assure a descent life for every child born on Earth."

> The kind of hope I often think about is, I believe, a state of mind, not a state of the world [...] life is too precious a thing to permit its devaluation by living pointlessly, emptily, without love, and, finally, without hope.
> –Václav Havel, *Esquire,* October 1993

We have many reasons to feel uncertain about the future. And many reasons for despair. I will not dwell upon them to any depth in this text. Instead, I want to explore sources of hope and joy which are crucial for maintaining our motivation to work for a better world. I will describe sources of hope and joy stemming from my own personal experience and from thinkers who have analyzed the characteristics of modern society, and offer promising suggestions for a change towards a positive future.

The Joy of Participation

In the 1990s I was often invited by companies, public agencies and other organizations to lecture about environmental communication. My task was to inspire and to motivate employees in their environmental work and to provide them with communication tools in this work. I often started by describing the state of the world with respect to natural resources and environmental conditions. I talked about the ongoing pollution of waters, ecosystems and the atmosphere, and about the contamination of soils and food chains with toxic substances. I talked about the increasing emissions of greenhouse gases and their affect on Earth's climate. I talked about eroding soils and shrinking fresh water resources and how this threatens food production. I brought up the suffering of millions of undernourished people and of thousands of children dying every day due to poverty related diseases. I also brought up the uneven distribution of income between the rich 20 percent of the world population, who account for approximately 80 percent of global income, and the poor 20 percent accounting for less than 2 percent. My presentation showed that we are overexploiting global ecosystems and that the pressure on the ecosystems will increase dramatically when the poorer part of humankind request their fair share of material goods. I made clear that we are not only acting unsustainably with respect to the biophysical boundaries of the planet, but we are also acting unethically if we consider the unequal distribution of available resources between rich and poor, and the limitation of options for future generations.

The audience listened. I got the impression that I accomplished the aim of increasing their motivation for environmental work in their professions. I received continued invitations to offer my presentation in various organizations.

But how come the audience did not get annoyed and turned off by the dire facts I presented to them, why didn't they despair? How come I felt full of energy and even joy when presenting information about such destructiveness, foolishness and suffering? I remember myself saying: "A child can understand that we must stop exploiting the environment the way we do today – but as adults, we have learnt not to understand." I laughed at my own statement, and the audience joined in.

I felt relieved when giving my presentations. The culture in my academic workplace at the time was constrained by the predominant control paradigm, i.e. the idea that we should and will gain control over the biophysical world by scientific knowledge and technological means, and that this would lead to a sustainable development. Since I didn't believe it was that simple, I felt enclosed. In sharing my worldview with a concerned audience, I felt authentic and present. I felt recognized and appreciated. And the sharing of worrying knowledge about the state of the world became a relieving experience, for both me and the audience. When we worry about something, it is a relief to share our concerns with others. Thereby the situation became deeply meaningful for all of us. We became participants in a common endeavor for urgent and important goals. That's what made us feel joy.

Today, when I give presentations on environmental issues, I spend less time on alarmist aspects. Most people know or sense what is going on in the world. There are still people who are lost in wishful thinking, denying the threats of diminishing natural resources and the pollution of the environment. But they are rarely in my audiences. So in my presentations nowadays, I focus on possibilities and motivation for change instead. After my presentations, some of the questions from the audience tend to reoccur and puzzle me. Three questions in particular are common:

- To me the future looks alarming; how can we bring about the change that is urgently and badly needed?
- How do we get politicians and other decision-makers to act responsibly?
- Is there any hope for fairness, equity and coexistence between humans and between humans and the rest of the living world?

The audience asks for ideas about what to do and how to bring about change. They seem interested when I talk about concurrent issues such as climate change and peak oil. They also seem interested when I talk about the change processes that must take place on an individual as well as a societal basis in order to attain a sustainable development. But I sense that the audience isnot satisfied with talk. They want to see change. And they are searching their own roles in the change process. They want to learn about concrete measures for change. They search for reasons for hope. That's how I understand my audience's questions. They make me feel at the same time encouraged – and insufficient. I don't have the answers. I don't think anybody has. But I think there is hope for a better world and reasons for having joy in our lives. In the following pages I want to describe how I arrive at this conviction.

An Existential Basis for Hope

I believe no human is born evil. All humans, I believe, have an inner drive and longing for knowledge and for love. Living in a materialistic and individualistic culture many of us lose connection with our constructive inner drives. As a result we become restless and dissatisfied and try to compensate for our inner unrest by superfluous consumption and efforts to gain social prestige. On an individual level this calls for personal development, emotionally and cognitively. Opportunities for the enhancement of these qualities are present in many kinds of human interactions, for instance in child-rearing, education, cultural activities, political leadership, and management practices. When we participate in society on the basis of knowledge and love, we nurture inner growth and create a better world. Whenever people meet and work together we have the opportunity to promote caring relationships between humans, and between humans and the rest of the living world.

Humanity consists of individuals. Each of us is important and each of us makes a difference. Our everyday activities are meaningful and can give us hope for a better future. Some people say my beliefs are idealistic and naïve. I have no other answer for them but to say that they are my beliefs.

Having said I believe there is hope for a better world, I need to add that I also find the concept of hope problematic. Many people are currently living under unbearable conditions, suffering from undernourishment, diseases and oppression. People are dying from these conditions at this very moment. They will never experience a better world. When considering this, talking about hope might seem cynical. Hope is about striving for a better future. Too many people live under conditions where they can afford very little or practically no hope. Hope is for us who are privileged to live under decent social and economic conditions. Thus when expressing hope I must not forget and deny those who suffer. I have to acknowledge that some people are excluded from the privilege of hope. My obligation as a responsible human being is to make efforts to change such adverse conditions. That's where hope comes in.

Hope and meaning are closely related. With hope comes meaningfulness. Viktor Frankl, professor of psychiatry, survived three years of horrors in Nazi concentration camps. He lost his parents, his wife, a sister and a brother in the camps. What he has to say about hope and meaning makes a deep impression on me. Frankl suggests that responsibility is the very essence of human existence. He claims it is our responsibility to respond to life with a will to meaning. He assigns to humans the capacity to rise above conditions. Whatever the conditions are, he says, we have the freedom to take a stand, which includes a freedom for hope. Frankl observed that fellow prisoners who lost hope were doomed. They gave up, lost inner strength and became subject to mental and physical decay, ending with death. The probability of death was always present in the concentration camps. Frankl describes fellow prisoners who maintained human dignity till they died of maltreatment or were assassinated in the gas chambers. Our ultimate choice, he says, is the freedom to die with dignity.

I feel strongly affected by the stoic attitude I read into Frankl's philosophy. Isn't he asking too much from us? Is suffering and dying in a concentration camp at all compatible with freedom, hope and meaning? Frankl's answer is that the meaning of our lives is not to be

invented by ourselves, but rather to be detected. Instead of searching the meaning in our lives, he proposes, it is our mission to take on the meaning that life assigns to us, regardless of the conditions we face. "Ultimately, man should not ask what the meaning of his life is, but rather must recognize it is he who is asked" (Frankl, 1976: 172).

My striving for a better world might bring me in conflict with social norms and expectations. It might not always be joyful. I might feel uncomfortable. I might need courage. Quoting Nietzsche, Viktor Frankl proposes that: "He who has a why to live for, can bear with almost any how." When considering the existential background of his proposal, my feelings of discomfort and my objections vanish. Viktor Frankl's philosophy for a responsible life seems to be: recognize your freedom, choose the will to meaning, and believe in hope.

Opportunities for a Better World

Victor Frankl's philosophy sounds ethically right to me. And very demanding. Even if I meet difficulties and inconveniences in my striving for a better world, I can't compare with the conditions Frankl is referring to. Striving for a better world is a positive endeavor. I see lots of opportunities for a sustainable and humane world, a world which offers a decent life to all humans and living beings. I believe we already have the technology and resources to make this happen. It's a matter of human awareness, will, and the way we chose to organize our economies and societies.

Many things have changed for the better. When in the 1960s I first became interested in environment and development issues, they were a concern for an insignificant minority. Since then, ministries, governmental agencies and university departments have been established with the explicit aim to work with these issues. Today, most people know about their existence. Most people have heard about water and air pollution, climate change, toxic residues in food, diminished biodiversity, overfishing, and other examples of environmental degradation and resource depletion. People may still differ in the attention they pay to these issues and in their concern about them. But I believe most people sense something is fundamentally wrong with the world. I'm hopeful that this feeling of unease is a first stage of preparedness for change.

I believe the alternatives are there. The knowledge and technologies we need for a transition towards a sustainable world can and will be improved. The alternatives include energy saving measures, alternative sources for energy provision, ecological modes of food production and water saving technologies for irrigation. Decreasing our meat consumption could save huge amounts of resources and improve population health. A systematic recycling of materials and plant nutrients will also save resources. Repairing and updating electronic devices, household machines, vehicles, clothes and other commodities instead of disposing them and buying new items, could provide job opportunities, save energy and save physical resources. I believe there is much potential for saving natural resources and the environment, and, at the same time, creating meaningful jobs. Again, it depends on how we choose to organize our economies and societies.

A different economy is key. We usually tend to relate to the economic system as if it were an expression of natural law; irrevocable and incomprehensible. We behave as if we

were its servants rather than subjects creating an economic system to serve our needs. Not comprehending how the system works, we adjust to measures prescribed by politicians and experts. But recent financial crises tell us that the latter don't comprehend the system very well either. Else they would hardly allow the serious disturbances we witness today which cause social suffering, unemployment and great monetary costs for tax payers. New ideas on how to organize the economy might appear unthinkable to many of us. But since economic systems are man-made, we also have the power to change them. An illustration of this is offered by drastic changes introduced in warfare times. In 1942, the US reorganized its industrial economy to a massive arms production within a few months after the bombing of Pearl Harbor. President Franklin D. Roosevelt announced the transition plan by saying:"Let no man say it cannot be done." (Brown, 2011: 196). I believe his statement is relevant also for our forthcoming transition to a sustainable economy. When we realize it's necessary, it can and will be done.

The present economic system produces a surplus of commodities we don't need, to create jobs and a tax base for financing services we urgently need, namely health care, education, social security, basic social services, etc. These services are essential for maintaining quality of life in our society. The present economic system is neither sustainable nor efficient when considering its costs with respect to pollution and depletion of natural resources. There are alternative models suggested by scholars of ecological economy. Alf Hornborg (2010), professor in human ecology, proposes a model of parallel sphere economies with different currencies. One local economy primarily based on local resources for local consumption, and a global economy for the manufacturing and trading of commodities which cannot be produced at the local level.

The Human Actor

To summarize thus far: a critical examination shows that the prevalent economic system of consumerism in our industrial society is ethically unacceptable and environmentally unsustainable. But being created by humans and maintained by humans, it can also be changed by humans. The awareness about the deficiencies of the present system is widely spread. Most people know or sense that something is fundamentally wrong.

So what prevents us from taking action?

Environmentalists, cultural critics, writers, psychologists, social scientists and others offer a variety of explanations. One explanation is our inclination for immediate need satisfaction. This inclination is present in all types of everyday activities. We let convenience take precedence over alternatives which we would benefit from in a longer perspective, as for instance with regard to physical exercise, healthy food habits and smoking. Another human shortcoming is our tendency to see the world as we want to see it. It's called selective perception. "Normally our thoughts have us rather than we having them," says physicist David Bohm (Senge et al., 2004). People in power, be they politicians or business managers, tend to act shortsightedly, responding to career ambitions, desires to stay in office, being competitive on the marketplace, maximizing profit, etc. In our daily undertakings we don't see the long-range consequences of our individual actions on resource depletion, environmental pollution, climate change, and the distribution of resources between rich and poor. We are

inclined to ignore threats and risks about consequences we don't experience here and now. Given these circumstances, what hope is there for change?

Fortunately, as humans we also have potential for something better. We have a drive to learn, we like to create, we like being responsible, we care about fellow humans, and we have an ability for empathy and love. We possess a strong potential and capability for altruism. Peter Singer (1997), Australian-American professor of philosophy, has written a book titled How Are We to Live? In a comprehensive investigation of this question, from ethical, sociological, psychological and anthropological perspectives, he arrives at the conclusion that the mere pursuit of self-interest is a self-defeating enterprise. It leaves us dissatisfied. To experience meaning, Singer suggests, we should chose an ethically reflective life, which means a life in which we identify ourselves with other humans and larger goals. An ethical life, Singer assures us, is also a good life.

Singer's thoughts about a good life correspond with findings in the field of 'happiness research', a field of research receiving increasing attention in recent years. There is great consensus among researchers in this field that, once we have reached an acceptable level of material living conditions, increasing monetary income and material consumption does not increase our sense of happiness. Neither does increasing material consumption guarantee an adequate provision of public services, such as health services, eldercare, schools and social security. Social welfare in our society does not depend on material consumption, it depends on how we chose to organize society, how we make use of our resources. Happiness and welfare does not require injustice and a continued destruction of nature, writes Thomas Hylland Eriksen, Norwegian professor in social anthropology. Having something to strive for, he suggests, and receiving recognition for who we are and what we do might offer peak experiences of happiness. "Our present economic system encourages greed and environmental destruction, and contributes to enormous differences in welfare on a global level, in addition to increasing differences in welfare on the local level. We now know enough about what is needed for a good life to know that there is not much which speaks for maintaining such a system." (Eriksen, 2008: 163 [my translation]).

What Should I Do?

Let's return to the three questions presented in the introductory part of this text:

- To me the future looks alarming; how can we bring about the change that is urgentlyand badly needed?
- How do we get politicians and other decision-makers to act responsibly?
- Is there any hope for fairness, equity and coexistence between humans and betweenhumans and the living world?

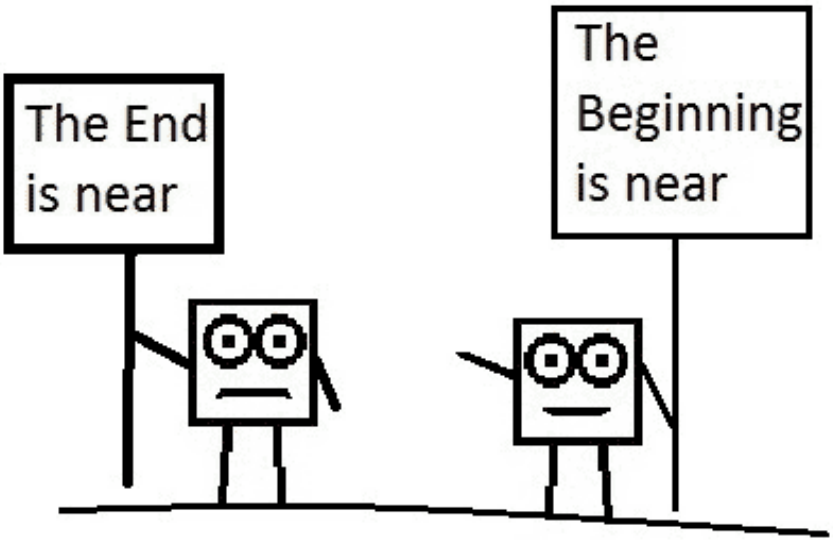
The thoughts I have presented suggest that we are free to relate to the world with hope, meaning and joy. I have presented examples of opportunities and alternatives which offer a substantial basis for hope. But what about the action aspects of the audience's questions? How can I make a difference? How can I make an impact on politicians and other decision-makers, i.e. people in power? And how do I maintain my motivation and my sense of hope

and joy?

In exploring this, I distinguish between the big world and the small world. The big world refers to the environment, ecosystems and the natural resources we need to protect. In the big world, power structures and economic systems rule. In my individual efforts to contribute to changing the big world, I might see no effect. Most of us don't have the position and the resources needed to make a visible difference with our individual actions. It's similar to participating in democratic elections. I don't see the result of my individual vote – but numbers of voices make a difference. Sustainable development rests upon the participation of each of us. It includes my learning about the state of the world as the foundation for informed action. I may influence a friend or a neighbor or support an environmental organization. Without individual contributions there will be no collective pressure for change. Our individual contributions are indispensable.

The small world is where I have my home, neighborhood and workplace. It's where I see my relatives, friends, workmates and neighbors. It's where I spend my work and leisure time. It's a sphere where I am recognized and appreciated as a unique person. The small world is the sphere of love, friendship, care, community, creation, dance, theatre and other self-selected activities. It's a world I should consciously nurture and care about. It's crucial to find a balance between the big and the small world. I must not allow my involvement in the big world to push aside the richness of the small. The small world is a place for rest and play where I receive energy and motivation for acting in the big world. One of my favorite quotations stems from the Norwegian philosopher Arne Nœss and reads: "Without humor and play it is easy to lose the glow that's needed to do something about the big problems we have in common" (Nœss, 1999: 29 [my translation]).

Finally, what's my own view about the prospect for the future? Current systems suffer extensively from inertia. I believe power structures and economic systems governing the world are slow to change. People in power tend to defend their positions with denial and wishful thinking. I believe that substantial change will not come about until we experience evident signals of resource depletion or environmental disruption. This might occur fairly soon, though, when 'peak oil' makes fossil fuels scarce and expensive. When this happens, or some other event, I foresee an urgent demand for change. Society will look for sustainable alternatives of organizing production systems and the economy. Until that happens, it is important we continue to learn about what goes on in the world, explore alternatives, and continue to influence decision-makers and the public the best we can. In doing so, we contribute to the readiness of society for the transition to come. Acting for this purpose in accordance with my deepest thoughts and values, and in cooperation with others, makes sense. It's an endeavor of hope, meaning and joy.


The End is near
The Beginning is near

Schrödinger's Cat

Henrik Karlsson
is a freelance writer and poet living in Uppsala, Sweden. Growing up in a small fishing town by the Baltic Sea, in close vicinity to a rehab center for drug addicts, made him more aware of the complexity of social structures and norms.

His writing here was inspired by the double meaning of the theme being and acting in times of (un)-certainty, *as the parenthesis implies both uncertainty and certainty at the same time; a kind of clash between the "seeming opposites of modern certainty and postmodern uncertainty into an (un)certainty for the future."*

Early that morning, as
she was brushing her teeth,
a butterfly flew
into the bathroom
landing on her shoulder.

She looked down from
the mirror to brush it
off her left shoulder

She looked up from
her right shoulder into
the mirror

but, surprisingly, noticed the
butterfly was not there.

Still, in the mirror it sat,
bromtymol blue.
But not on
her shoulder.

As she looked back to
the "real" shoulder
it had not moved,
it sat still, perched angelic.

This discovery sent
blizzards down her spine.
Such is the butterfly effect:

the flap of a butterfly wing
sets of a hurricane.
There's always an
explanation. A synapsis
sending the wrong image
from the memory
reserve. A visual
anomaly caused
by failed shortcuts
in the left hemisphere.

a hurricane makes the
wings of butterflies flap.
The only absolute truth is:
there are no absolute truths.
If its sacred to put
one's faith in the
unkown, accepting
nothing can be known
is the defintion of divinity,
an unmirrorable butterfly.

She rinsed out the
toothepaste and
left for work, caged
like Schrödinger's cat.

Balancing a Regional Difference

Peter Ambros

lives in Stockholm and is a part time marketing consultant and part time student. He grew up in Sweden to Finnish and Estonian parents, and this multicultural upbringing has made him identify with the Baltic region as a whole instead of any one particular country. His parents' struggles, having grown up in times of war, have instilled in Peter a humility and appreciation of his own life.

As he shows in this article about his innovative project, acting on injustices and problems is important to Peter. In these times he thinks "it would be nothing less than a crime to stay indifferent". Sometimes indifference can be even worse than the injustices themselves.

It is late in November 2011 and I'm in the Latvian countryside, in a small community named Ergli. Ergli is in a state of winter peace. Christmas decorations still shine by their absence in the windows of the buildings and on the streets, but the snow has fallen and an absorbing peace has settled over the beautiful Latvian landscape.

My good friend Lilija is making lunch; from the basement of the Soviet-built block house we have just collected root vegetables, sour cucumbers and honey. Later in the day, we are visiting Lilija's grandmother, who is now staying in the local retirement home of Ergli and in whose empty apartment we have stayed overnight. The apartment is a time capsule; the scents, the colors, the items – the whole interior radiates of times gone by.

The meeting with her grandma is over pretty quickly. From one of the two beds in the small room in the retirement home, the old woman sits up and we talk for a while. She is very friendly and unobtrusive, with a clear mind and eyes peering of both joy and bated wisdom. Our conversation is overheard by another woman silently lying down in the bed next. There is not much space in the room for anything else than the two beds; a small shelf and a few photos at the bedside and a minimal chest of drawers. The room is warm and tidy. And that's all. I leave Lilija in the small room with her grandmother.

Outside the room, my thoughts travel to Sweden. Already during my first period of study, I had a job on the side in the elderly care system back home. And for some months I was even living in a retirement apartment awaiting renovation. When they renovated the apartment, the walls separating two apartments was removed, throughout the whole building two large studios were turned into one larger two-room apartment. The bathrooms were rebuilt; toilet seats were hoisted with elevations, and armrests were mounted. Doorposts were widened and doorsteps removed.

Finally security alarms and monitoring systems were installed in each corner of the apartments and our old folks were left alone in these settings – clinical and dense with technology. This formed the minimum standard for every pensioner or old aged person in Sweden.

How does the care and treatment of our elderly differ, in Sweden and Latvia? Is it sustainable? Can the elderly care be made sustainable?

The retirement home in Ergli is still mostly and merely just a home. There are not a lot

of facilities or amenities. Well, last year they got a lift between the two floors of the home, so that the staff did not have to carry the disabled or those with limited physical mobility up and down the stairs. There are not many walkers, wheelchairs, lifts or hygiene facilities around. If any at all. The public bathroom is similar to my own private one, albeit a bit larger. It serves up to 50 old people, in different ages and levels of physical mobility.

Lilija says it's probably good for her grandmother to have a roommate. Though of course, it can be stressful at times, not to have any privacy at all.

My own conclusions are not based on research, but on strong and widespread impressions. It escapes no one living in Sweden that the care of the elderly has become big business here. Its no news that elderly care has gone from being a family matter to a social and institutional activity. And quite recently it has been turned into a profit-making activity, apparently often enough even in the hands of venture capitalists. It's an absurd development, although it is a reflection of a general trend in our society, mirroring where our modern lives are going despite our efforts to live in a sustainable manner.

In Latvia, this last step has not been fully taken yet. The old folk's homes in Ergli sorts directly under the municipal leadership, who in its turn falls under the provincial leadership; our Swedish counterpart to the County Council. All is ultimately funded by the state. And the Latvian national economy is still weak, even though the curves are slowly beginning to point upwards and a recovery is in sight. While this is awaited, as much as possible of the governmental resources and funds are distributed to the more producing sectors in society, according to a more or less explicit and commonly accepted political policy. The resource consuming institutions just has to be given a lower priority. This seems to be an inevitable and commonly accepted fact across the Latvian society. And as always in the Baltic's, there is no whining or complaining! Even the old people themselves, who are able to make their voices heard, seem to refrain from lamentation. They're used to hard times and there is commonly a humble approach to the life we are given.

Sweden, January 2012

Back to school my thoughts buzz around a project. The framework is given by the Cemus course *Sustainable Development – Project Management and Communication*. I do some research. I write a project plan. I collect my arguments and begin to pull strings. With some previous experience from a company that sells all kinds of facilitation equipment for elderly care, I decide to make contact to see if they have a something to spare, that could be used at the homes in Ergli.

The privatization of the elderly care in Sweden has quite naturally resulted in the fact that care providing companies are seeking rational solutions along with care facilitation equipment that really provides an effect. A large number of companies are producing and selling care facilitation equipment to all different nursing homes and elderly care units. Their managements have become strong business partners who often buy large quantities of equipment. The supplying companies naturally want to stay ahead of their competitors with new, modern products. This results in new manufacturing and updating of equipment which is offered to the new market entrants. Walkers and wheelchairs should often enough be of the latest model of the year! Market forces reign!

This also seems to lead to a relatively large amount of equipment being replaced long before its technical life-span has been reached. And the surpluses, the phased-out equipment, is often returned to the re-sellers' storages awaiting disposal and, at best, waste sorting and part recycling.

How about in Latvia, then?

From this development there is not yet much to be seen. And in Ergli, the staff of the old folk's home has turned an old desk chair to a jerry chair, or a hygiene chair, as it would be referred to here in Sweden, by some inventive carpentry. In Latvia the resources are still managed in a completely different way – a much more sustainable way.

But in order to address a lack of equipment and the current need that has emerged – how about if I managed to persuade some Swedish companies to donate some of their surplus to Latvia?

A temporary transfer of resources and excess production, while awaiting the same assumed development in Latvia? A transfer that would balance a regional difference of available resources?

Make do and mend. Inventive carpentry at the retirement home in Ergli and modern sanitary equipment from Sweden.

Sounds like an idea to me. Certainly the transport would produce CO2 emissions, but in the relative sense, in very limited amounts. Especially in relation to what destruction of the used equipment, along with new production of these high-tech materials, would generate. In an equation of this kind it evidently becomes an environmental win-win situation, where people find use for the equipment until its technical life-span is reached, instead of a far too early breaking it apart, to a cost our environment has to pay by new production and the emissions generated by premature destruction. Would someone do the math on this, it would appear that our global environment would be better off .

But then again, it's just about common sense. Isn't it? And about the old folk's in Ergli. So is the project idea really worth the efforts?

Already my first tries give unexpectedly positive results. The willingness to help often enough proves so big that I almost get moved. I get an external partner in my former contact at a company that sells this equipment. In their storage there are already a large number of different facilitation aids that has been lying there, waiting for someone to come and buy them. But by some time passing, the more likely alternative points to destruction, as everyone seems to want the newest models!

With the well meaning hearts of the company's management, the stretch to a decision is short; it's – come and get it!

In addition, the company has a broad network of suppliers. The message is suddenly spreading in the market community, and also several re-sellers find non-utilized materials at their own disposal. Now the message is spreading even to customers and clients, such as municipalities and private care providers.

The snowball is rolling!

On March the 20th, 28 hospital beds from the retirement home of Hagaborg in Norrköping, are dismantled and dispatched with destination to Ergli! Beds that have not even reached half of their technical life-span are provided, each with three motors for position adjustments and with mattresses and lateral support.

Several companies follow and start to donate: I receive crutches, walkers, ergonomic pads, pressure relieving dressings and over 60 air cell pressure wound preventing mattresses along with some electrical pumps for maintaining their air pressure. Another company donated sheets, duvet covers and pillow cases – about one hundred of each! I receive a mobile floor lift, an investment worth 15 000 Swedish crowns! A well known shipping company part-funds the transportations.

And already, the total value of the donated equipment is approaching a quarter of a million Swedish crowns!

The author (right) with Ergli retirement home staff and some of the donated equipment.

A new problem arises: the framework of this project within Cemus' course is suddenly not big enough to accommodate the project! This project can be developed to any length!
But with results achieved, we address the retirement home in Ergli, leaving the equipment to them with nothing more than the words: please accept our gifts!

It came as a surprise to me that the will to help can be awakened by such fairly moderate efforts. It shows that there is good in us. And we always have the potential to act upon it. And the times will always be uncertain.
Thank you fellow donors and project partners! It is a privilege to be able to help your fellow.

Note: Gaida Marija Vekmane, Lilijas grandmother, who unknowingly initiated this project by our meeting, passed away on December 30, 2011, 88 years old. I dedicate this project to her.

Art as Activism, or The Art to Discern Subtle Differences

Tatiana Sokolova
is a masters student in Sustainable Development at Uppsala University and SLU. She comes from a large industrial city in Siberia from which as a child she wanted to run away: "I am still running, but it will never let me go. In which fact I find comfort, in a strange way."

With her lyrical writing and artwork, where the natural world seamlessly metamorphoses with the human one, Tatiana explores the wide range of emotions that living in uncertainty awakens; "It is nerve-racking and heart-splitting – and humbling, overwhelming and hopeful."

I don't believe in changing the world – for two reasons. Firstly, like a Buddhist, I believe that everything is a flow of events and phenomena; so it sounds daft to talk about change if change is the only reality anyway. And secondly, who am I to pretend as if I know what the world is like and how it should change? Call me a sceptic, but however many university degrees I obtain, I don't really think I am closer to understanding anything of real importance.

Or perhaps for making a difference university degrees are a hindrance? Maybe instead of sitting here typing comfortably for a Cemus book I should be out there, at the frontline of misery, alleviating suffering of those who lost their limbs to landmines.

Or (better still) I should be right now in the Himalayas, meditating for years without food or water, living off sunlight. Some do, and they are called saints. What if (no science, a purely metaphysical speculation) it is owing to their meditation alone that the world hasn't fallen completely apart yet?

Or probably it is wrong to say that the world has not fallen apart, because for some people it definitely has. For people who have gone through such pain and terror that there is no world to speak of any more. So what is the point of talking about saving it, or changing it, altogether, if for them it is already irreversibly lost?

I know nothing, and I don't pretend to. But I believe in something; and it is the art to discern subtle differences.

Have you ever thought about this: why study? Why read? Why go to galleries? Why learn musical instruments? Why increase this complexity of already too complex life, why indulge in these activities which do not seem to have any practical result, any straightforward impact or potential to make things easier for anyone? Why fine-tune your soul, if the world at large seems utterly cacophonic? Why do we, the affluent, have this luxury of choice? I often challenge my own right to it. And sometimes I lament what it gives me: guilt, grief, restlessness. Pain at the sight of suffering. Helplessness at the sight of rudeness, frustration at the sight of injustice. Fear. By making me more complex, more sophisticated, more 'refined', it makes me weaker, more fragile, more exposed.

And strangely, I welcome this. I believe that what makes us human, what makes us who we are: true, mature, fair, what makes us – not happier, perhaps the reverse – but stronger

– is the ability to discern subtle differences. I believe that this is the key: we are in this world for the never-ending journey of learning to discern subtle differences. Emotionally, intellectually, professionally – in a great number of ways.

I believe that one function of art (for that matter, of education and science as well) is this: to teach us to discern subtle differences. Art teaches us to understand, appreciate and distinguish between millions of hues and tones, emotions and meanings – and in this way makes us braver and more prudent, more immune and more vulnerable, and ultimately much, much more capable of compassion.

Thus, I believe, all art is activism. This is the only reason for me not to grudge time to appreciate a poem or a piece of music – even when it seems 'unproductive' to do so. I am not afraid to spend some time in the darkness, in solitude, or in silence. We mustn't be afraid, I believe, to sit and stare at the rain for a while, or grieve over our losses, or feel misunderstood, betrayed, worthless, or meaningless. Because these paths bring us eventually back to the light, and back to what we know is true, however long we might have been astray. And we come back with deepened knowledge, and greater tolerance, and a greater ability to tell one thing from another, however subtle the difference is. And in so doing we, I hope, are more capable of making sense of our lives, and protecting those who need our protection, and nurturing the green shoots, and staying loyal to what we value.

MOTION

How do we deal with a world moving exponentially faster?
With the inertia of inequality, can balance be regained?
How do we fuel the future?

A Thousand of Lakes, or My Miraculous, Magnificent Metamorphoses

Tatiana Sokolova[1]

I had to run before the fake was discovered. One more second – and I would be disclosed. I turned around slowly; a dozen puzzled faces fixed their gazes on me; I saw their surprised expressions turning into those of shock. I smiled at everyone and made a step, another one, dropping on the floor the hot sheets which had just come out of the printer. On the third step, I dashed. Perhaps someone gasped; perhaps someone tried to seize me, but I was fast enough. Along the narrow corridor I ran onto a marble staircase and down, down, down. I crossed the lobby where the guards were dozing next to their control panels. Reaching the door, I pushed myself off the floor with my foot clothed in a silvery leather shoe; on the other side of the doorstep landed I, raising a blizzard of glistering snow with a massive hoof. I slipped; I was astonished how hard it had become to keep balance, how much inertia and weight my new body had gained.

I ran. The cars halted and honked violently, people were dashing aside, scandalized. I felt so scared, so excited. I ran through the crowd of people and cars clogging up the avenue and sprinted past the canal, and the wind created by my movement swept away snow from the railings. The embankment was empty except for a few parked cars, and as I rushed past, the alarms set off. The embankment came to an end, and I stepped onto the frozen ground, the sound of the hooves changing from clatter to thud. I ran through wasteland, surrounded by ugly grey constructions. I crossed the highway, and my hair stood on end when cars screeched, drivers hitting hard on the brakes right in front of me; for some reason I could no longer see them in motion. I ran through the fields, and into the forest. The snow was pouring from the branches, and my heart was bursting with horror and delight. I stopped. My heart was hammering and pushing blood in huge waves through my veins. I walked. Twilight had started to fall, and the blue sky, and the blue snow were splendid.

I stood listening to the wind, and suddenly felt hunger and thirst. I bent my neck and dug up some withered, damp grass. After the dull city smells its fragrance was overwhelming. It seemed that some old knowledge was revived in me, which I had forgotten. I knew that I had to run, and I knew where. I ran. I had been running for many hours before it got completely dark and I could not see any more. I lay down in the forest and slumbered. As

1 See page 23

soon as the northern sky gained color, I got up and continued my journey. I ran through woods and valleys, I crossed small rivers breaking thin layers of ice with my feet. I ran the whole day, stopping from time to time to dig out some frozen grass from under the snow, or tear a piece of bark from a tree. During the day the snow was melting, and in the night the ground froze again, and I lay down under the larches to get some sleep.

At dawn I finally found what I had been looking for. In the morning twilight I saw an innumerable multitude of frozen lakes. Behind them loomed forests, and I ran there. I knew that country, but I could not remember its name. I had forgotten all names and all words. I ran, scattering melting snow with my legs; the wind whistled, streamed around me, embraced me, as if I was running through some cold moist sheets of fabric. It was the beginning of spring.

1812, 1912, 2012 – Three Moments in the History of Industrialism[1]

Alf Hornborg

is a professor in Human Ecology at Lund University in Sweden. As such, he has studied and written on technology as a social phenomenon for over thirty years. Alf maintains that technology, economy and ecology are really parts of the same system and should therefore be studied as a whole rather than in different disciplines. This idea, central to this article, permeates Alf's research and writing.

As the main source of hope for the future, he sees "the capacity of human beings for cooperation, solidarity and wisdom." At the same time, he sees a lack of cooperation and increased competition and conflict as the biggest reason to feel despair. His conclusion is straightforward: "our only hope is cooperation".

Even if our ways of partitioning time into decades and centuries are arbitrary – and do not capture actual, significant historical phases and periods – they maintain a power over our minds that encourages us to reflect over dates and anniversaries. With this little essay I would like to attempt an overview of the development of modern European industrialism through the past two centuries by looking at three moments in time. Considering that this book will be assembled in 2012, I have chosen this year as the point of departure for the first two moments, exactly one hundred and two hundred years earlier, respectively. The three moments are very different in terms of character and significance, but all highlight human experiences of ambivalence about the progress of "modern" society.

The year 1812 represents the birth of industrial society in the British textile districts, when the so-called Luddites attacked the new machines which made their skills superfluous and deprived them of their income. Here we encounter the voices of workers who experience industrialization from within and feel aversion against the new technologies, but of course also voices of those who welcome and admire them.

In the year 1912, my grandfather Eirik Hornborg (1879-1965) completed a three-month journey in the sailing vessel *Glenard* from Europe to Australia, where he received news of the sinking of the *Titanic*. In his memoirs we meet the romanticism of parts of the European middle class regarding the preindustrial past, and a scornful attitude to the new technologies, but nonetheless an unmistakable optimism about the progress of development. The

1 I gratefully acknowledge support from the Bank of Sweden Tercentenary Foundation for my participation in the project *Time, Memory and Representation: A Multidisciplinary Program on Transformations in Historical Consciousness.*

fate of the *Titanic* represents the point where serious doubts about technological progress begin to creep into the consciousness of mainstream Europeans.

In 2012, Europe is more dependent on modern technologies than ever. The old manual skills and crafts have long been relegated to museums, but worries about crises in areas such as energy, climate, environment, and finance keep significant parts of the population hesitant about the long-run prospects of high-technology society. Perhaps, after two hundred years of technological development driven by fossil fuels, we are prepared to perceive "modern technology" with new eyes? In many contexts, visions are emerging of a different kind of society beyond fossil fuels, based on traditional knowledge, community and cooperation in manual labor.

1812

Two hundred years ago, the Luddite movement attacked the new machinery for textile production that was being accumulated in England at that time. The movement had had sporadic precursors since the late seventeenth century, but now gained momentum to the point where, from late 1811 to early 1813, it generated considerable turbulence in the heartland of early British industrialization (the counties of Yorkshire, Lancashire, Cheshire, Derbyshire, and Nottinghamshire). Thousands of local, proto-industrial textile workers who had seen their livelihoods eclipsed by the large-scale machinery of factories perceived these new buildings and their technologies as immoral contraptions violating traditional principles of justice and fairness. The factory system was explicitly likened to "colonial slavery", (Kirkpatrick, 1995: 23) and the embittered workers who suffered dwindling incomes and unemployment responded with revolutionary fury. Their response, which may then have appeared somewhat less futile than it does today, was to attack and destroy the machines themselves. In slightly over a year, damages to technological infrastructure exceeded £100.000, and many factory owners were attacked and injured. In addition to such actions, the Luddites are remembered for their many anonymous letters threatening factory owners and authorities, exemplified by this Nottingham letter from 1812:

> This is to inform you that if you do make any more two course Hole, you will have all your Frames broken and your Goods too, though you may think you have made your doom just I shall know how to break your frames, we will not suffer you to win the Trade will die first, if we cant do it just to night we will break them yet, and if we cant break them we can break something better and we will do it too in spite of the Devil (Binfield, 2004: 27).

As Charlotte Brontë later wrote, it is not difficult to understand why "these sufferers hated the machines which they believed took their bread from them; they hated the buildings which contained those machines; they hated the manufacturers who owned those buildings," yet "it would not do to stop the progress of invention" (Sale, 1995: 15-16). The British authorities swiftly crushed the Luddite movement and in 1812 executed several of its leaders. Sale concludes that "the architects and beneficiaries of the new industrialism knew that it was imperative to subdue that challenge, to try to deny and expunge its premises of ancient rights and traditional mores, if the labour force were to be made sufficiently malleable, and the new terms of employment sufficiently fixed, to allow what we now call the

Industrial Revolution to triumph unimpeded" (Sale, 1995: 5).

At the core of the Industrial Revolution was the substitution of human and animal muscle power, as well as water- and windmills, with fossil energy, or – if you wish – the imperative to increase productivity per hour of human labour. Steam engines and steam-driven factories inaugurated this development toward what we now know as high-tech society and a continuous aspiration for economic growth. The most prominent economic thinkers from this period – including Thomas Malthus (1766-1834), David Ricardo (1772-1823), and Karl Marx (1818-1883) – all lived in England and devoted much effort to understanding the economic and technological changes of their time. Malthus emphasized the existence of biophysical limits to growth, remembering the land shortages which a few decades earlier had seemed to constrain England's economic expansion. Ricardo, and later Marx, objected that the development of new technologies, by increasing productivity, would transcend such constraints. Ricardo argued that access to capital and labor could compensate for a shortage of land – this was the foundation of the new science of economics which he helped to found, and which is predominant to this day. Karl Marx, too, had confidence in technology and labor, but emphasized that what propelled technological development during the nineteenth century was the desire of the owners of capital to increase their profits, which in his view was done at the expense of the working class. The incentive behind mechanization, in other words, was to lower costs of production, compared to paying wages to a larger and less mechanized work force. By producing and selling a larger volume of products per hour of human labour, capitalists could increase their net income and invest in further technological improvement. Marx also argued that these profits and investments ought to be the collective property of the working people, an argument that profoundly influenced the politics of the twentieth century.

Another question, which in 2012 is becoming increasingly troubling, is what Ricardo's and Marx's objections to Malthus really signified, from a global perspective. Ricardo was obviously right in maintaining that the shortage of land would not be an obstacle for England's economic growth, but the "technological development" which made it possible to transcend the country's biophysical limitations actually implied that England's pressure on the environment was displaced to areas outside its own political boundaries and to future generations yet unborn. In other words, the limits to growth posited by Malthus did not disappear but were shifted beyond view. Even if we disregard the vast quantities of labor time invested in the British colonies to subsidize Britain's economic growth during the nineteenth century, we can join Kenneth Pomeranz in calculating the equally vast land areas claimed for the British economy (Pomeranz, 2000: 274-278, 313-315). To substitute for the food energy in sugar consumed in England in 1831, the country would have needed to grow domestic food crops on an additional million hectares of farmland. To replace the cotton fibre imported in 1830 with domestic wool, England would have required an additional 9,3 million hectares of pasture and hay. To replace the annual import of Baltic and American timber in the early nineteenth century would have required almost 0,65 million hectares of British woodland, and to substitute firewood for the annual consumption of coal around 1815, another six million hectares of forest. During the course of the nineteenth century (from 1815 to 1900), Pomeranz adds, England's imports of sugar increased eleven-fold, its coal output fourteen-fold, and its cotton imports twenty-fold. In the year 1900, these three

commodities alone (sugar, coal, and cotton) thus implied an "ecological relief" amounting to over two hundred million hectares of ecoproductive land.[1] If we include other land-intensive imports such as grain, beef, timber, and a variety of colonial crops such as coffee, tea, and tobacco, it becomes apparent that this "ecological relief" surpassed the *total* land mass of Great Britain (less than 24 million hectares) by at least an entire order of magnitude.

The extraction and transport of these and other imports to England was to a large extent financed with revenue from textile exports. Ultimately, in other words, the point with all the investments in intensified mass production was that it granted England access to increasing volumes of resources beyond its own land surface. As mentioned, this reinterpretation of the Industrial Revolution in terms of global transfers of resources has not taken into account the immense amounts of labour invested in colonial plantations, mines, and forests, or the vast land areas which provided all these labourers with food. Nor has it considered how coal combustion colonized future generations by depleting finite deposits of coal and increasing the amount of carbon dioxide in the atmosphere.

Even these cursory and incomplete calculations can contribute to a reassessment of the essence of "technological development" in a global perspective. Malthus was actually right in concluding that there are limits to the amount of land area that is available to a nation's economy, but Ricardo was right in observing that England could transcend such limits by substituting capital and labour for land – although, as we have seen, this largely meant shifting its land requirements to other nations. Neither Ricardo nor Marx had reason to doubt that technological development would continue to offer Europe unlimited economic growth.

However, alongside technological optimism the nineteenth century saw a widespread discontent with the social, aesthetic, and existential drawbacks of modern industrial society: the accelerating pace, environmental problems, transformations of the rural landscape, the impersonal logic of the money economy, and the alienation of urban life. The Luddites' tangible attacks on the machines may have appeared unacceptable, but they have continued to symbolize the loss of premodern values. The anti-modern sentiments that tend to be classified as "Romanticism" have never managed to seriously challenge the objectives of modern development, even though they have frequently been articulated by influential people from the upper or middle classes. Aesthetic and sentimental arguments have generally not made much impression on the logic of money and technology. Investments in nature protection, culture, and social security have been proportional to assets and never really threatened the fundamental priorities of economics and technology. Against this background, a quantitative, ecological analysis of the global implications of technological development offers a more rigorous and ethically committing kind of criticism than the "Romantic" critique of modernity which has accompanied industrial society from the start. Let us next take a closer look at an example of such "Romantic" anti-modernism.

1 Rolf Peter Sieferle (1982: 104) calculates the wood equivalent of British coal extraction in the year 1900 as in itself over 225 million hectares (2,252,000 km2) of woodland.

1912

At the age of thirty-two, in 1911-1912, my maternal grandfather Eirik Hornborg took leave from his duties as school teacher and principal in Helsinki in order to experience a voyage to Australia with one of the last Finnish sailing ships, baptized the *Glenard*. The voyage is described in detail in one of his first books, *Under segel till Antipoderna*, published in 1915, and in a memoir volume, *Länder och hav*, published in 1954. As an historian, he often looked to the past to illuminate the present. His comments on the new technologies which dominated the first decade of the twentieth century are clearly nostalgic about the past. He recalls, for instance, an earlier visit to Skagen, where he observed a fleet of sailing ships bound for the North Sea:

> They slowly and majestically passed the dim horizon like a dreamy image from days gone by. The present was not absent. It was represented by two gray and terrifying German warships which intersected their route, steaming off…and leaving long stripes of smoke. But long after the monsters had disappeared, the proud line of sailing ships continued silently westwards. It was the old times, sailing away into the haze (E. Hornborg, 1915: 59 [my translation]).

In his memoirs, such cultural conservatism converges with nature Romanticism:

> The most impressive and most aesthetically arranged image of the ocean's animal life that I experienced on the whole voyage presented itself a stormy night in the roaring forties. The Glenard was sailing in high, black waves, which came rolling like foaming ridges, carrying her over the crest and letting her down on the other side, all while she pushed ahead, propelled by the storm. Once, when her stern descended between two waves and the next one towered pitch black against the sky, I saw two whales coasting on its crest. The contours of their bodies were distinct and sharp against the backdrop of the lighter sky. Although I knew better, I had the feeling that the waves would lift the whales onto the deck. It was an image of primeval time and oceanic wilderness that is forever imprinted in my memory (E. Hornborg, 1954: 191 [my translation]).

My grandfather ends the account of his long voyage with the following conclusion:

> You can see the sea from the deck of a steamship, but you do not live the life of the sea. A sailing ship is one with the wind and the waves, but a steamship is and remains a stranger on the water (E. Hornborg, 1915: 235 [my translation]).

On April 17, 1912, after over three months of sailing, the *Glenard* begins to approach the Australian coast. The route had been kept north of 45 degrees latitude, largely to avoid the risk of icebergs. Three days earlier, on April 14, the world's largest steamship, the *Titanic*, had collided with an iceberg on the North Atlantic and sunk to the bottom of the sea. My grandfather writes about his arrival to Australia on April 26: "The tugboat brought us the first news: the *Titanic* had sunk with fifteen hundred lives..." (E. Hornborg, 1915: 140). The *Titanic* has often served as a metaphor for technological hubris. The disaster has frequently been viewed as a symbol of the approaching fate of Western civilization (cf Davie, 1987). Steamships had mechanized the globalized communications which the sailing ships had inaugurated. They facilitated larger and quicker transports of people and cargo around

the globe. They also contributed to the military superiority of England and other European powers over the societies which were integrated into the colonial world order, whether the challenge was to coerce the Chinese to accept trade in opium, the Egyptians to produce cotton, or West Africans to open up river traffic into the interior of Africa. Two years after the disaster of the Titanic, the bloodiest and most destructive century in human history was initiated with the eruption of the First World War. The integrating theme through all this destruction, from machine guns to nuclear bombs, was the development of technology. The driving forces behind this "development" have thus been geared to destruction no less than production.

The steam engine was the core of the Industrial Revolution in England and is generally presented as a triumph of human inventiveness and an early symbol of technological progress. The fundamental assumption in the conventional narrative about industrialization appears to be that the ultimate prerequisite of technological and economic expansion is technological knowledge. From this perspective, it was the steam engine viewed as an *invention* that gave England and Europe such a prominent position in the world. But if we widen our field of vision it is apparent that the Industrial Revolution cannot be exhaustively accounted for by reference to British engineering.

Coal had long been used in England to heat the houses of the lower classes (the more affluent were able to choose firewood) and as a source of heat in industries such as metallurgy. The steam engine was originally built to pump water out of the coal mines. It combined the idea of using coal as a source of heat and the idea of transforming linear to rotating movement, as applied in the water-driven textile industry. Although the steam engine was an ingenious idea, it would hardly have been revolutionary if there had not been strong economic incentives to vastly expand textile production. Ultimately, in other words, the prerequisites of the steam engine were global relations of exchange, including the great demand for British textiles on the world market, not least the triangular Atlantic trade which made it possible for English textile manufacturers to rely on the labour of African slaves on the American cotton plantations. Technological development in nineteenth-century England was thus inextricably intertwined with global processes of capital accumulation. It was made possible by previously accumulated capital and with the objective of accumulating additional capital. In recognizing that economy and technology are intertwined in this way, we can see that the Industrial Revolution was not primarily a matter of European inventiveness (A. Hornborg, 2011: 94-101). In fact, even ancient China had been experimenting with steam engines (Pomeranz, 2000: 61-62), but the global prerequisites of an "industrial revolution" had been absent.[1]

2012

Today, it is not the issue of the steam engine as a measure of European ingenuity that is

1 *In The Great Divergence*, Pomeranz particularly mentions Europe's unique access to the largely depopulated Americas, including its great stores of silver.

in focus as much as the consequences of fossil-fuel technologies for the future of our climate and biosphere. Even if climate change scenarios give *all* of us reason to worry about the future, they illustrate that questions of uneven global distribution are fundamental to industrialism, whether we investigate its production of entropy or its extraction of resources and labour (Robert & Parks, 2007). Awareness of the vulnerabilities of modern world society is more widespread than ever. It is reflected, for instance, in a great number of recent books and movies on the theme of "collapse".[1] Even an old prophecy based on the Maya calendar has been mobilized to identify the year 2012 as the end of history. A more rationally based sense of distress is shared by a very wide spectrum of prominent thinkers, ranging from environmental scholars and climate researchers to energy experts and finance analysts. Although the social, aesthetic, and existential shortcomings of modernity continue to generate considerable discontent, it is no longer the "Romantic" objections that are most conspicuous in public debate, but rational questions concerning carbon dioxide emissions, oil reserves, development gaps, and currency rates. Instead of stirring memories of encounters with whales on the open sea, we are offered a discourse on the legal and political dimensions of biodiversity. Instead of glorifications of people and practices of the past, we have become accustomed to catchwords such as "alternative technology", "renewable energy", and "traditional ecological knowledge". This shift does not mean that anti-modern sentiments are obsolete, but that the criticism of modernity has found a language that is sufficiently rational to pose a serious challenge to business as usual.

There is much to suggest that we are approaching the end of the two-hundred-year age of fossil fuels. Technological optimists propose that this will not have to mean the end of high-tech, energy-intensive society, but it is yet impossible to discern an alternative to oil that would be able to maintain current levels of consumption in wealthier segments of the world-system. A growing global population with legitimate demands for a standard of living approaching that of the wealthy nations poses an insurmountable challenge to a world order intrinsically unable to universalize the privileges of its elite. In China there are only two cars per one hundred people, while in Sweden there are fifty. The Chinese ambition to be as car-borne as Europeans is completely understandable but nonetheless deeply problematic. Oil companies are currently squeezing whatever oil they can from deep-sea drill-holes in the Caribbean and tar sands in Canada, with unimaginable environmental consequences for ecosystems and the atmosphere.

In an increasingly desperate pursuit of optimistic visions of a viable future for modernity, journalists have visited remote villages in Algeria, where solar panels have been installed to generate electricity for some light bulbs. The light bulbs seem to be appreciated as long as they work, even though the villagers have had to wait for years for repairs. Unfortunately, our collective dream of a technological salvation beyond peak oil tends to rest on such frail foundations. With all due respects to light bulbs, after forty years of rhetoric about solar power it would be fortifying to finally see locomotives, tractors, or bulldozers propelled by

1 Instead of listing a selection of titles, I encourage the reader to perform a simple web search for the word "collapse". On December 28, 2011, such a search resulted in 412,000,000 hits.

the sun.

The sun has generated billions of years of biological evolution on our planet, but why do we imagine that our species shall be able to construct machines that are more efficient at harvesting solar energy than photosynthesis? The whole idea that we shall harvest direct solar energy in order to replace *human labor* should be scrutinized by the *social* rather than the technological sciences. If the Sahara desert will one day be covered with solar panels, the electricity generated by those panels will no doubt be reserved for the people who can afford it – more likely Germans than Algerians. The same global elite, in other words, that today can afford oil. Solar technology thus seems unable to solve problems of global distribution, but there are also several difficult questions regarding its economics (will even Germans be able to afford it in the midst of financial crisis?) and ecology (where shall the rare earth minerals be extracted, and at what price?). The conventional dilemmas of modern technological society appear to be able to resurface, whatever the technology.

As this sceptical view of technological solutions has proven to be the most controversial and provocative part of my argument, I shall devote some more space to explaining my position. As mentioned, the faith in an inevitable shift to renewable energy technologies has been around for many decades without being able to present much in the way of substantial evidence. The idea that human ingenuity will prove more efficient at harnessing solar energy than several billion years of biological evolution is obviously difficult to abandon. As the key to a more energy- and resource-efficient society is generally identified as increasingly advanced information technologies, it is not encouraging to read Timothy G. Gutowski's analyses of the expanding energy requirements of these technologies. Professor Gutowski heads a research team at the Massachusetts Institute of Technology called *Environmentally Benign Manufacturing*. He has shown that the energy calculations for information technology are not at all as promising as people generally seem to think. A fundamental problem is that calculations of energy efficiency very rarely include the energy expended in the manufacturing process. During most of the twentieth century, the use of technology (for example, driving a car) required more energy than its manufacture, but today the relation is generally the opposite. Life cycle analyses of high-tech commodities are incredibly complex and time-consuming, but this is no doubt not the only reason for why such information tends to be inaccessible. Nevertheless, Gutowski has shown that merely the manufacture of memory chips for a computer requires more energy than its average three years of use. It is not surprising, from the perspective on modern technology that I have presented here, that the gains in energy efficiency and reduced environmental impact that we expect from information technologies appear to be cancelled by their expanding ecological footprint.

As I have previously addressed the energy propelling marine navigation, we might also consider the prospects of solar-powered shipping. One of the most hopeful applications of solar technology to date is to save fuel costs by fitting ships with solar panels to aid propulsion. Again, the idea has been around for decades, but BBC News recently announced that ferries shuttling golfers from Hong Kong to their island golf course were "the world's first hybrid powered ferry fleet" (January 24, 2012). The hybrid technology saves between 8% and 17% on the diesel costs, but "repair and maintenance costs have been more than anticipated." The Australian company hopes that "solar sails" utilizing both wind and solar energy could ultimately save over 25% of a ship's annual fuel bill. It should be noted, however, that

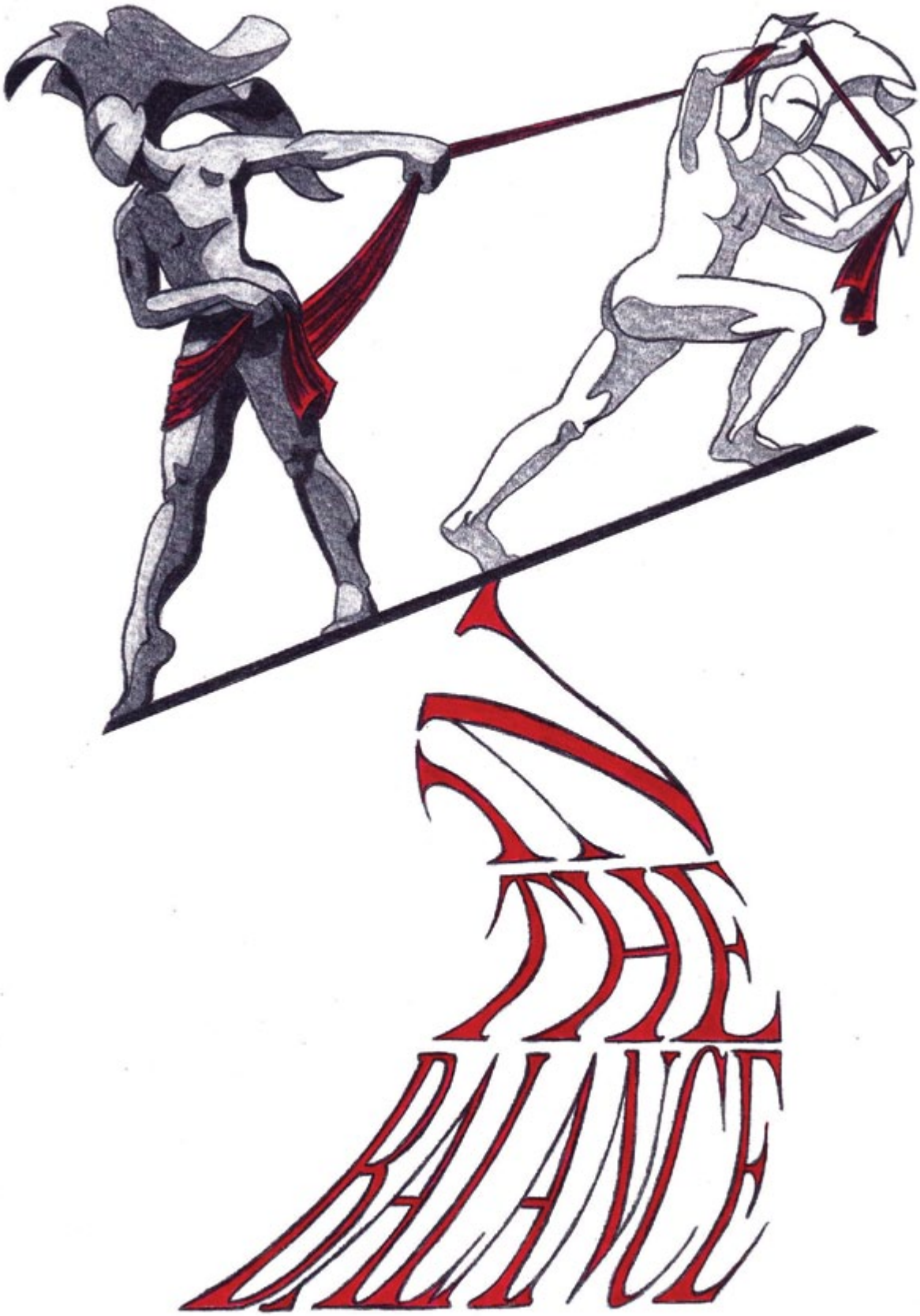
after more than a decade the company "has yet to turn a profit," and that such discouraging results are blamed on the global economic downturn – which (predictably) is dismissed as an external factor. Technology, once again, is perceived as a phenomenon that should be understood separately from "the economic environment." As argued above, this distinction is a fallacy that must be rejected. In recent years oil prices have been much higher than previously, yet solar technology remains unable to compete even with the immensely expensive extraction of oil from the tar sands of northern Canada. Against this background, it is very difficult to believe that solar panels will lead humanity toward a sustainable and equitable world society.

It thus seems that Thomas Malthus' worry about the limits to growth was justified, even though population growth as such is not the problem. The current global land area devoted to agriculture could in theory support thirty billion people, if all were vegans (Hermele, 2012). The problem is the enormous disparity in purchasing power between different parts of world society, and that only about half of the global agricultural area is used for basic food production. Moreover, approximately half of the food that is harvested is destroyed or discarded. The greatest threat to global "sustainable development" is thus not newborn Indians or Africans, but newborn Swedes and Americans. But, as Malthus realized, there *are* absolute physical limits to growth and resource extraction. The inclination of most economists and proponents of economic growth to dismiss this obvious ecological truth is very strange. Even if no one can predict when in history or where in the world such limits will be encountered, it is obvious that they exist. The historically increasing agricultural harvests that give the growth optimists such hopes for the future have primarily been based on imports of guano, phosphates, oil, and other resources from extractive sectors of the world economy. Is this kind of resource-intensive agriculture to serve as a model for "less developed" nations? From a local perspective, to be sure, it seems as if technology has made progress, but not until recently have we begun to realize the extent to which such "technological progress" boils down to a redistribution of temporal and spatial resources in global society. The decisive question, in order for it to be rational to replace labor in one part of the world with machines based on imports of natural resources from other parts of the world, is how labor and resources are priced in the different areas. This is why "technology" is ultimately a question for the social sciences, rather than engineering. But the trust in technical salvations is obviously existentially indispensable for most modern people, whether ideologically blue, red, or green.

Beyond our dependence on oil we envisage renewable energy sources such as sun, wind, and biofuels, without really grasping that it was precisely these energy sources that our premodern ancestors depended on – and utilized as efficiently as was ever possible. The conditions for efficient utilization of these energy sources have not been fundamentally altered since the eighteenth century. Modern technology has not increased our capacity to locally harness sun, wind, or crops, only our capacity to displace our environmental burdens to other parts of world society. A return to biofuels would thus reactivate some fundamental constraints of human life that most people in history have been profoundly aware of. When our energy is no longer derived from vertical holes or shafts in the ground, but from horizontal surfaces, we shall see a rebirth of the competition for land between producers of food and energy that the advocates of the Industrial Revolution believed they had transcended.

As early nineteenth-century people were very well aware, there is a natural limit to how far food, fodder, and other bioenergy can be transported, before more energy has been expended for the transport than is contained in the cargo. Once again, like they did, we may have to calculate transport distances in terms of hectares of energy. This, of course, suggests a social system very different from the one which has emerged over the past two hundred years.

To cite one of the many critics of modern civilization who today try to combine a "Romantic" objection to fossil-fuelled industrialism with a good grasp of its more tangible challenges: "We shall soon be obliged to trade in the *Titanic* for a schooner – in other words, a postindustrial future that, however technologically sophisticated, resembles the preindustrial past in many important respects" (Ophuls, 2011: xi).


THE
BALANCE

Allyway

Bob Axell

was born in Gällivare in northern Sweden but he grew up in a diversity of places, Costa Rica and Saudi Arabia among them. This constant wandering due to his family's frequent moves has given Bob "inspiration and an open mind, not to mention countless experiences" that has shaped him as a person.

Movement is also evident in his poetry where asphalt giants are rushing upwards and one cannot escape the sands in the hourglass. Whether the future is bright or of a darker hue in his poetry, Bob argues that uncertainty can be rewarding: "I feel it's exciting to not know what the future holds."

From a phone booth across the concrete jungle I call
Hear them jungle drums bringing my name
Across the youthless avenues, wide and tall
Rising up towards the sky they claim

Asphalt giants rushing out towards space
Searching for a better less competitive place
Seeking to defy us, we, the human race
Up into silent skies widening their landscapes

Yet there is always someone bigger, always one beyond
Stretching into heavens of which we are so fond
Seeking new adventures, striving towards the coming
Always in a rush, always riding, always running

Striding for a future with the greatest of resolve
The echoes of my call seem to bounce along its edges
I look up at these giants waiting for them to dissolve
Spiraling spidering cracks dismembering their ledges

Still nothing happens and no one falls
My insecure scream dies out in due silence
The show is over, just a thought, that's all
An insufficient citizen, scorned by concrete islands

Seeking faster landscapes, sleek and vast and free!
Sleeping in the shadows, the alley waits, for me

Sands Of Time

Bob Axell

Riding in the sling of dreams
Raising hope that matters
Futures are my agony
Futile you all gather

All I know and all I see
All I bow to is destiny
This one virtue I cannot pass
I cannot flee the hourglass

Sand is sinking in my dome
Here I stand now, all alone
The sand is quick, filling fast
The sand fills up my hourglass

I try to run, I try to hide
But all is sand, and I'm inside
It's piling high, its piling fast
I realize this, is life, at last

WORTH

Who decides what is valuable?
Can the global economy become sustainable?
Are there solutions within our reach?

Green Economy: The Art of Sharing a Planet with Future

Carl Schlyter
is a Swedish politician and member of the European Parliament for the Swedish Green Party. While working in Brazil, Carl witnessed people living under dire social and environmental conditions. He came to understand that environment and social conditions go hand in hand and that, "as long as poverty exists we will export problems, not solve them".

The many solutions he suggests here are not about compromising on what we value in our lives. On the contrary, the changes that Carl proposes are not sacrifices, but genuine improvements: "Reduced working-time and more cultural interaction is a benfefit, not a sacrafice. Less stuff is only good, means less burdens for the majority in our part of the world."

> The market is an excellent way of organising many of the things that happen in our economies. But the market is a tool that should be used when it is suitable rather than being a deity that is worshipped.
> – Paul Krugman, Nobel Laureate in Economic Sciences 2008

Foreword

A transition to a real *green economy* offers answers on how to tackle the many and severe problems that humanity is facing today. A range of suggestions on how to *be and act in times of certainty* as well as *uncertainty* are presented in the text that follows. A green economy adapted to local conditions based on multifunctionality is more resilient which means that bad times need not to be so bad but rather just lead to new solutions. In its report, *Towards a Green Economy*, UNEP (2011) argues that the last two decades represent an era of "gross misallocation of capital". A period "where much capital was poured into property, fossil fuels and structured financial assets with embedded derivatives, but relatively little in comparison was invested in renewable energy, energy efficiency, public transportation, sustainable agriculture, ecosystem and biodiversity protection, and land and water conservation" (UNEP, 2011: 1). This misallocation can partly explain some of the concurrent crises that have either sprung up or accelerated during the last decade including crisis in "climate, biodiversity, fuel, food, water, and of late in the financial system and the economy as a whole". But the crisis is not an accident but rather a permanent condition based on a faulty design. Either we have an economic crisis or, when economy is boosting, ecology is collapsing.

The green economy can be defined as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. This can not be done without tackling the gross misallocation of capital. It has been misused to maximize capacity to extract resources and transform them into products, but todays

challenge is better, and more fair use of what is produced, and minimizing the resource use. Wellbeing and ecological sustainability need to be developed and that means other dimensions than consumerism will have to grow, we need to become cultural human beings rather than Homo Economicus. An economy satisfying need rather than greed, an economy characterized by democracy and fair trade and where all stakeholders and not only shareholders have a say.

The transition towards sustainability and a green economy is challenging and demanding. The infantilist instant satisfaction using purchasing power that we are used to see as a measure of success, will have to be sacrified. Reduced material consumption requires shorter working hours and collective rather than individual solutions to everyday problems, and has the potential to free oceans of time for all of us. This transition also involves a changed perception of you and me. The capitalistic view of an individual as an economic man, or Homo Economicus, will in the era of the green economy be replaced by a more sympathetic Homo Empaticus. "Let's not waste a good crisis" as the Americans say. Instead, let's face it. Let's turn the inefficient dirty production and consumption of today into the green economy of tomorrow.

A Full World

Even in the mid 15th century it was theoretically possible for a squirrel to hop from tree to tree between Moscow and Berlin without touching the ground. And incidentally Bär, the German word for bear, forms the origin of the German capital city's name. The huge European forest, filled with dangers and difficult to comprehend in its entirety due to its size, is mentioned in countless tales and sagas. By the time Adam Smith wrote *The Wealth of Nations* in the 18th century, and thereby laid the foundations of modern economics, cities had expanded and forests had shrunk. But in the collective consciousness of people, the image of The Big Forest still existed. As the large scale emigration to the expanses of North America began, the idea of nature as something boundless was reinforced. When the founder of modern economics was sitting with his quill, the shortage of labour, effective tools and machinery, was the starting point and problems that needed to be solved. By rectifying these deficits it would be possible, in the words of the Renaissance philosopher Francis Bacon, to "put nature into service and make her our slave". In stark contrast to the ancient concept of Mother Earth as a benevolent goddess of plenty, providing her abundant bounty to the people, Bacon pictured the image of an evil stepmother keeping tight hold of her precious treasures and hiding them away deep under the surface.

The time that has elapsed since Adam Smith's days basically coincides with the age of fossil fuels in human history. The extraction of coal, oil and gas, the reserves of which constitute millions of years of preserved solar energy, have enabled previously unimaginable levels of production, consumption and population growth. In just a few generations, we in the developed countries have gone from an age of scarcity to an age of abundance. However, the cost is that nature is now threatened as a source of raw materials, and it is overflowing with waste and landfill sites. We are, in the words of ecological economist Herman Daly, heading toward a *full world*, in which economic growth faces the limits of what ecosystems can provide, and further increases in consumption of energy and raw materials will soon be

impossible. The idea that economies can expand indefinitely within a biosphere that doesn't expand seems like a fascinating dream – a sort of economic science fiction with a discontinuity in logic in which infiniteness fits within the bounds of finiteness. But let us put economics aside for the moment and go out and take a look at the real world. There it becomes obvious that we need new mental maps in order to be able to orientate ourselves in a world that is radically different from the world of Adam Smith.

Simple Satisfaction

Are we happier when we are richer? Yes, of course! Those who are starving will certainly be happier if they have food on the table and those who are freezing cold will be happier to have some warm clothes. However, excessive consumption does not seem to make us significantly happier. Once we have satisfied our basic requirements, it is other things that really make us happy, such as social relationships, culture, a meaningful work, the enjoyment of nature, and the like. The now fairly extensive research on happiness shows quite convincingly that we start to value things other than buying gadgets already at relatively low levels of income and that the extra consumption permitted by working longer hours no longer compensates for the loss of free time. *Sufficiency* and *contentment* with what we have is what the researchers call this phenomenon.

But why is this not apparent in the development of our society? Why do we keep working longer hours in order to be able to consume even more? Why do even people with high incomes demand high pay rises and why do the ultra-rich demand tax cuts? Well, part of the explanation is no doubt the concept of positional consumption, i.e. that one feels the need to maintain a certain status and keep one's position on the "ladder", or even try and catch up with those a few steps higher up. The trend towards an ever smaller and uncertain social welfare system probably also plays a role.

More equal societies and the existence of a safety net in terms of welfare provision that doesn't let anyone fall through would probably make our relationship to money healthier. The status-based consumption that the rush up the income ladder permits for trendsetters in the leading pack would then, hopefully, abate. This would also help lessen the strain on our ecosystems. In a major survey covering 45 countries, Canadian researchers demonstrated a clear relationship between the extinction of species and large differences in incomes in society.

Working Time Reduction

If increased consumption above a relatively low level does not make us happier, then perhaps we ought to take advantage of increased productivity by reducing our working hours, thus gaining more time to develop personal relations, sing in a choir, take a walk in the countryside or do other things which require time and make us happier without having to consume significant amounts of finite resources. Shorter working hours would divert us from the current situation of "spectator democracy" and give us time for genuine involvement in organizations and associations, political parties, networks and such. Shortening

working hours would thus lead to a strengthening of democracy.

In times of recession we should divide the available work evenly between us in a show of solidarity instead of creating divisions between those who are unemployed and those working too much. By replacing redundancy with shorter working hours it is possible to create a feeling of solidarity between workers instead of marginalization and a negative battle as people fight to avoid being sacked.

This approach was tested with great success in the Great Depression in the USA in the 1930s, when it resulted in 3-5 million new jobs being created. Will Kellogg introduced a 30-hour working week at his big Cornflake factory in Battle Creek in Michigan and declared:

> Free exchange of goods, services, and labour in the free market would not have to mean mindless consumerism or eternal exploitation of people and natural resources. Instead, workers would be liberated by increasingly higher wages and shorter hours for the final freedom promised by the Declaration of Independence – the pursuit of happiness.

The experiment with 6-hour working days in Battle Creek in the 1930s lead to fathers being home more to socialize with their children, societies and associations flourished, and considerably more books were borrowed from libraries. The US Senate passed a law on 6 April 1933 introducing a 30-hour working week. However, just as the newspapers began to write about the imminent dawning of a new era, the bill failed to obtain a majority in the House of Representatives and the focus of policy gradually began to shift towards increasing production rather than shortening working hours. Furthermore, ever more sophisticated marketing started cultivating the permanent sense of dissatisfaction associated with rising expectations, and encouraged people to constantly long for the latest gadgets and appliances. One could imagine what the world would have been like today if the bill had passed.

There are pressing environmental reasons for introducing shorter working hours; when working, we emit, on average, considerably more greenhouse gases than when we are not working. Introducing shorter working hours as a tool in environmental policy is highlighted in a recent report on green jobs published by the United Nations Environmental Programme (UNEP) in cooperation with the International Trade Union Confederation (ITUC) and the International Employers Organisation (IEO).

What Creates Value?

The policy of job-creation has now been adopted across almost the entire political spectrum. Essentially, the policy states that the number of hours worked must be retained at all costs, and preferably increase, in order to secure financing for high-quality public services and growth. But is it really this simple? What actually creates value?

Green economists usually apply full cost accounting in order to, for example, be able to determine the viability of an investment or the real rate of return in a manufacturing process. If parameters that traditional economists do not usually consider are taken into account, the conclusions reached may be quite different. Three examples:

A forest can, depending on one's point of view, be described as a raw material that has not yet been processed or as a supplier of ecosystem services. When the Chinese government

banned timber extraction a few years ago from an area threatened by flooding, this was done purely on the basis of economic considerations. The value of the forest as flood control was estimated to be ten times higher than the value of the timber. In other words, the forest provides ecosystem services.

A report published by the FAO estimates that global fishing industry revenues could actually increase by billions per year if the right balance was struck between catch sizes and allowing regeneration of stocks. But this would necessitate a change from the current approach of overfishing and, in the short run, lower the catches. The authors of the report state that such a strategy would require the capacity of the global fishing fleet to be halved. A young cod that is left in the sea for an extra year grows by at least 20 %. Nowhere in the anthropogenic economy can such sustainable, fossil-free growth be achieved. The fishing industry is heavily subsidized and reducing subsidies would automatically reduce the fishing fleet.

In *World Energy Outlook 2011*, the International Energy Agency (IEA) reports that fossil fuels are subsidised with $400 billion annually. To this, all external costs caused by fossil fuels should be added.

The above examples from forests, oceans and the energy sector illustrate how less work can actually create significant economic value. In the cases of the fishing industry and fossil fuels, hundreds of billions of dollars in subsidies, that today goes into destructive practices, would also be saved. The policy of encouraging more work is thus turned on its head. Robert Costanza, one of the world's leading ecological economists, has estimated that the combined value of the Earth's ecosystem services amounts to almost twice the total global GDP, 33 compared to $18 trillion.

A recent report published by the international research programme TEEB (The Economics of Ecosystems and Biodiversity) estimates that halving deforestation rates by 2030 would reduce global greenhouse gas emissions by 1,5 to 2,7 GT CO_2 per year, thereby avoiding damages from climate change estimated at more than $3.7 trillion in net present value terms. This figure does not include the many co-benefits of forest ecosystems.

This broader way of viewing the economy also has consequences at the local level. For example, many districts in North America have realized that the most cost-effective measure is actually often to restore the original ecosystem. A good example of this is New York, which has invested between $1 and $1.5 billion to restore a watershed to provide freshwater to the city. Thereby the city avoided invest of 5 to 6 times this sum, excluding operational costs, in building a treatment plant.

Fair Trade or Free Trade

The basic principle of free trade is that of comparative advantage. This states that, for example, a country with the best conditions for growing coffee should focus on this and purchase other things from countries that are better suited in producing them. Production will therefore be efficient and everyone becomes richer. But what happens if an entire nation follows this strategy of specialization and then suddenly the rest of the world decides it wants tea instead of coffee? In our private economies, we take out insurance policies, i.e. we forgo part of our potential purchasing power in order to be able to feel safe. Why shouldn't

nation states do the same? If we have a diversified production, it is easier to cope with economic shocks and our dependence on long-distance transportation from the rest of the world decreases – our economy would be less vulnerable and more resilient. Half of global trade involves trading with products that are similar. For example, Sweden and the US both export biscuits to each other rather than exchanging recipes. Free trade doesn't manage to integrate factors such as environmental stress caused by increased transportation or serious health problems caused by poor working conditions into its pricing. Production is moved to places where the environmental standards are the lowest and working conditions the worst. Comparative advantages like these will result in environmental damage, deterioration in public health and social exclusion.

In contrast, fair trade creates pressure to raise basic standards. A proposal launched by the Green Party at the European level suggests introducing tariffs to protect the environment, the climate and workers. This involves a charge being levied on a product that is produced without adherence to ILO standards or international environmental standards. What is different in this case compared to traditional customs duties is that the fee is used in its entirety to reimburse to the country of origin and is earmarked for investment in measures that improve working conditions and reduce the effect of production on the environment.

Capitalism 3.0

In his book *Capitalism 3.0*, which has aroused considerable interest, the American social commentator Peter Barnes provides a vision more centred upon "common areas" than on the traditional categories of the state and big business. With this approach, we are all co-owners of such common areas, so if they are plundered then we all become poorer. When special interests such as multinational corporations exploit our common areas, they should pay to do so. It is, according to Barnes, disastrous to give away emission rights to the worst polluters rather than auctioning off such rights. Our oceans are an example of global common areas. But such common areas also exist at national, regional and local levels. In Alaska for example, companies that extract minerals, oil, gas and other natural resources from the state are required to pay royalties to the Alaska Permanent Fund, with some of the returns from this fund flowing into state coffers and some being paid to inhabitants as a sort of basic income without qualification conditions. This has contributed to a decrease in social disparities in Alaska over the past 25 years, which is in stark contrast to the trend in the rest of the US.

Barnes proposes the creation of an American Permanent Fund financed by taxes on commodities as well as a whole range of other duties. Telecommunications companies, for example, should pay hefty sums for making use of the common areas formed by transmission airwaves; this approach was applied in a number of European countries, although not in Sweden. In other countries auctions for mobile telephone frequencies brought in multi-billion sums. The privatization of profits and nationalization of losses has been a characteristic of our western economies for far too long and has basically resulted in public finances being in a state of almost permanent crisis.

However, as Barnes states, private special interests are entirely dependent on well-func-

tioning cultural common areas such as laws, financial systems and stock markets, why the bargaining position of the state, or the public, is rather strong. Many common areas could be organized, according to Barnes, as foundations with boards of directors appointed to manage long-term public interests. Role models in this respect can be found among *conservation trusts* and *community land trusts*. The former have purchased land across the US in order to be able to establish the equivalent of nature reserves in which only ecologically sustainable agriculture and forestry are permitted. The latter acquire land in urban environments and construct cheap social housing for low-income groups. Such land is effectively removed from the market of land and property speculation as people that move away are only repaid their initial investments and, in certain cases, a small sum that corresponds to the increase in property values.

The Planned Capitalistic Economy

Markets are established between companies whereas relationships within companies are usually characterised by administration. Half of world trade today consist of internal trade within corporate groups rather than trade between different companies. Prices are often set by various committees in an administrative process that is not so very different from the way trade took place between various departments in state-owned giants in the Soviet Union. This burgeoning sector of the global trading system can best be described as a mix of planned economy and capitalism. The larger the proportion of the economy that is handled by large international businesses, the less real economic freedom there actually is and the less real market conditions there exists. Thus, market forces gradually dismantle the market economy itself.

Shareholders & Stakeholders

Today, we widely accept that corporate management and shareholders control companies. We rarely think about the fact that this system of power, which is based on ownership, is similar to the feudal system. Just as in those aristocratic times, subjects/employees are now often controlled by people equipped with a lot of power who in their turn are controlled only by weak supervisory structures. In practice, managing directors often function as *de facto* absolute monarchs and it is not uncommon that they present even the owners with a virtual *fait accompli*. In such a world, employees are often still seen as a cost, and news of personnel cuts – or the streamlining of organizations as it is called – usually result in the company's share price increasing. And this happens despite the fact that it is the employees and their motivation and skills that determine, to an increasing extent, the actual value of a company and its long-term chances of surviving.

But why should democracy cease to exist between 9 am and 5 pm? Companies above a certain size could instead be controlled by all those that are actually affected by and involved in the business, i.e. the stakeholders. Owners, employees, suppliers, lenders, local inhabitants and future generations (represented by environmental organizations) can all be described as stakeholders that should be given the opportunity to influence crucial decisions.

A network of scientists, union representatives and entrepreneurs – *Corporation 20/20* – has been formed in the US based on these ideas. Executive board positions for stakeholders or the ability of stakeholders to veto important decisions, within the framework of a referral system, are concepts under discussion in this forum. So-called stakeholder statutes have already been introduced by 32 of the federal states in their legislation regulating the operations of listed companies. This gives corporate management the right to consult other parties in addition to shareholders prior to important decisions such as closures and mergers. And this process is actually mandatory in the states of Connecticut and Arizona.

Another US law (Alien Tort Claims Act), which originates from 1789, has again become increasingly important in recent times as it enables US courts to prosecute American companies for human rights breaches committed outside the US, and this can also include the actions of their suppliers and sub-contractors. This law allowed 13 villagers from Burma to lodge a case in a Californian court in which they accused the oil company UNOCAL of exploiting them as forced labourers during the construction of a pipeline that the American company carried out on behalf of the military regime in Burma. Chinese activists who had their identities revealed by the American Internet business Yahoo also filed cases in an American court on the basis of the same law. Both UNOCAL and Yahoo opted for out-of-court settlements and the payment of financial compensation rather than pursuing the legal process; a company that is found guilty of violating human rights risks attracting plenty of badwill that can threaten its very existence, especially as increasing numbers of consumers are now interested in fair trade products. In Great Britain, Friends of the Earth and a considerable number of Members of Parliament are demanding that corporate legislation is supplemented by a law with the same effect as in the US.

Spectacular things have happened in Ecuador with regard to the stakeholder concept. As a result of a referendum held in September 2008, the country adopted a new constitution that grants rights to nature itself – a world first. It will now therefore be legally possible for individuals and groups of citizens to sue businesses and authorities on behalf of nature. The draft constitution was drawn up by a democratically elected constitutional assembly that included representatives from the natives of the country's rain forests.

Patent Rights vs Cooperative Economy

A candle is not weakened by spreading its light to other candles. And in the same way, shared knowledge promotes the development of knowledge. Corporate economists have identified that the thriving business environment in the Swedish area of Gnosjö is the result, to a great extent, of the cooperative structures established by companies in the region, in which the most successful businesses are often very generous in sharing their skills and knowledge. The rapid development and dissemination of the patent-free Linux operating system is another telling example of the potential that a cooperative economy has to offer. In the area of culture, the customary copyright is being challenged by the concept of creative commons, which does not abolish the idea of copyright but loosens the terms with regard to the non-commercial distribution of cultural items.

Patent rights that are too rigid and which privatize common knowledge for long periods of time risk impeding the ability of research to advance the boundaries of our knowledge. It

is also not reasonable that private business should make use of patents to reap the rewards of basic scientific knowledge resulting from the investments of public funds. 90 % of ground breaking medicines are based on basic research financed by public funding.

Are the patent rights of pharmaceutical companies more important than human lives? Only a few would say yes in response to this question. But every year millions of people die in third world countries of diseases that are fairly easy to cure. Or diseases for which it would most probably be easy to quickly develop medication if someone was prepared to foot the bill.

If we want to globalize solidarity – and not just greed – we should be able to establish a fund administered by the UN for research into tropical diseases. By means of a WTO resolution or a separate protocol, pharmaceutical companies could be subjected to a tax, amounting to a few percent of their annual profits, which would be paid into this fund and could be used to heavily subsidize medication in poor countries. It could also be funded by savings in expenditure in expensive patented drugs.

Prize Funds for groundbreaking research, rather than the current patent system, could be a first step towards license-free production. Prizes would be set and awarded and get more research for the dollar since it is only paid at success, or in some cases for discoveries leading towards success. To get the prize money the research would be put into the public domain and by setting the prizes focus of research could be to the most pressing needs. Cancer drugs would be accessible, new antibiotics would be developed and neglected diseases treated, at a much lower cost than the current patent system. Most pharma spends twice as much on marketing and sales as on research.

Investment Economy vs Speculative Economy

A clear trend today is that the proportion of real investment in the economy is shrinking whereas the proportion of financial speculation increases. Only 2-5 % of global money transfers relate to payments for actual good and services. New financial instruments are continuously being presented, often with risks that are extremely high and/or difficult to understand. The returns often sound more attractive if one "invests money in money" instead of investing in actual projects. This problem is accentuated by the fact that bonuses paid to brokers reward the taking of extreme risks, with the result often being that profits are privatized whereas losses are nationalized.

Micro credit institutes, crowd sourcing, and credit guarantee associations are examples of financial operations that have real development as their primary goal and for which financing is the means of bringing this about. Whereas the world of speculation is characterized by an extreme male dominance, these parts of the economy, which are more directly linked to reality, are not. A Tobin tax as is now discussed in the EU and existed in Sweden until 1991 (at a much higher rate) puts a brake on speculation and might increase the amount of money that is invested in the real economy. We could also, as is the case in Chile, make the tax dependent on the length of time shares are held, thereby promoting long-term share ownership. Transaction taxes can give state coffers a real boost – such taxes have previously made up 4-5 % of state tax revenues in Japan and the USA. Significant transaction taxes should be applied to tax-havens where banking secrecy hinders normal regulatory supervision. The

proposed Tobin tax in the EU would generate billions of Euro every year that could be used for environmental investments.

Options trading with shares, short selling and other instruments and products associated with high risk, or which primarily encourage speculation, should be regulated more stringently or be banned altogether as is happening in more and more places. The original role of the stock market, which was to act as a source of investment capital for companies, has been replaced to an increasing extent by a sort of casino function that focuses on moving money around in money generating cycles which have lost almost any connection to the real economy. Only when new shares are issued is money actually directly invested in companies.

Credit Driven Growth

Up till the 1950s, and even the 1960s, economic growth was a result of increased production which in turn fulfilled actual needs. This increase in production and consumption led to increased tax revenue for governments, revenues that resulted in public procurement, investments and new job opportunities in an expanding public sector. After the deregulation of the financial sector in the 1980s, the supply of credits on the market has multiplied. Today banks can lend out more money to a growing number of more risk-prone investors, individuals as well as companies. With more money on the market, money that requires a higher rate of return than what is charged by the lending bank, asset prices have skyrocketed. The increasing prices on property, art, land, natural resources and metals sometimes resemble pyramid schemes. Examples over the last few years on prices that have risen sharply and suddenly dropped range from cash crops to Irish real estate. When markets crash it is often painful for involved actors whom might see their holdings or pension-fund savings reduce in value. Workers loose their jobs, states cover the losses and in turn get their economy devastated by public debt and austerity. But when the credit bubble based growth economy works well, the high growth rate needed for paying all the debt is not compensated for by enough resource efficiency, meaning that even when it works economically it leads to ecological collapse. The credit based growth and jobs model is designed to create failure, it only varies between ecologic or economic failure.

Me Ltd.

For a couple of decades now we have in Sweden and elsewere lived in an age that has promoted a forced "freedom of choice", while actually not really givng us real options.

If everyone selects individual pension funds there will, in relative terms, be some winners and some losers, as not everybody can beat the index. All that is certain is that banks will earn commission on the transactions. Choosing a health provider, electricity supplier and a whole range of other services available in society, takes time. And for what good? All of us spending hours choosing general welfare services in oligopolistic markets will not improve the functioning of the market. Health care providers with poor performance have not disappeared. Rather, the result is less solidarity shown to those that lose out as a result of making a poor choice. Markets do not work when the need for a service is absolute, not relative,

and the one using it is not paying for it. Health care has shown to be more expensive, less fair and full of red tape when it is done using private insurance rather than taxes and when hospitals are run by corporations rather than the public or non-profit actors.

Do we want to transform people into permanent consumption machines or selectors of services in a sort of "Me Ltd.", or should we all take joint decisions regarding general services in areas in which well-functioning free markets are difficult to establish? If the latter, it is also possible to achieve a more rapid transformation by means of common decisions rather than, for example, a few people choosing to be supplied with wind-based energy from the large energy companies – companies that use your wind-energy payments to lobby for more fossil fuel. There is a big difference between being able to exercise choice to select a school that uses alternative teaching methods, or local inhabitants taking over control of a school that is set for closure, compared to being able to "choose" between educational factories run by two large companies which have the primary aim of making a profit. It is time to turn away from the false illusions of freedom of choice and instead create the opportunity to make joint decisions and thereby free up time to jointly develop a socially and ecologically sustainable society.

From Here to There

There is certainly no lack of visions in this still young century. Climate change and the financial crisis are demonstrating the deficiencies – if not the Achilles heel – of the current economic system. Now the vision needs to be transformed into concrete initiatives leading to social justice and ecological balance. This will probably require a strategy that strengthens local level independence in relation to the globalized world economy and at the same time uses political resolutions to compel the latter to develop in a more sustainable way.

Climate change and dwindling oil supplies are inexorably forcing humankind away from its addiction to fossil fuels. Steeply rising oil prices will make long-distance transports more expensive and foster local production. An economy that is once again locally anchored will reduce the influence of absent owners and lead to a more decentralized and democratic commercial system.

The transition from energy systems based on oil, gas, coal and uranium to systems based on renewable energy may also provide leverage to distribute corporate power and to increase the influence of users. Access to attractive windy locations, sunny weather and large quantities of biogas are not limited to a few select countries and regions, as is the case with reserves of fossil fuel and uranium ore. The struggle to control natural resources leads to conflicts, generating energy from free sources such as solar radiation does not. Rather, it promotes greater equality. The energy contained in just one tenth of a permil of the solar energy that reaches the Earth every year is equivalent to the entire annual human consumption of energy.

The extraction and distribution of nuclear and fossil fuels requires large capital investments that can only be mobilized by corporate giants. We therefore end up with energy oligopolies and a consequent concentration of power in a few hands, which often means that political decisions that attempt to stimulate change are paralysed. Renewable energy can range from solar cell chargers for a computer to a personal wind turbine. It was actually

a few very modest cooperatives that ended up making Denmark a world leader in the field of wind power. In Germany, tens of thousands of electricity consumers have also become electricity producers as electricity companies are now required to purchase green electricity from private individuals at a price that may not be lower than a statutory minimum. So, for example, consumers that have installed solar panels on their roof can send the excess energy produced to the national electricity grid and thereby lower their electricity bill. This system is called net metering, as one only pays for one's net consumption, and it has also been introduced in a number of states in the US. Sweden and other countries, which have chosen a more complicated system with so called green electricity certificates, are lagging behind countries that have followed the development models used by Germany and Denmark. Electricity certificates often primarily benefit the traditional electricity companies and do not have the same effect as net metering in terms of democratizing energy production.

The traditional ambition of thinking globally and acting locally has not lost its topicality. However, in this era of globalization, something more is required – something that is strong enough to change the power structures at the supranational level. Our pension capital, and in particular public pension funds, are significant shareholders in multi-national companies. We must use this fact to place more stringent demands on these businesses with regard to the environment and working conditions. Some trailblazers have already begun taking such steps; an example is the pension fund for civil servants in California (CalPERS), which manages in the region of $200 billion and is the second largest pension fund in the US. The fund makes direct investments in small, unlisted companies in the environmental sector, and a few percent of the annual investment sum is invested in regions with high unemployment.

The Swedish National Pension Funds (AP funds) could generate added value in the form of a better future, not just in terms of money generated but by investing in green technology and green developments for the good of society. After all, what's the point of having a good pension if increasing amounts of it have to be used to pay for flood and storm damages, paying higher insurance premiums and costs associated with lower crop yields and new epidemics, etc.?

If a large pension fund starts to hint that it is considering selling its holdings in a company, the share price of that company usually takes a dive and the threat of selling is not actually carried out. With this approach one refers to the "voice" rather than the "exit", i.e. influencing the company from the inside rather than just dumping the holding. The climate crisis affects whole industry sectors rather than individual companies and thereby forces large pension funds to take a more overarching responsibility in their capacity of so called universal owners.

A number of large institutional owners, led by pension funds and insurance companies, have joined up to create networks. The largest of these is the *Investor Network on Climate Change*, which adopted two primary objectives regarding its members at a meeting in the UN headquarters in New York in February 2008; investing $10 billion in renewable energy and reducing the energy consumption within the group's extensive real estate portfolio by 20 % over the course of the coming years. Together with likeminded networks, such as the *Institutional Investors Group on Climate Change*, the group has also initiated the *Carbon Disclosure Project* (CDP). This project has already had some success in getting large compa-

nies to disclose their greenhouse gas emissions, show how they are working to reduce these, and state what business opportunities they believe to exist with regard to such work. Businesses without a credible environmental strategy may face a reputational risk from losing credibility among customers and the general public and can be forced to suddenly make large investments in a short space of time if environmental legislation is tightened. Investors are aware of this and increasingly include such aspects when they value future potential in companies, why this factor affects the share price. However, we need to be aware of the structural pressures caused by the demand for a high rate of return among shareholders. This means that such projects can only provide a partial solution within the framework of clear policy decisions aimed at promoting a transition.

Global subsidies to the fossil fuel sectors now exceed $400 billion each year – if these were abolished, the Kyoto objectives could be attained. Few things appear to be more obvious and urgent than using these enormous sums in order to provide investment in renewables and energy efficiency. IEA have estimated that renewable energy resources (excluding hydro power) can increase its share of energy production from 3 % in 2009 to 15 % in 2035. This would require subsidies of $180 billion per year. Shifting subsidies from fossil to renewable energy results in a double dividend in that production destructive to humanity and the planet is phased out and production with positive externalities is encouraged.

Military spending is another huge pool of money that could be put to better use than is the case at the moment. Stockholm's International Peace Research Institute (SIPRI) has estimated that global military spending in 2010 amounted to $1,630 billion. Increasing numbers of military analyses point to the fact that a lack of natural resources will lead to future conflicts. A security policy that really aims to provide security should be using an increasing proportion of its funds to help fight water shortages and resource wastage rather than purchasing weapons that will be used to fight human opponents. This is also the essence of Indian scientist and environmental activist Vandana Shiva's book *Water Wars*.

View of Humanity

Economic man, Homo Economicus, has only one thing in her mind – maximizing her own economic utility. This monster, which forms the very basis of Adam Smith's theories, is still guiding many economists and decision makers of today. It is claimed that the "invisible hand" of the market can channel the result of individual greed into common good. But considering the predicaments humanity and the rest of the living world is now facing, this sounds nothing short of a fairytale. What the world now needs is Homo Empaticus, a human breed displaying solidarity and compassion and by doing so grows herself rather than the economy.

When a Woman Goes Forward No Men Go Backwards

Felix Peniche

grew up in Mexico, Spain to the United States, and has a fierce appreciation for what happens when cultures mix. He is currently a masters student in Sustainable Development at Uppsala University in Sweden. "After collapse I believe in the awesomeness of people to start something new and better. Until collapse I think many people will, like the Red Queen in Alice in Wonderland, frantically move and change to keep things the same."

Social systems are failing to function democratically asserts Felix and his poem reflects his belief that "misogyny is the root of most of our problems."

DICK CHENEY, RAMBO, AND MARIA: THE FATHER, THE SON AND THE HOLY GHOST

I was told:

If you want peace, prepare for war.

Only the strong will survive. People will die.

That made sense when I was a boy in business school, trying to buy into the shoes of a being a "man",

....BUT:

There is a town, there are a people, and I meet this woman: Maria, from Oventik in Chiapas, Mexico.

She remembers being sold by her father at 13, but her future was stolen 500 years ago, by business man that looked like me.

She has seven children.

For fifteen years.

She has fought the teeth of street dogs, with open hands.

She has fought the lies and prisons of little men, with love.

She has fought thirst in droughts, with tears.

She has fought hunger, singing.

She has fought the invisible hand of this modern world, walking barefoot.

Somehow, through this, SHE, HAS KEPT ALL OF HER SEVEN CHILDREN WARM AND
LOVED BENEATH HER SKIRT.

...BUT:

She still has to beg for respect ... from people like you and me.

I asked her about heavy stuff she hasn't carried up these angry mountains,

and she told me the only thing that hurts is her children's smiles.

I didn't understand then, but in that instant, simply looking at the dirt between her toes I choked on 21 years of bullshit about what being a man is.

Because of that beautiful space between her smile and her kids eyes in that corner street they call home, I am getting good at knowing what life is about.

Truth is, anything good in us all was built on the backs of women like her.

Truth is, there is nothing harder in this world than to love someone and keep that promise.

Truth is, while the world goes to shit because of economics, wars and fears of little men,

it is Maria who has the courage to take a step forward.

She is everyone's mother.

She is everyone's feminine side.

I hope you remember to make her part of your history; she never got a monument in anyone's capital.

But I know, because of her, I am here, finding the balls to tell the truth:

TRUTH IS:

In this chaos, some will do economics with their insecurities,

some will wage war with their fears,

some lucky few will learn to live bruised and will die in love,

but, until Maria gets her place at everyone's dinner table, no one will get a happy ending.

The Challenge of Overcoming Economic Rationality

Mark Wilson
is a course coordinator at Cemus and masters student in Sustainable Devleopment at Uppsala University. Originally from the U.K., Mark sees his native country as one of contradictions, where the awareness of environmental and social issues sit side by side with a materialistic consumer culture.

His article takes up the challenges that arise as a result of economic growth. For Mark, the answer to many of these problems comes from assuming personal responsibility and from community engagement: "The feeling of well-being and harmony that comes from working together on something positive, motivated by altruism, inspires me."

There is a discernable sense of unease in Western Society today. Some people are oblivious to it, and others recognize it but feel helpless when confronted by the enormity of what it means. This anxiety says something rather profound about all of us as individuals, and collectively as a society. One of the most powerful belief systems in the world doesn't actually work. I speak of economic growth, and the associated production and consumption patterns which drive it.

It simply doesn't work. To some this would appear to be a radical, perhaps even absurd, statement. In this paper I will first attempt to justify my absurdness with what I consider to be strong supporting evidence; I will then discuss why the growth paradigm is so prevalent in our society; finally I will explore some of the options available to us in spite of the dysfunctional nature of our economic system, through the deliberate decision to conquer our personal economic rationality.

Economic Growth Doesn't Work

Before I suggest a few modest changes to our consumption habits, I should first offer a critique of the existing economic system. Here are my top five reasons why economic growth doesn't work:

One – Money does *not* make you happier

The underlying premise of the economic growth paradigm is that it increases the standard of living of the people in a given country; in developed countries we will have more access to goods and services, which will in turn increase our life satisfaction; and in developing countries economic growth will reduce poverty. A considerable number of studies have measured well-being indicators and demonstrated that beyond a certain level of material wealth, additional money does not bring more happiness (Patel 2009). Moreover, gross domestic product (GDP), as a measure of economic activity, is as notable for what it omits as for what it shows. For instance, it does not reveal the relative inequality between various social groups within a country, or that the very poor are getting poorer (ibid.), or that unfortunate events

such as wars and road accidents contribute to a higher GDP but evidently do not increase people's happiness. Even the British Prime Minister David Cameron proposed that "it's time we admitted that there's more to life than money and it's time we focused not just on GDP but on GWB – general well-being" (quoted in *The Guardian*, 2010). The assumption that money equals happiness is finally being questioned in the halls of power, and yet the necessity of a growth driven economy is not.

Two – Social justice is not fulfilled in an economic growth regime

A free market will invariably find its optimal price, depending on levels of supply and demand, as is its design. The fact that the optimal price of even the most basic of commodities is often too high for at least one billion people is reason enough to re-evaluate the paradigm (Patel 2009). The rather grotesque defence of this situation using Charles Darwin's 'survival of the fittest' concept has no place in a society which calls itself civilized. Inequality is reinforced because various social groups are expected to compete in a growth-driven market when their starting position is so inferior, both economically and socially, that they will have very few opportunities of improving their situation, regardless of their hard work or ingenuity.

Three – Biotic resources do not respond to exploitation in the same way as abiotic resources

If we choose to ignore the horrific environmental consequences that the extraction of minerals and rocks usually involves, it can be convincingly argued that a free market does function reasonably well with abiotic (non-biological) resources. There is a finite amount of most abiotic resources, the creation of private ownership is relatively straight forward, and in many cases alternatives can be developed through technological innovation if the price of extraction or processing becomes too high. Biotic resources, on the other hand, do not fit well with the free market model. A rudimentary knowledge of systems ecology is sufficient to understand that as a biotic resource is exploited, the ecosystems affected do not respond in a linear fashion as the resource becomes depleted (Hollings, 2009; Rockström et al., 2009). The collapsing world fisheries, desertification of sub-Saharan grazing lands, or biodiversity loss in the Indonesian rainforests are testament to this reality. Moreover, biotic resources are often perceived as "common" and so private ownership is inherently problematic and also ethically questionable.

Four – "The race to the bottom" is unethical and self-defeating

If economic growth is the absolute defining goal of a company and their competitors, they will seek to improve their profit margins by any means possible. This can be done in two principle ways. One is eliminating the competition through acquisition, an increasing trend in the last two decades which ultimately leads to monopoly. This is an undesirable state both for the functioning of a free market and for the consumers who are obliged to pay the excessive prices. The other method is by undercutting your competitors and so gaining a larger share of the market. In order to do this a company must reduce its expenditure and this leads to "the race to the bottom" – companies will base their activities in locations where wages are low and the regulations governing working conditions are weak. When the com-

panies inevitably move on to cheaper pastures, the countries or localities they leave behind are in a worse economic position, and with increased degradation of their natural resources, than if they had never entered the global economy.

Five – Technology, efficiency and knowledge will not lead to a 'weightless economy'
We are frequently urged to ignore the negative aspects of economic growth because we will eventually create a 'weightless economy' – one in which economic growth is decoupled from natural resource use and environmental degradation. While this may sound like an interesting proposal, a weightless economy still weighs, as any level of technology or information requires significant inputs of energy and materials for its initial research and development, as well as its supporting industries (Odum & Odum, 2001). Furthermore, energy and resource efficiency gains made through technological advancement invariably result in that technology being used more than before, a phenomenon known the *rebound effect* (Kallis et al., 2010).

The Power of the Paradigm

In spite of an ever increasing mountain of evidence undermining its legitimacy, the economic growth paradigm is upheld by most politicians; indeed governments are judged successes or failures by their ability to achieve it. The majority of businesses are likewise characterized by their efforts to pursue growth, and it is generally heralded as the answer to all our problems by an enthusiastic and uncritical media. The paradigm itself has emerged from a number of prestigious, well-established economics schools, and when you consider this A-list of powerful advocates, it is hardly surprising that economic growth is so dominant.

Now here is the tricky part. They genuinely believe in it. If they did not, the entire ruling elite would wittingly be involved in the biggest hoax in human history. This is something akin to dogma, because the complex, persuasive models are held in higher authority than the visible evidence of their failings. Thus economics has become a social science which is separated from society in a multitude of ways. It is constructed using abstract equations and specialized terminology so that most people in wider society have only a limited understanding of what it actually is, even though it acutely affects our lives on a daily basis. Economists tend to feel little responsibility to explain their science in lay-man's terms, which reinforces the knowledge gap between themselves and everyone else, while simultaneously placing economics within the dangerous domain of *unaccountability*. Finally, and most worrying of all, it is causing rampant destruction of our natural environment at an exponentially increasing rate (Sachs, 1999) whilst ensuring that the poorest people will always remain poor.

Most economists have not responded to these pressing issues with any urgency or offered any fresh perspectives. The analogy of the ostrich which puts its head into the ground as danger approaches seems to fit rather well in this instance. "But we need a perfect market for our theories to work!" the economists cry from their ivory towers, yet again. But in over two hundred years of 'free' market capitalism we have never had a perfect market, and so it is unreasonable to assume we are about to create one anytime soon. It is even more improbable now as we move into times of protracted austerity, which in the past have been characterized by a lack of political trust and increasing protectionism (Ha-Joon 2004). The

neo-liberal assumption that "the closer we move to a true free market, the more efficient and effective it will become" is a risky one. The current social and ecological problems are of such gravity that a precautionary approach would now seem prudent. We cannot in good conscience wait another two hundred years to see if the assumption does prove correct.

Yet all is not forsaken in the lofty realm of macro-economics. Since the 1970s there has been increasing concern that unfettered economic growth through free market capitalism is having serious detrimental effects on global social and ecological systems (Meadows et al., 1972; Jackson, 2009). The emerging field of ecological economics, and alternative macro-economic models such as *sustainable economic degrowth*, identify some of the options available to us (Jackson, 2009; Kallis et al., 2010). The measures suggested by the proponents will be difficult to implement, and will no doubt entail a fairly ruthless learning curve as we discover which policies and practices are most effective. But there is at least a glimmer of hope, something to inspire those who feel overwhelmed by the scale of the problems we face. And if we are honest with each other, the future offered by the perpetual growth model looks pretty grim anyway, so the alternatives are worth a shot even if it proves to be a bumpy ride.

The possibility of alternative economic models should not be used to absolve us of our personal responsibility in this situation, and this really is the point I would like to emphasize. While we are undoubtedly subjected to numerous economic forces beyond our control, we would do well to remind ourselves that we are masters of our own fate. This is the real *good* news in this story.

The Power of Personal Choice

Changing the economic system will require the intervention of strong governments, and close cooperation between them. Fortunately, there is much we can do as citizens while we wait for *that* particular miracle to happen. We are blessed with a gift: the freedom of self-determination, and the ability of this simple yet powerful catalyst to change this sorry state of affairs cannot be over-estimated. But it requires two things to happen. First, we must recognize our own role in the problem, and second, we must make some personal, definite decisions on what we are going to do about it.

Here is a disturbing fact; in recent years shopping has become the number one pass-time in the U.K. (*The Independent*, 2008 & 2011). Not participating in a sport, not going to a music concert, not even meeting with friends in a pub or cafe, but … shopping?! I find this quite lamentable, how did it ever come to this? Yet it does underline one important point; our consumption habits are the primary driver of the world market – economic growth is not something that just *happens* to us. We are subjects, not objects, and the externalization of the environmental and social costs of the products we buy is a major cause of the global problems we now face (Patel, 2009). As consumers we are complicit in this system, by searching for bargains without due consideration of how the goods are produced, and by consuming far more than we need. The acceptance of this sobering truth, not on a societal level but on an individual level, is a fundamental prerequisite before you can liberate yourself from what Tim Jackson (2009) refers to as the "social logic of consumption".

The natural question arises: why do we need all this stuff? The answer appears to be

that many people in Western Societies hold a value system based the acquisition of possessions, particularly "positional goods", which they hope will reflect their status in society. It has been suggested that competitiveness is an innate human behavioural trait, which may indeed be true, but competitiveness does not mean that we all have to become the "economic man" and seek only self-interest (Beneria, 1999). If we recognise this characteristic in ourselves we should seek ways to channel this competitive energy in a productive way, in a healthy game of tennis, for instance, or fund-raising for a charity. Respect in many societies outside of the Global North is based on alternative motivations, such as reciprocity, tradition, empathy, kin and community (ibid.). There is much we can learn from these cultures, and I do not say this from the sentimental viewpoint of longing for a rustic, village life. Values such as these should be at the core of any society.

Economic rationality is deeply ingrained in our collective consciousness in Western Societies. The perception that you need an item to make you happy, and that you want it at a good price, are key tenets of this dogma that we follow. Social behaviour is self-reinforcing, and we have all been consumers for a long time, so this can be a difficult pattern to break. Yet I strongly believe that a genuine re-assessment of what we value in life will inevitably lead each person not towards individualistic consumer behaviour, but towards a desire to spend more time with family and friends, to pursue hobbies, to share something you have created, or simply go for a walk on the beach. I know this because many people have already recognized that desire, including myself. It seems natural, and safe, like home.

So we have accepted our responsibility as part of the problem, and we have identified what is truly important to us. How do we now transform this new awareness into something tangible? This is where difficult decisions have to be made. A voluntary reduction in working hours would be a good start, allowing you more time to engage in what really matters to you (Jackson, 2009). This would of course provide less income, but by this point you have already made the decision not to buy so much junk, so you don't need as much money in any case. Being aware of your energy usage is also easily achievable, and will reduce your outgoings considerably. And if you don't already own one, buying yourself a good bicycle is one of the best investments I can think of, the array of benefits it brings is truly remarkable.

We do of course still need to buy things in order to lead happy, fulfilling lives. My point is not to stop people from buying stuff, but to say that people ought to be more conscientious when they do purchase something. These three questions are intended to help you overcome economic rationality when you are next in a shop: *Do I need it? Is it a fair price?* and *Do I have any alternatives?*

Do I need it?

The answer to this does not have to be yes in order for you to buy it, but the question does help you to identify the difference between your needs and your wants. You become more aware of why you are buying it, and also of your own consumption behaviour. If you need something, go ahead and buy it. If you want something, you then have to weigh how much this item will enhance your life, or someone else's, against the ecological and social impact caused in its production, before making your decision.

Is it a fair price?
This question focuses on whether the item is produced in a manner which conforms to your personal values. If it seems too cheap, there is surely a good reason for this: hidden, external social or environmental costs. Quality should be your aspiration, not finding a bargain: if it is food, you probably want healthy produce which has not been sprayed with toxic pesticides throughout its entire life cycle; if it is an item of clothing, you might want it to last for more than one year, and to know that it was not produced in terrible sweatshop conditions.

Do I have any alternatives?
In many instances you do not have to buy something new, because you have other options. Perhaps you need to use a garden shovel, you could ask your neighbour if you can borrow hers. Then you get a friend *and* a shovel. You might need a new chair, but is the old one repairable, or have you already looked in the second hand shop? This might seem like common sense, but more often than not we go for the easy option, because we know we can find the new item in a shop.

You may also want to ask yourself if you know enough about what you are buying in order to be able to answer these three questions, particularly regarding *what is a fair price*. A major obstacle to overcoming economic rationality is that it can be very difficult to find out accurate information about the things we buy. If we take food as an example, the commodity we buy most frequently, the labels on the packaging may tell you only the country of origin, and if it is fair trade or organic. It can seem like a daunting task to find out more elusive details such as its carbon footprint or how it is sourced, but in many cases you can find some information on the internet, or indeed you can write to the supermarket and ask for it. You can also buy from local farmers' markets, and ask the farmers themselves how the food was produced. If you consider your weekly food shop there are perhaps only forty items you would buy every week, and by doing some homework on these items, you are going a long way towards taking responsibility for your consumption behaviour. It feels good to actually try and resolve a problem, rather than succumbing to defeat without trying.

The Moral of the Story …

We have a dysfunctional economic system which is depriving millions of social justice while simultaneously driving us to the brink of ecological collapse; the politicians, economists and media are deluded; and we are ultimately to blame because the majority of us are compulsive shoppers. This may not make for light-hearted bed-time reading, but it is not all doom and gloom. You have the ability to reflect upon your actions and determine where you fit in this giant puzzle. You are equipped with the power of personal choice, and you can make decisions which are congruent with your values. This does not come easy, but it is a worthy endeavour, because meaningful change starts with the individual. Confront your demons and their economic rationality doctrine, and vanquish them.

Tackling Uncertainty – Resilience and Social Capital

Markus Larsson
is a researcher, writer and political adviser living in Stockholm, Sweden. As an ecological economist, inspired by Herman Daily and Peter Söderbaum, it worries him that "new knowledge is not enough to change the direction" of society. At the same time, the Arabic Spring shows that change for the better is still possible.

Markus believes that trust and cooperation is central to sustainable development. With it comes resilience and flexibility to withstand uncertainty and subsequent crises.

The perspective of resilience offers a framework to facilitate sustainable development in a world undergoing constant change, i.e. in times of uncertainty. Resilience is well developed in studying ecosystems but it can equally well be used in studying societies, companies, and other social organizations. This is also increasingly done. "Socio-ecological resilience describes the ability to develop a society that fights vulnerability by managing the biosphere we are so dependent on instead of consuming it" (SOU, 2004: 48). This quote from a government commission report is one example of the increased interest in vulnerability and resilience, which can be described as the two counterparts, in policy and research.

Central for resilience and sustainable development, from both social and environmental perspectives, is trust and social capital. Social capital highlights the value of social relations and the role of cooperation and trust to achieve collective results. The term is used by different social sciences why there is a variety of definitions. However, different definitions tend to share the central idea that, in the words of Putnam (2000), "social networks have value. Just as a screwdriver (physical capital) or a university education (human capital) can increase productivity (both individual and collective), so do social contacts affect the productivity of individuals and groups". In short one could say that social capital is the fruit of social relations and cooperation between individuals and groups.

Below, the environmental as well as the socio-economic situation in the Baltic Sea region is described using the perspectives of resilience and social capital.

Resilience of The Baltic Sea

The environmental state of the Baltic Sea is far from good. Policy makers have to address pollution and overfishing if the present unsustainable development is to be changed (MVB, 2005). Eutrophication is perhaps the biggest problem in the Baltic Sea. Since the beginning of the 20th century, the Baltic Sea has changed from an oligotrophic clear-water sea with low nutrient concentrations and low plant growth into a well-nourished, eutrophic marine environment with high nutrients and high plant growth (HELCOM, 2007), a so called regime shift (Folke, 2006). This transition is described in Figure 1 below. Complex ecosystems

like the Baltic Sea usually have more than one stability state and can slide between states (Scheffer et al., 2001). For example, in (1) the Baltic Sea is in an oligotrophic clear-water state. In (2) the Baltic Sea is still dominated by oligotrophic clear-water, but ecosystem resilience is eroding as a consequence of human activities, primarily emissions of nutrients causing eutrophication – a condition in an aquatic system where high nutrient concentrations stimulate the growth of algae. Consequently, (3) the system is progressively becoming more vulnerable to disturbances that previously could be absorbed (e.g. further increases of nutrient loads, effects caused by storms or changed climate). Such events might now push the Baltic Sea into an, from a human perspective, undesirable state of increased algal growth (4) which de-stabilizes the functioning of the system and cause loss of essential ecosystem services. E.g. intensive algal growth; production of excess organic matter; increase in oxygen consumption; oxygen depletion with recurrent internal loading of nutrients; and death of benthic organisms that live in or near the seabed.

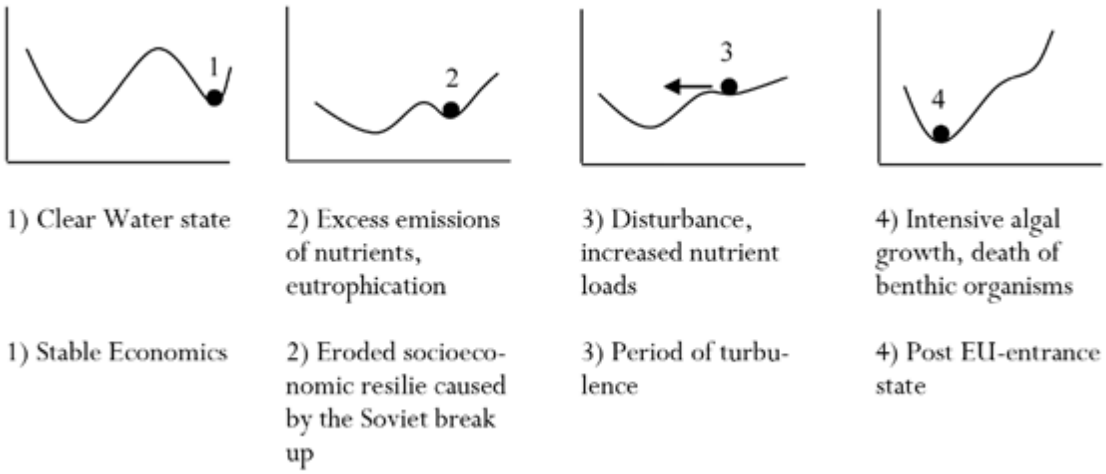


Figure 1. Multiple states of the Baltic Sea/the economies of Poland and the Baltic States. Modified from Deutsch et al. (2003).

Ecosystems are well-researched in terms of resilience but there is an increasing interest in resilience in social system (e.g. Adger et al., 2005) and firms (e.g. Hamel and Välikangas, 2003) as well as in social-ecological systems (e.g. Milested, 2003).

Socio-economic Resilience of Poland and the Baltic States

Resilient human organizations and communities are able to withstand and recover from social, economic or political instability or environmental change (Folke et al., 2002). A well diversified production can function as a buffer, or insurance, that absorbs shocks in the local economy. In the absence of resilience, rigidities can be accumulated in human enterprises to the point of crises forcing them to reorganize. The process of restructuring is often painful for involved actors. This can be observed in the sudden collapse of the Soviet Union and in the restructuring of large corporations. The response of both ecosystems and human organizations to crises is shaped by different systems' ability to adapt. The American ecolo-

gist Crawford "Buzz" Holling has described a systems' adaptability to change as a systems' intrinsic capital, controllability and adaptive capacity. Holling (1986) describes this dynamics in terms of an "adaptive cycle", which sometimes is illustrated as a tilted, or "lazy", 8. The adaptive cycle is to be conceived as a conceptual model that can facilitate in explaining complex systems ranging from cells to ecosystems and societies. The model has its origin in studies of the dynamics of ecosystems. Traditionally, ecologists have argued that periods of exploitation, for example rapid growth following a fire, are followed by periods of slow accumulation and storage of energy and material. Today they point at another two functions needed; release and reorganization.

Figure 2 illustrates how long periods of stability and slow accumulation and transformation of resources (short arrows, from exploitation, or growth, to conservation, r to K) are alternated with shorter periods of turbulent times that create opportunities for innovation

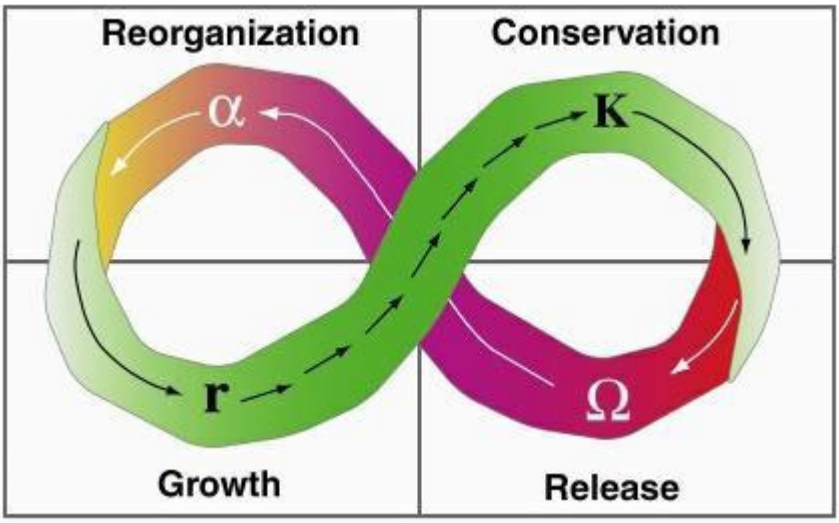


Figure 2. The dynamics of ecological, economical or social systems can be described in terms of an adaptive cycle. The cycle has four phases: growth; conservation; release; and reorganization. Modified from Resilience Alliance, www-resalliance.org.

(long arrows, from release to reorganization, Ω to α).
The move from K to Ω to α is sometimes used to illustrate what Schumpeter (1950) phrased *creative destruction*. The phase from Ω to α is the "creative" part of creative destruction. This is a phase of rapid reorganization, hence one long arrow. The period of rapid reorganization is also called the "back-loop" and it gives opportunities for novel recombinations and unexpected experiments which can lead to innovations (Holling, 2001). Similarly, Hamel and Välikangas (2003: 54) describe a resilient organization: "To thrive in turbulent times, companies must become as efficient at renewal as they are at producing today's products and services. Renewal must be the natural consequence of an organization's innate resilience." Resilience, as achieved by for example adaptive capacity, determines how vulnerable the system is to unexpected disturbances and surprises. This can be viewed as the opposite to vulnerability of a system (Holling, 2001).

The adaptive cycle can be applied to different systems and different scales – ecological, economic and social systems as well as to interconnected social-ecological systems. For an

economic or social system, an accumulation of capital could derive from the skills, productivity, networks or human relationships, and mutual trust that are developed incrementally and integrated during the progression from r to K (Holling, 2001).

The reorganization phase in Figure 2 is unpredictable and uncertain. There is a risk that capital leaks away and the system may transform to a new trajectory, which was what happened during the breakdown of the Soviet Union. The economies of Poland and the Baltic States joined Russia in the recession in the 1990s. Their journey was however more of a creative destruction. After the reorganization phase they transformed into a new trajectory of market economy and closer affiliation to EU. After a couple of years of political and economic turmoil they all managed to come out stronger – more resilient and with a growing capital stock (phase r to K).

This is also illustrated in Figure 1. In (1) the economies of Poland and the Baltic States, were for many years stable. The explanation was a supply of subsidized inputs and a stable demand from the Soviet Union. (2) As the Soviet economy eroded, so did the socio-economic resilience of the system. After a short time of turbulence when independence from Russia was becoming increasingly realistic (3) the economies of Poland and the Baltic States entered into a new state characterized by the European Union and market liberalizations (4).

Building Resilience

In both ecological and social-economic systems, resilience can increase or erode depending on strategy chosen. For the Baltic Sea environment, emissions of nutrients need to be reduced. For improving socio-economic resilience the importance of social capital is stressed. For both kinds of resilience, cooperation and trust are of great importance.

Regional Cooperation for Increased Ecosystem Resilience

The change of the Baltic Sea environment to a state characterized by (4) is not inevitable. The environmental state and the resilience of the Baltic Sea could be improved. An overall reduction of the concentration of nutrients in the Baltic Sea close to natural levels is one of the nationally (Ministry of Environment, 2007) and internationally (HELCOM, 2007) agreed environmental goals for the Baltic Sea Region. Some progress has been made but despite this the state of the Baltic Sea has not improved and further efforts are needed (MVB, 2005: 31). Reaching the goal implies different strategies for the different countries. In countries with nutrient intensive agriculture like Sweden, Finland and Denmark loads have to be decreased. In countries with nutrient extensive agriculture like Estonia, Latvia and Lithuania the agriculture sector needs to develop without increasing the surplus of nutrients. In fact, Estonia, Latvia and Russia are the only countries that have reached the emission target set out by HELCOM. This is mainly due to a recession in the agriculture sector. Sweden and Finland, on the contrary, are the two states that are farthest away from achieving their obligations (SOU, 2003).

Moreover, action towards a healthier Baltic Sea should be coordinated internationally:

"in order to combat eutrophication (especially in the open sea), nutrient reduction measures should be considered jointly for the whole Baltic Sea region" (HELCOM, 2005: 15). Far-reaching measures from single countries might not have significant effects. Elofsson (2007) argues that unilateral efforts are uncertain in terms of costs and achieved reductions compared to bilateral measures. All countries would benefit from participating in an effort to combat eutrophication but "some countries [including Sweden] will incur substantial larger benefits than others, which may necessitate the implementation of a redistribution scheme of the increase of the net benefits due to cooperation" (Gren & Folmer, 2003: 40). This will require that the cooperating parties trust each other, which is also important in building social and economic resilience.

Social Capital in Social and Economic Sustainable Development

Central in creating social and economic resilience is *trust*. Trust also facilitates cooperation and is most central in creating social capital (Fukuyama, 1995). Social capital prevents free riding and facilitates an effective governance of common resources (Dietz et al., 2003). Thus, social capital seems central in building sustainable development. The classic demonstration of the value of social capital is Putnam's study (1993) of the effectiveness of regional government in Italy. According to Putnam, differences in local engagement, number of associations, trust and social capital explain why northern Italy has developed into a much wealthier region than southern parts of the country. Others (e.g. the World Bank, 2006) argue that for development to be sustainable social capital is crucial. Trust, connectedness, reciprocity and common norms are central aspects of social capital (Pretty & Ward, 2001).

Social capital is connected to the actions of individuals but it only results in benefits when people interact with other people. Frequent interactions are crucial for successful cooperation in networks and elsewhere. Individuals with greater connectedness have been shown to be better positioned on the job market (Granovetter, 1983) and communities are likely to benefit from better schools, faster economic development and better government (Putnam, 1995). Thus, social capital can not be created by individuals acting alone but only in interaction with others. This is reflected in the name of Putnam's (1995) study, "Bowling alone: America's Declining Social Capital".

Trust makes people cooperate and share knowledge and experience. Although the causality is difficult to establish, Castells (1999: 11) suggests that "social development leads to cultural development, which leads to innovation, which leads to economic development, which fosters institutional stability and trust". This in turn enables economic development and the enhancement of quality of life (Castells, 1999).

Trust and social capital is however fragile and much more easily destroyed than built up. Francis Fukuyama ends his book on trust with the comment that "[s]ocial capital is like a ratchet that is more easily turned in one direction than another […]". One example of decreasing social capital in the USA is that the proportion of Americans saying that most people can be trusted fell from 58 % in 1960 to 37 % in 1993 (Putnam, 1995). For social capital to be sustainable it is thus important that trust is built and sustained. According to the World Bank and Holmberg & Weibul (2006), Sweden scores high in trust, not least in trust in institutions. Something that was lacking in the communist regimes and still is very

low in Russia.

The Importance of Cooperation

Social, economic and ecosystem development can be described in terms of resilience. Different aspects of resilience will require different measures to improve. Of importance for both ecological and economic resilience is however trust and a well functioning cooperation. Both cooperation and trust could be locally anchored or initiated from above. Locally anchored initiatives increase the robustness of the community: "When [formal and informal] institutions are locally initiated and controlled, the robustness and absorptive capacity of the community will increase […]" (Johannisson, 2002: 39). Well-functioning institutions could also create trust from above, i.e. "the trustworthiness of 'efficient' institutions creates interpersonal trust which in its turn makes the 'production' of social capital in civil society possible" (Rothstein, 2000: 477).

Doing Less to Save the World

Christian Williams
is a course coordinator at Cemus and masters student in Sustainable Development at Uppsala University. As a native New Zealander Christian is very proud of the natural beauty of his country although he worries that New Zealanders are wasting opportunities to become a truly "green" country. "Crisis is a natural part of renewal. There may be suffering, but the more we focus on the opportunities, the more positive we will stay, and the less suffering there will be."

At the heart of Christian's argument in the article lies a reexamination of what we value, what we think about work, what it means and what it is worth. Not only can the change lead to the planet being better off, he argues, but also lead to lives with more enjoyment and worth.

> The love of idleness has been preserved in fallen man, but now a heavy curse lies upon him, not only because we have to earn our bread by the sweat of our brow, but also because our sense of morality will not allow us to be both idle and at ease. Whenever we are idle a secret voice keeps telling us to feel guilty. If man could discover a state in which he could be idle and still feel useful and on the path of duty, he would have regained one aspect of that primitive state of blessedness.
> – Leo Tolstoy, *War and Peace*

News of the impending storm spreads quickly. Rumour passes from door to door, setting off a flurry of activity. Storms are nothing new in these parts, but this one, it is said, is unlike anything known before. Stories passed from generation to generation tell of great floods faced by early settlers, an oral history told in imaginative detail by the elders. Wildfires swept the land and droughts resulted in extravagant sacrifices in the hope of appeasing the gods. But this storm is unheard of. A storm so potent, that the myths of our ancestors are powerless, unable to arm us for what lies ahead. Evolution ensures that recurring challenges lead to a strengthened defence, but when an unknown threat is encountered for the first time, a species is left vulnerable. It is reported that this storm is one of those cases. How much time we have before the first winds hit us cannot be known, but the oppressive weight of its shadow has already settled over humanity.

The uncertainty is torturing. Anxiety builds, and the daily routines of life are broken one by one as we mobilize to face the impending threat; even the sparrows seem to be chirping new tunes. Our army of billions, once thought to be invincible on its long march of progress, begins to lose control. Early signs of chaos settle in. A once-disciplined unit begins to question the chain of command as pressure and heat bear down and send vibrations resonating through the ranks. The ordered rationality of society loses the bonds that hold it together. A time of need, the moment of truth, a time where courage is needed more than ever before; but fear takes over, followed closely by disorder and violence. A structured lattice, shaken to pieces by its own vibrations, leaves rubble in its wake. An army defeated.

And the storm has not yet arrived.

Our view of climate change as something physical – storm-like – misleads us in our re-

sponse to it. It is viewed predominantly as a collection of climate nightmares: droughts, floods, hurricanes, heat waves. This physical conception of climate catastrophe far overshadows the more important and more realistic conception that we often fail to recognize – that the crisis is a human one, not simply in its causes, but in our response to the challenge. That is to say, climate change is a crisis of humanity, requiring above all a response of humility rather than a technological war fought against it. We should not focus on carbon dioxide concentrations as much as we should focus on our own way of life and our daily choices. In the major wars of the last century, a few brave people refused to fight. Likewise, we now need people – lots of them – who refuse to follow the current trends; we need millions of conscientious objectors.

I am not implying that the physical threats are not real. They are, and they are serious, but the most extreme tipping-point scenarios aside, collapse and extinction are by no means inevitable. We cannot continue our mistaken belief that the threat is external, that it is a vengeful Gaia trying to rid herself of fever, or an angry god punishing us for our sins. No; we are the threat and we are the cause. It follows therefore that we are also the solution. The challenge facing us is the need for a new level of cooperation between the peoples of the world, which requires solidarity, support and assistance at levels not seen before. It requires cooperation ahead of competition. What it doesn't call for is a desperate race for new technology and evermore complex solutions. Technology alone is a false hope. It is the piper's sweet music which we chase at increasingly frantic speeds, while being completely unaware of where the cliff to our demise might be. If there is a cliff nearby, but we don't know where, the only smart response is to stop running. This has not been our response so far. We run faster and hope that we may be heading in the right direction. Instead of chasing this technological pot of gold, we must simply aim to do less, and jump off this path to obliteration.

Doing less may seem like an odd solution to propose in a time of crisis. But when the crisis that we are tackling is not caused by anything other than the collective actions of humanity, perhaps it is worth considering.

We long for and search for someone to blame. Who brought humanity to this verge of destruction? We blame the greed of invisible, heartless bankers, capitalists in rich city mansions, politicians corrupted by the institution of power, or the merchants of war profiteering from social destruction. By doing so we lay the blame in the wrong place. No individual can shoulder responsibility alone although every one of us is fractionally responsible for our small part in the keeping the wider system running. Why not blame 'the system' then? Well, 'the system' – however you choose to define it – has taken us astray, but it is not incarnate and therefore it cannot take the blame. The system is the collection of us all, our daily actions and interactions and it is us individuals who refuse to resist. We are all just tiny cells in this very complex organism, an organism that is nothing without its cells. Taking down a faulty system is no easy task, but the first part we can all play is to resist participation, by doing less.

What does *doing less* imply? We clearly cannot do *nothing* – we have to eat, breath, think and feel, all those things that make us animal. So where to start? While consuming less may be an obvious starting point, I would like to focus here on the other side of the coin – production – or what in today's industrial society is called work. It is a strange sign of the times that in our unprecedented wealth we feel the need to work as much as we do, often more

than our parents were working thirty years ago. It is also interesting to note the negative connotations of the word *'work'* which would not apply should we be talking of our '*trade*' or our '*craft*'. The ongoing industrial transformation has shifted work into a disutility, often consigning us to regulated hours sitting at a desk or supervising machines. Yet in the name of productivity, we have dedicated ourselves to "the cause". We have mastered the art of speed-reading, of checking our emails while eating, working late and waking early, catching the news on the way to a meeting, despite running late (again). We take care to not spend all your earnings on material possessions that you don't need, but as the bank balance builds up and the stress levels rise, we surely deserve one little flight down to warmer climes. After all, we wouldn't want to burn out – not with so many important things to do.

By working hard in this way, we keep the ball rolling. But this is a ball of sand, only loosely packed, and any grain is free to jump off. The more who jump, the weaker the structure becomes, and the sooner it will crumble and stop. It will crash the system. This may not be a smooth transition into climate safety, but it will certainly change our path. What better way to protest than to work less? Strike two extra days a week – a three day week is sufficient. To refuse to work is to refuse to participate in a corrupt system. We are part of the growing urban proletariat, working hard to keep those profits trickling upwards. Labour productivity is the holy grail of our times, but it is only a friend when exchanged for more leisure. It is our enemy when it is not, with climate change the result. Money flows seamlessly through the growing economy, and once it leaves your hands it is again out of your control, inevitably continuing on its destructive path.

Why is it that we work so hard? There are many interlinking reasons, from cultural norms to self-interest to state policies. Capital accumulation has been tightly linked with personal security and success, our own instincts pushing us to work, save, buy houses and stay ahead in life. For the majority of workers, an imbalance of power between employer and employee means there is little room for negotiating shorter working hours. Meanwhile, governments promote policies of economic growth including those that maximize work and income tax revenue. And for most of human history, hard work has benefited society, and thus our culture evolved ways to promote it, while frowning upon excess leisure and idleness. But times have changed. Hard work now has many negative impacts on society and environment, from unemployment and health problems to climate change and high energy use.

While fewer working hours may impact on government revenues in the short term, there are plenty of hidden savings too, such as lower health costs, childcare subsidies and less unemployment due to work sharing. A long-term perspective must be applied. From my own experience at attempting this 'path of little work', I have certainly felt pressure to follow a traditional career path, as well as occasional pangs of anxiety at my lack of progress towards material prosperity and a secure future. Certainly, it can be acknowledged that working less is not actually as easy as it sounds!

And naturally, not all work is equal. Some job positions are well recognised as socially valuable (for example health practitioners, teachers and the honest public servants). Others may be less valuable, or even damaging. Yet regardless of whether our work is 'good' or 'bad', it all contributes to the momentum of the wheel. We may be pushing on different spokes, but we are all rolling in one direction. When we are one among billions, it is hard

to blame ourselves (no snowflake in an avalanche ever feels responsible). We are only doing our best. But better than doing our best is to do our least – a return to simplicity. We must take back our time, and measure our success not by how much we do, but by how much we don't. There is no substitute for a simple life. We need not run to the land and perish in our haste, but turn away from complex technical solutions that will only compound the problem.

Climate change provides an amazing opportunity to us, a new opportunity to question the human endeavour and the meaning of life. We have to look deeper and harder at ourselves and our way of living. Ultimately, survival must be a top priority – to preserve the only form of 'intelligent' life that we know of. But the intelligence we need for the future is emotional intelligence, not technical knowledge – we do not need to understand every detail of the climate system. What we need is to recognize the dangers of our own power, and to refrain from using it.

WILD

How do we experience wilderness?
Can we draw a line between nature and culture?
What is lost in a tame world?

When The Trees Have No Leafs

Box Axell[1]

You appear as an image
Vivid vision of days
The future is yet unfinished
Wind blows it away

All hope has diminished
Glistens in shades of gray
Listening to the whispers
The voices, and they say

"This is a time not suitable"
"This is a place so cold"
"And do not be deluded!"
"The world is growing old"

"Slowly earth is withering"
Is this what I've been told?
I thought the warmth was smothering
It had me, in its hold...

We're up to our necks in chatter
We're up to our waists in water
We're filling our heads with matter
Of death, dedication and slaughter

1 See page 41

I cannot hear the laughter
The echoes float over fields of green
The world we knew was shattered
The world we know is rarely seen

The future is uncalled for
It stalls, behind dark walls
I stand upon the border
And hope for better order

The past is clear as a rearview
The present is clear as air too
But the future is a bank of mist
I exist...

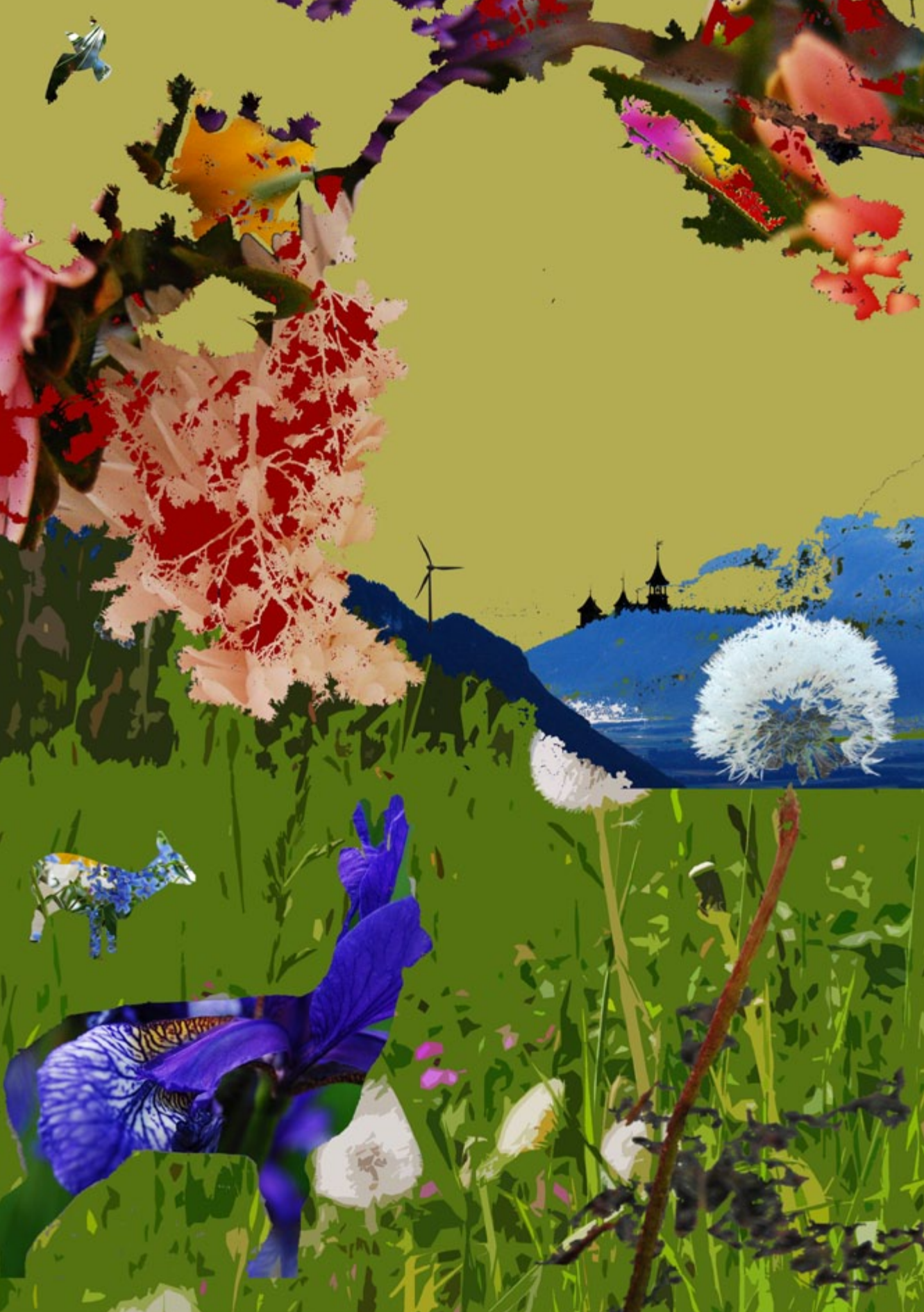
In a barren world where the sky is gray
And there is no light on our brightest day
The trees are bare and their branches weak
Twigs are twisting as I speak

The birds can't eat with their burdened beaks
Nobody sees because all they seek
Is history, and they thrive in tombs
Purging earth for a pile of bones

The ground is cold and our steps are short
We grow on Earth as a wretched wart
We spread and spread, a craving disease
Until the trees have no leafs

Until the ground is dust and brown
Until the silence turns to sound
Until our peace is turned by rage
What is the future? Turn the page

I exist...



Forests, Technoscience and the Future: Some Thoughts about Visions and Challenges

Christer Nordlund, Erland Mårald & Ola Rosvall

Christer Nordlund and Erland Mårald are historians of science and ideas at Umeå University, Sweden, and Ola Rosvall is a forester and forest scientist, working as a consultant. *Eager to figure out what the future might bring to the forestry industry they consulted stakeholders from different sectors in society. The results are easily transferable to other fields as well, emphasizing the importance of technoscience in future societal developments. According to the writers, the potential, both positive and negative, of new technologies is generally exaggerated at the same time as the importance of values, social institutions and structures is disregarded.*

Forests will continue to play an important role for Sweden in the future, with conflicting demands of both materials and energy. This is also true globally. But will there be room for the wild still?

Our modern world is to a great extent explained, shaped and driven by science and technology, and all indications point to technoscience continuing to play a major role in the world of tomorrow. This at least is what the scientific community as well as politicians and informed citizens in general believe. When the international newsmagazine *Newsweek*, at the turn of the millennium, asked its readers what they expected from the 21st century, they described a future dominated by advances in science and technology (Brown, Rappert & Webster, 2000). Since one of the few utopias to survive the last century was that of science and technology, this result is hardly surprising (Shaffer, 2003).

Yet, the precise ways in which new scientific discoveries and technological inventions will operate as *engines of change* is difficult to foresee. Sociologist Michael Mulkay (1996) argues that it is impossible for researchers to muse on the consequences of their research without transgressing the boundary between fact and fiction, and he is right. "When speculating about the development of new science-based technologies, participants cannot rely entirely upon what they take to be the established facts. While they think and argue about the shape of things to come, they have no alternative but to create some kind of story that goes beyond these facts."

Sometimes agency is attributed to technoscience itself, as if its benefit to users, society or the environment were "self-evident". Commentary on the "future impact" of new technoscience is typical to this almost deterministic view. The implicaton of this attribution of agency is, according to Brown, Rappert and Webster (2000), that "one can either ride the wave of advancement or drown in the waves of progress". Powerful narratives or dramatic visions may indeed turn out to be self-fulfilling prophecies, but science and technology do not determine cultural developments; rather they dispose our cultures to take on new possibilities (Hård & Jamison, 2005). Against the background of such insight, thinking about

the future has over time become less mechanistic and more reflective. The future of science and technology is however not possible in all imaginable forms, nor is it totally uncertain. It is rather, as Brown, Rappert and Webster (2000) put it, "actively created in the present through contested claims and counterclaims over its potential".

Forestry and the forest industry is a sizeable social sector currently surrounded by grand technoscientific visions, typically affiliated with the discourse of sustainability and ecological modernization. The aim of the present essay is to examine a cluster of these visions in a Swedish context and, from research conducted on the trajectories of discoveries and inventions in the past, relate these visions to challenges usually associated with the implementation of new science and technology. It is divided into three sections. In the first, we briefly summarize how science and technology have hitherto affected Swedish forestry; in the second, we present a theoretical model of the dynamics of technoscience, which helps us think about the connection between innovation and society; and in the third, the grand visions of forest related technoscience and their challenges are discussed.

We have conducted this study because we are concerned about the future of the forest sector and the forest environment, but we also have a professional investment in this subject as participants in the multidisciplinary program "Future Forests", whose purpose is to analyze the conflicting demands made on forest systems by sustainability strategies. By lowering the tone regarding current technoscientific visions and highlighting the fact that development is shaped by values and beliefs, our goal is to facilitate a more diverse public debate about the future.

Looking Back

Over time science and technology have affected Swedish forests and the forestry sector in numerous ways. Sometimes innovations external to this sector have played the major role. The best example is perhaps the transformation of the industrial use of forests that took place in the middle of the 19th century: from charcoal production for the old iron industry to timber production for the new forest industry. In the wake of this transformation, the forest industry in Sweden expanded quickly; the number of companies and steam sawmills increased, the rivers were industrialized and by the turn of the century Sweden was the leading lumber exporter in the world. Since then the forest industry has gone through two major shifts – to the manufacture of pulp and then paper products – partly due to innovations in chemistry and chemical technology.

Many inventions have been developed within the context of the sulphite and sulphate industries. Pine and spruce contain at best only 40 % cellulose and initially, the remainder was released into the air and water, causing major environmental problems. In 1909, Swedish engineers patented a method to ferment sulphite lye into ethyl alcohol and attempts have been made since to set up large-scale production of biofuel from wood. During the First World War, when the import of oil was curtailed, the number of plants producing sulphite alcohol grew and an industry producing engines designed to run on this fuel emerged as well. A socio-technological system was about to be established but never gained any purchase on the market, partly because cheap imported oil began to flow again after the war (Sundin, 2005).

As McFarlane et al. (2008) reminds us, scientific and technological innovations external to the forest sector have contributed not only to an increasing but also a decreasing demand for forest related products. As the expansion of printed media in the 19th century created a growing need for paper, the expansion of electronic media since the late 20th century has reduced the consumption of paper. The establishment of the recycling system, in Sweden and elsewhere, is another example of an external process that clearly has affected the forest related market.

Ever since the Royal School of Forestry (1828) and the Experimental Station for Forestry Research (1902) were established, methods and tools with the specific aim of rationalizing forestry and increasing productivity have been developed, including methods of plant breeding and silviculture based on theory or laboratory and field experiment, mechanical tools for harvesting and sundry other engineering innovations. Over the past century, their implementation has contributed to transforming forest ecosystems in a profound way. Today some 95 % of Swedish forestland is a cultivated and industrialized environment, dominated by planted spruce and pine in accordance with political and market demands. From the point of view of the forest industry, this development has been nothing but a success, although the demand for more and cheaper wood seems to be endless. Other stakeholders and interest groups, notably the environmental movement and the Sámi organisations, have not been as impressed by the result (Lindkvist & Nordlund, 2009).

For better or worse, the introduction of new forestry methods and equipment went smoothly until the 1970s. The main objective was to intensify forest growth, support production and, in the end, increase welfare. Science and technology were the means of reaching that goal. Change occurred through the impact of small networks of scientists, owners and related industries, and as in many other sectors of the welfare state, consensus reigned. Since then, society has become far more complex, the environmental movement more critical, the mediated public debate more heterogeneous, and forestry and the forest landscape have become hotly contested arenas. Almost all modern methods of intensifying forest growth – clear-cutting, spraying with phenoxy acids, fertilization, contorta plantation – have been publicly criticized. Some of these methods have been forbidden or strictly regulated (Kardell, 2004).

For forest biodiversity and the environmental health of the forests, scientific and technological findings, innovations and systems have been a blessing and a curse. On the one hand, science and technology can pride themselves on having been at the forefront of establishing the environmental agenda in the second part of the 20th century (Sörlin, 1997). Science and technology also contribute to "eco-efficiency" in the forest sector. On the other, science and technology have caused environmental havoc; many of the environmental issues of the day, such as global warming, depletion of the ozone layer, acidification, eutrophication and loss of biodiversity are to some extent consequences of scientific and technological innovation. Most of these problems are the result of science and technology in general, but some are due to the implementation of ideas and inventions from agricultural sciences and forest engineering. In contrast to the modernist worldview, where scientific and technological development represent progress toward a better future, technoscience is today widely seen to be both a solution to problems and a source of undesirable "side-effects" and risks (Beck, 1986; Yearley, 1995).

In order to maintain the viability of the forest industry and meet future demands, capital is being invested in research in order to speed up forest growth and develop new products for new fields of application. In Sweden, forestry related research and development has been richly funded by the government and conducted in academic settings, such as the Swedish University for Agricultural Sciences and the tech universities. This is unsurprising since a large part of the forest is state property and vital to both the nation's environment and its economy (the forest sector represents about one-third of Sweden's total export). Private industry has also been responsible for funding research and development in its own laboratories. Their vision of the future forest industry is a new product portfolio and new technological and business partnerships with the requisite added value to products and services.

Dynamics of Technoscience and the Problem of Implementation

In order to act as engines of change, scientific discoveries and new technology not only need to be discovered or invented, they have to be accepted and implemented, and implemented on a fairly broad scale. How is this achieved in contemporary society? In the following we will single out one particular model of production, acceptance and implementation. This model, known as "multilevel perspective" (or "multilevel analysis"), is an example of a "grand theory" and as such shall be used with caution. First and foremost, it provides food for thought concerning the nature and challenge of the new technoscience we will discuss in the third section.

While strongly associated with research on innovation systems, this model is also helpful to research focusing on the question of why so many innovations, e.g. innovations of possible significance to sustainable development, get stuck in laboratories or showrooms and never make it to the market. Building upon ideas and insights from the history and sociology of technology, but also from evolutionary theory and innovation research in general, this perspective interprets innovation processes and transformations of technological systems at three heuristic levels: micro, meso and macro. It includes analyses of structures, agency and power relations as well as social constructions of shared meanings and negotiations (see e.g. Geels, 2007, and Markard & Truffer, 2008, for an overview).

In the model, *technological niches* represent the micro (or local) level. Technological niches consist of small networks of actors who work in more or less protected domains, such as small innovation focused companies, and support novelties on the basis of shared expectations and future visions. The assumption is that innovations developed within these niches are always "in the making" and their challenge is to withstand pressure from the market. Niches thus act as "testbeds" for potentially radical innovations that would otherwise not survive.

The meso (or sector) level is represented by *socio-technical regimes*. In the model it includes sets of rules, laws and regulations, cognitive routines, established practices etc., common to a community of scientists, engineers and other groups belonging to a certain sector, like the forest sector. This level accentuates the institutional character of a regime, which creates the stability and momentum of existing socio-technical systems. The assumption here is that technological regimes are resilient and adaptive, which makes technical systems "dynamically stable" and where innovations and transitions occur cumulatively along

established technical trajectories. At the same time, this clearly generates a powerful path-dependency over time, which marginalizes competing or new technologies trying to enter the sector.

The macro level is represented by *socio-technological landscapes*, the wider external environment of processes and factors. This level includes various heterogeneous factors, including armed conflict, oil prices, emigration, environmental issues and general political and cultural values. In addition, it includes deeper structural and material aspects of society, such as demography and spatial patterns of cities, industries and infrastructure. Furthermore, it embraces physical changes and the dynamic process of nature itself, which constantly interact with social processes causing complex long-term changes and dramatic shocks, most obviously exemplified by global warming. The assumption is that change on the landscape level influences both socio-technical regimes and technological niches.

Research on scientific and technological innovation sometimes blames the failure of sustainable technology introduction on niche-internal reasons. Such reasons include a poor articulation of expectations, a lack of user and outsider involvement in the social networks involved in niche market experimentation, and a limited learning process that only focuses on techno-economic optimization and neglects user preferences, the regulatory and political environment, infrastructural constraints, power plays and other social and systemic dimensions (Ulmanen, Verbong & Raven, 2009). The advantage of the multi-level framework however is that it emphasizes the importance of taking note of several different social and technical processes as well as the connections between them all. The emergence of novel scientific and technological innovation at the niche level, and the rhetoric surrounding them, is only one part of the game. In accordance with the model, we also (and simultaneously) have to take into consideration both stabilization mechanisms at the regime level and destabilization forces at the landscape level.

The stability of the prevailing regime is a significant factor in explaining why radical innovations have a hard time breaking out of their niches. It is important to note that according to the model there is nothing intrinsic to the technology that makes one alternative superior to another. To quote Brown, Rappert and Webster (2000), "The difference lies not in the technology necessarily but rather in the contingencies of socio-technical circumstances and the play of institutional interests that favour one technology over another."

However, as the history of science and technology demonstrates, nothing lasts forever. At any point in time new values, shuffled political agendas, upheavals on the market or natural disasters may emerge at the landscape level, exerting pressure on the existing regime. This makes internal technical problems appear, leads to social protest, changes user preference, or modifies competitive conditions. Geels (2007) argues that such pressure may cause de-alignment of the existing regime, which creates a "window of opportunity" for a broader change of the socio-technical system. Important though is that actors need to be active and grab the opportunity. If scientific and technological innovations are sufficiently developed within their niches, actors who promote them may take advantage of the situation to expand their networks and start competing with existing technology. In the end, the sector may be transformed and a new regime established.

Looking Forward

Assuming that scientific and technological development will continue to act as a stimulus for all aspects of forestry, what trends do researchers believe will exercise influence in the near future? There exist today some powerful commercial, policy-related and intellectual narratives associated with the anticipated future impact of three technoscientific fields: information and communication technology, new materials (including nanotechnology), and biotechnology (Brown, Rappert & Webster, 2000). In the literature, these fields are said to be indicative of a major shift, from "exotechnologies" to "endotechnologies". In contrast to the former, which increased the biologically restricted human reach in its immediate and geographically extended environment and allowed for the mass production of artefacts as well as the construction of vast infrastructures, endotechnology augments the scale of the human-built world down to infinitesimal living organisms and within matter itself (Nowotny, 2006). As we will describe below, some elements of these narratives are of interest to the present discussion on sustainable development and ecological modernization, including sustainable future forests and a sustainable forest sector.

The grand visions associated with these narratives may to some extent be interpreted as speculative scientific and technological (and economic) optimism. The rhetoric surrounding future technoscientific miracles is indeed hyperbolic, but makes them no less important or interesting. As researchers in the field of technoscientific expectations have indicated, regardless of how speculative they may be, expectations ought not to be seen as ephemeral or irrelevant but as fundamental to research and development. The simple theoretical starting point for this approach is that visions and socially constructed futures contribute to legitimizing claims, mobilizing financial resources, forming networks and as a result coaxing science and technology in certain directions and away from others. In other words, they are strategic resources in political and technological agenda-setting processes (Nordlund, 2007). Visions, however, can also create unease in society at large. They have, as Nowotny (2006) puts it, given rise to anxiety equivalent to the wonder they have inspired. To some extent this anxiety is also related to the new mode of science production and regulation established over the past few decades. According to Pestre (2005), we have moved "from a system of science in society dominated by an equilibrium between science as *public good* and science as *industrial good* to a system in which a financial and market-oriented appropriation of scientific knowledge is now in the ascendant, to science as mainly a *financial good*". This pragmatic, market-driven situation, sometimes called the "new knowledge-based economy", has implications for the public trust in technoscience, or perhaps rather, trust in the *regulation* of technoscience.

In the following, we will focus on three technoscientific topics related to future forestry and forest related business – bioenergy, modified trees and biomaterials – and briefly discuss their challenges as well as possible impact on the forest system.

Bioenergy

Since the combustion of fossil fuel is one of the main causes of global warming, the system-

atic replacement of these fuels is of paramount importance. In addition to environmental concerns, oil dependency has important financial and security implications as well. From the multilevel perspective, this is a macro level situation that may facilitate broader changes in dominant socio-technical systems. Like the shift in energy use from wood to coal in the 19th century, and from coal to oil in the 20th century, it is most likely that we will face a shift from oil to something else and hopefully more sustainable in the 21st century (McNeill, 2000). This "something else" will probably be a combination of many different energy resources including water, wind and solar power, hydrogen power, perhaps even an energy resource not yet discovered. It might also be bioenergy on a very large scale. Either way, implementation of scientific and technological development in new socio-technological systems is one of the most crucial factors in the replacement process.

In Europe, great expectations are harbored for increasing the production of bioenergy drawn from both agricultural and forest sources. Particular interest has been shown for the use and production of biofuels. The European Commission funded numerous research and demonstration projects with the goal of having biofuels contribute 6 % to the total European consumption of transport fuel by 2010. So far the main biofuels produced in Europe – bioethanol and biodiesel – have been based on agricultural products like sugar beets, grapes, wheat and rapeseed. In Sweden, however, the century-old vision of producing biofuel from domestic wood stock has once again been articulated and in fact boosted (Eklöf, 2011). It may come in the form of ethanol from the fermentation of cellulose or synthesized fuels from the gasification of black liquor or residual biomass. Through torrefaction, residual biomass can be homogenized into a high value fuel.

Numerous Swedish reports claim we are "on the verge" of a new industrial revolution in which oil will be phased out in favour of biofuel. One significant shaper of this image is the organization BioFuel Region (BFR), which may be defined as a niche in advance. According to BFR, the revolution is already underway, propelled by humanity's urgent need to transform the transport sector's energy system. In BFR marketing and in newspaper reporting, convinced and engaged people, scientists, politicians, "the man on the street", all bear witness to this ongoing social transformation.

What these true believers offer are arguments explaining why industry will choose a new trajectory and on what this new trajectory will be based. According to the prophesies of former BFR chairman Per Carstedt (2006), the industrialization of cellulosic biofuels will generate over 100,000 high-quality jobs and financial investment worldwide to the tune of quadrillions (!) of Swedish crowns over the course of the next twenty years. BioFuel Region's "own" high-profile politician, Maud Olofsson, former Minister for Enterprise and Energy, declared in an interview that turning cellulose ethanol into an industrial reality constitutes a major opportunity, especially for the Västernorrland-Västerbotten region (the northern part of Sweden). In her perspective, it is a win-win situation. "We can create new jobs at the same time as we save the environment. That is what I would like to work with the coming four years. Swedish biofuel production is very important, for the jobs as well as the environment." (Johansson, 2006)

The future, however, is not here yet. In Europe and elsewhere the debate on biofuels has recently taken a dramatic turn. From being looked upon as a relatively sustainable alternative, biofuel is now seen as a technology doing more harm than good. The critique mainly

deals with the possible correlation between fuel production (for the rich) and food production (for the poor), but also comprises problems related to future deforestation and loss of biodiversity (Eklöf, 2011).

If the bioenergy vision is to be realized – with or without biofuel – many different natural resources will need to be exploited. In a bioenergy scenario (for the years 2005–2025) developed by the European research project EFORWOOD: Sustainability Impact Assessment of the Forestry–Wood Chain, raw material is harvested both from the forest, e.g. harvest residues and stumps, and from the forest industry, e.g. sawdust, chips, bark, black liquor, rejects and downgraded assortments. But this will probably not be enough. Harvested and storm-thrown round wood needs to be used as well, which will ratchet up competition for raw material with the pulp and paper industries. Furthermore, the scenario also includes new dendro-bioenergy plantations on former farmland (Vötter et al., 2009). Such plantations will not be traditional forest plantations. McFarlane et al. (2008) predict that new industries will be seeking cheap, low-grade fiber, thereby increasing the consumptive pressure on the forest ecosystem as well as the tension between industrial and environmental interests.

Some of these problems could be solved if the production of bioenergy was far more effective than it is at the present. Research into the necessary technology and infrastructure is underway, supported by both funding bodies and private enterprise. As Ulmanen, Verbong & Raven (2009) demonstrate, many "biofuel niches" on the micro level have in fact been successfully developed in Sweden. For example, researchers in energy technology and thermal process chemistry are eager to contribute to an increased knowledge of the critical thermo-chemical conversion process, and to participate in the development of new scientific ideas and process concepts. Another route has been taken by plant scientists who hope to produce genetically-engineered trees tailored to meet the demand for "custom-made" raw material (about which more below). This is still science and technology in the making but in the future current problems may be solved and a new forest and energy regime established. To summarize this technoscientific vision, new biotech applications are said to rouse a dormant domestic asset, the "green gold", and frontline chemical process technologies will – by virtue of being "second-generation techniques" – distinguish it from traditional forest and pulp mill industries. If the vision is fulfilled, forests and forestry will likely be profoundly transformed as a socio-technological regime.

Modified Trees

Biotechnology is one of the fastest-growing fields of scientific, technological and industrial innovation. In agriculture, biotechnological research including genetic engineering has been primarily implemented to enhance conventional crop breeding, though it has also been applied to the forest. Among the goals set by this research are improving growth rate, wood properties and quality (e.g. reducing the amount of lignin), pest resistance, stress tolerance, herbicide resistance, and ultimately creating new breeds of transgenic trees.
"Frontier talk" about this research, which typically takes place in public forums rather than the scientific workplace, nurtures great expectations indeed. "In the near future, genetically modified trees will be introduced to forestry," declared a group of Swedish researchers in

Genklippet (2003), a work of popular science. In this imagined future forest, tailor-made trees will be grown, designed to fit the demands of the customer; long periods of generation and selective breeding are problems that have been solved. As far as future biofuel production is concerned, Petter Gustafsson, a molecular plant physiologist formerly associated with BFR's research and development team, envisions the role biotechnology will have in terms of speeding up growth for forest cultivation. "For forest growth, it will have the same effect as installing a turbo charger in your family car" (Sjöstrand, 2006).

Business will reap the benefits of this development, but also the environment. In this win-win situation, modified trees may help replace oil and petroleum-based materials and decrease the use of energy needed for paper production. Another common line of argument for this type of intensive forest management is that if the growth rate is increased, it will not only be possible to produce enough raw material for the new Bioenergy Society, it will also be possible to decrease the productive area, leaving more space for other forest landscape interests, like recreation and biodiversity. As biotech enthusiast Torbjörn Fagerström (2009) writes, "Improvements in forests and silviculture based on biotechnology will open up totally new possibilities for variations in forestry and hence a forestry in harmony with the requirements of conservation."

Such visionary talk has certainly helped these research networks recruit allies and mobilize support for their work. However, so far the progress has been slow, at least in comparison with agricultural biotechnology. Complicated gene action, tissue culture, regeneration and the long generation period for the species involved are all factors contributing to the fact that genetically modified organisms (GMO) still do not exist in Swedish forests. The step from scientific and industrial laboratories to the real forest landscape has yet to be taken.

As emphasized in the model discussed above, the success of a technology lies not only in the technology itself but also in the contingencies of socio-technical circumstances and the play of institutional interests that favor one technology over another. The current situation has as much to do with public opinion at the landscape level as the stability of prevailing regimes, i.e. the traditional forest sector. Social values have strongly influenced the development and implementation of biotechnology in both agriculture and forestry. The use of GMOs is a source of significant debate and concern in society and the environmental movement and different nations have adopted varying responses to this issue. As Bauer & Gaskell (2002) put it, "While the biotechnology industry initially assumed that regulatory processes were the sole hurdle, it is now apparent that a second hurdle, national and international public opinion, must be reckoned with." The Forest Stewardship Council will not yet certify any forest where GMOs are planted, and the Swedish forest industry – sensitive to critical public opinion – has taken a cautious stance.

The niches seem to be trapped in a paradox. In order to attract allies, mobilize support and receive funding, actors and networks conducting research in the field need to translate their ideas into great expectations, but the greater the expectations, the more critical the opposition tends to become. Nevertheless, if we are to believe the strongest supporters of biotechnology, genetically designed trees will eventually dominate future forests. If not in 2050, then in 2100.

Biomaterials

The systematic replacement of oil may open a window of opportunity for the development of new materials to take the place of petrochemicals. One possibility strongly favored by numerous visionary research entrepreneurs as well as members of the Swedish forest industry is the production of new biomaterials by converting renewable lignocellulosic materials in so-called "biorefineries" (Axegård, 2009). Some foresee a revolution as comprehensive as when oil started to be utilized for producing synthetics. "In future biorefineries, forest resources will be turned into products that replace virtually everything produced from oil today" stated a feature in the forest industry magazine *Skog & virke*. The goal is not only to produce the same products as today but also to develop "radically new creations and processes" (Thorén 2009). New products include second-generation biofuels, new packing materials, cellulose composites and nanocellulose bioplastics, specialty chemicals, pharmaceuticals, new building and isolation materials, and resistant surface coating.

The concept of a biomass-based biorefinery is not yet well defined but has similarities with the crude oil petrochemical refinery. The biorefinery may produce chemical platform products from cellulose, hemicelluloses, lignin and extractives that can be used as raw materials for high value industry or consumer products in a chain of industrial processes. In the first stage, current pulp mills can be developed into bio-refineries to produce an extended mixture of biomaterials, biochemicals and bioenergy in parallel with pulp fiber production and specialty fibers. Purified lignin can be the basis for low cost carbon fibers for the auto and aircraft industry and phenols for a variety of uses, and Xylan from hemicelluloses can be used by the packaging industry. Nanocellulose may prove to be a platform for a variety of new materials and products, and so on (Axegård, Backlund & Tomani, 2007).
Several niches for the development of the science and technology needed for the fulfilment of the biorefinery dream do exist in Sweden today. Here, biochemistry, organic chemistry and chemical engineering are probably the most important fields of research. But biotechnologies, including genetic engineering, may be an engine in this field as well. One idea is to use genetic engineering to create trees with qualities that suit certain needs in the biorefinery process. Another is to modify microbes that can be used in industrial processes. In contrast to some other visionary technoscientific narratives, the biorefinery concept also seems to be fairly well accepted within the Swedish forestry sector. In other words, the industry expects the dream to come true.

As in the case regarding bioenergy, a future dominated by biomaterials will affect both the forest sector and the forests themselves. Although resources which today are seen as by-products – such as black liquor and bark – may be utilized to a great extent, other forest based resources may be needed as well. Hence, the harvest will probably have to increase, which will affect biodiversity and ecosystem stability.

Concluding Remarks

In hindsight, we see that there are indeed numerous occasions where scientific and technological development has had a major impact on how forests have been maintained and uti-

lized. Looking forward, we can presume that similar sweeping changes will occur over time. Exactly which scientific and technological breakthroughs will occur, and which of these will serve as engines of change significantly influencing the development of forest management and ecosystems, is impossible to foresee. What we can do is examine and speculate on current trends and visions.

In this essay, some of the relatively grand contemporary technoscientific trends and visions about bioenergy, modified trees, and biomaterials have been discussed in light of the challenges usually associated with new science and technology – the problem of implementation on a large scale – and their possible impact on the forest system from an environmental point of view. We have emphasized that *construction* is key to successful technoscience, not only of scientific facts and technological artifacts, but also of societies that accept, use and validate them. What is required is "co-production" of technoscience, nature and the social order. Our conclusion is that while new goods and services from forests will surely appear, so too will new risks and problems.

Due to ongoing upheavals in the socio-technological landscape – including globalization, peak oil, global warming and value changes – the existing forestry regime is under press. This situation creates windows of opportunity for sufficiently developed scientific and technological innovations, and hence for a broader change in socio-technical systems. Scientific and technological developments may generate new opportunities for growing, managing and harvesting trees, for developing new wood based material and energy products and new industrial processes and business opportunities. Developments in science and technology, in particular in the fields of energy and material, may at the same time affect forests should finite resources be replaced by renewable ones. A future dominated by both wood-based biofuels and wood-based biomaterials may *sound* sustainable, but is it? Our feeling is that the formidable emphasis on biomass as a renewable resource sometimes obscures the fact that it is not an *unlimited* resource.

On the other hand, new alternative energy sources, advanced energy technology and other innovations may also create new opportunities for non-forest based materials and energy supplies which can compete with forest based materials and energy. In this way, the development of energy-saving technologies, alternative energy sources, and methods of storing and distributing energy can have a major impact on the demand for forest materials and energy and thus the utilization of forests. The uses of forests will most likely be extended as new ecosystem services are articulated and accepted. In the end, forests not only provide provisioning services like material and energy, but also ecosystems for biodiversity and supportive, regulatory and cultural services for human life on earth. Not least, forests are significant carbon sinks (Keskitalo, Eköf & Nordlund, 2011).

Whatever turn scientific and technological development and forest resource demand takes, operational management will only slowly be able to change the boreal forest system in any profound way. The trees intended for harvest at maturity for most of the present century are already growing. With an annual regeneration rate of about 1 % of Swedish forestland area, it takes some 100 years to replace old forests with new. One reasonable option would be to introduce highly intensive silviculture, starting with new stands on e.g. 5 % of the area. Yet, due to the slow rate at which suitable land becomes available, it will be up to 50 years until the first significant harvest (Rosvall, 2007). Since there are known limits

to what can be harvested in the foreseeable future, all present expectations of society and industry cannot be fulfilled. We as scientists, scholars, politicians, businessmen and citizens have to make choices, and that is not only a matter of science and technology but of values and beliefs as well as natural restrictions.

Have My Back

Nell Ray

teaches English in upper secondary school in Uppsala, Sweden. She was born in North Yorkshire, England, and her family moved to Sweden when she was two years old. She comes from a family where empathy is important, so "caring for that which needs to be cared for" comes natural to her, be that toads that need to be moved from the road, homeless cats, or bumblebees trapped on the wrong side of windows.

Her poem was born out of her fascination with our "complicated relationship to nature, where we are part of it and outside of it at the same time."

I have my back against the trees
I am backed up against the trees
I can't look back at all the trees

I'm too far off
too close

I think
I am terrible
walking
being
alone
(have my back)

terrible
waking
being alone
(have my back)

terrible holding
a wake
for the moon

s u c h a t e r r i b l e w a l k e r a l o n e (take me back!)

I'm too far off
much too close to the moon

what a violent death!

there is blood on the moon
there is blood in the trees
blood on my back trickling through cracks
cold and black

there is walking alone (have my back)
and stalking
the moon

there is walking with doom

I am backed up against the trees

they're too far off
much too close now to see

and my back is not had for me

Valuing Lives – an Essay about Eating Meat

Sara Löfqvist

grew up in Lidingö outside Stockholm, Sweden. She now lives in Uppsala where she studies Economics and Sustainable Development. As a child, Sara went to an outdoor life school which gave her an awareness of climate change at a very early age, even though her concerns at the time were mostly focused on the prospect of snowless winters making it impossible to ski.

The lack of time to reach a change towards sustainability is what Sara thinks is the major cause for worry today. But humanity has successfully fought major catastrophes before, she argues, and should be able to tackle the problem of unsustainability too.

I consider myself a lot of things. I'm a student, a sister and a daughter. I'm a flatfooted clumsy person who always spill water when on dinners, and one of my thumbs I can bend backwards more than 90 degrees. Apart from this, I am also a vegetarian. I started disliking the idea of eating meat as a child when I first realized the connection between hamburgers and cows. The idea that another creature had died for me was something that I had a really hard time coming to terms with. That summer when I visited my grandfather in northern Sweden, I really got on his nerves throwing back all the fishes (including a rarely caught pike) we caught together on our fishing trip, and as time went on I changed my way of thinking of meat more and more. In my early teens, I became a true vegetarian. I couldn't really answer when people asked me why I was a vegetarian, at that point my only reason was that it just felt right.

Soon I will have been a vegetarian half my life, and for a long time I barely reflected upon it. I bought vegetarian food in the store without thinking about it, and I repeatedly forgot to report "special food" when going to organized dinners. Being a vegetarian wasn't a big deal for me and therefore I never thought of it in the bigger picture. However, as a typical child of my time, global warming and the threats our planet is facing is something that I think about. I didn't start out as a vegetarian out of concern for our planet, but I've now realized what a brilliant way vegetarianism is for us to move towards a more sustainable society. Meat production is a big villain in terms of greenhouse gas emissions, and a more vegetarian based food consumption would constitute a significant step towards reducing those emissions. Therefore, I find it of great importance to discuss our food consumption when we talk about how to reach a sustainable society.

I think there is a problem in constantly putting vegetarians in focus when discussing this subject. I believe we would gain a lot from changing perspectives and instead putting the meat eaters in focus. The question shouldn't be "why vegetarian?", but "why eat meat?" So why do people eat meat? What makes people justify a choice that means taking the lives of other creatures? There are several arguments commonly used.

Some people justify their choice to eat meat on the food chain. We eat animals who in turn eat other animals, and so on. If all other creatures behave like this, why shouldn't we?

That, in my opinion, is a strange point of view. Since when has other animals' natural behavior set the standards for us? We don't eat bugs from each other's backs like the monkeys, and we don't leave our kids before they're born like the sea turtles. So why should the fact that some animals eat other animals be a reason for us to do so? And if we necessarily must use what animals eat as guidelines for our own food habits, why not use the herbivores, i.e. vegetarians, instead of the carnivores?

Another argument commonly used is that we need meat in order to survive. Not a lot of us do. Some people are allergic to most other sources of protein and therefore would suffer from reduced meat eating, but that's only a few of us; reduced meat eating wouldn't harm the health of most people. A third argument commonly used is simply that meat is tasty, and this I think is the reason why most people eat meat. They don't see a reason for justifying meat eating, thinking that we can do whatever we want to animals since we value them less than ourselves. This brings us to the ethics part of the issue.

To a great extent, I think it all comes down to a question of value. People simply think animals are worth less than people, and therefore they are justified in eating them. We value other creatures' lives so little that we prioritize what we think is a slight improvement of our living standard over their entire lives. We thus justify our taste for meat – *not our lives* – being worth more than the lives of animals. But how can we really value a life like that, what is the measure that we use? What makes my taste of meat worth more than the life of a cow, or a pig, or a salmon? As I see it, the measure that we use is intelligence. People think it is okay for some animals to die for us to have a non-vital but tasty slice of meet because we're more intelligent and emotionally developed. But I think this measure has a lot of problems. Because where do we draw the line? Should we value people the same way? Make hospitals take IQ and EQ tests on patients to see who to save first? I don't think a lot of people would consider that a good idea. So should we draw the line between people and animals? That would be a start, but I don't think we really value all animals the same either. I know I'd feel worse killing a dolphin than killing a bug, and in the same way most of us probably react more strongly to climate change propaganda pictures of polar bear babies on tiny ice blocks than we would to a propaganda picture of a tiger prawn.

I guess that, in the end, it doesn't come down to anything logical and it is important for us to acknowledge that. We eat calves, but not golden retriever puppies; we eat cows, but not ponies. It's a totally natural thing to have more empathy for creatures that we have a closer relationship with. I'm generally not a person who likes "logifications" of things in this world. So many things aren't logical, and shouldn't be. Having things, ideas and behaviors that are only emotional, that can't be defended in any other way than that "it feels right", is in my opinion completely normal.

But logic can help us scrutinize and clarify the things we do. And in this regard, though to many people this seems like an emotional question, I think we would be better off to take logic more into account than we're doing today. To acknowledge that we are facing a threat, and that the logical thing is to do something about it. To acknowledge that we are valuing innocent lives so little that we justify taking them, just because we feel like it. Reducing meat production would in my opinion be a good place to start the movement towards a more sustainable and ethically justifiable society. We could accomplish this by

more public information about the benefits of more vegetarian based consumption or by subsidizing sustainable and vegetarian food alternatives. Another thing I think is important is to try to erase the sharp line between vegetarians and meat eaters that to a certain extent exists today; either you eat meat or you don't. To become more vegetarian, though still eating meat from time to time, is so much better than not doing anything at all, and I think a lot of people would feel more comfortable starting out like that. As the expression says, we mustn't let the good be the enemy of the perfect. The important thing is to take steps in the right direction, because what gives us the right to decide over the lives of other creatures or to have unsustainable lifestyles at the expense of our grandchildren? In a society with less meat eating, both animals and people would be better off in the long run. We only have one life, and most of us value our lives very highly. By starting to value other lives highly too, we would spare a lot of animal pain and at the same time be well on the way towards a more sustainable society.

Why It Is That Sometimes I Am Dancing

Tatiana Sokolova[1]

A tes légendes, mets l'ancre, l'ancre en moi.
M.F.

Once I was immense, infinite. I slumbered quietly. Patches of light were playing on my surface; the fishing seagulls touched my back with their feet. In my belly lived whimsical creatures who had never seen light; my neck was garlanded with brown algae and white foam. Birds built nests in my hair, and I knew their simple language, always telling the same stories again and again. I knew nothing, and everything was closely familiar; the clouds bent low over me, and I drank warm rain from their udders. The trees pierced my body with their roots, and I gave them what I had drunk, and they in turn fed the birds who spoke again and again: with me, with the clouds, the trees, the stones, with everything that is alive, both talking and mute.

This was forever, always; this had lasted so long that I knew nothing apart from the changing embroidery patterns; I knew no time, no borders.

And then suddenly I felt pain. Somewhere near my throat I was stabbed by an anchor. I shuddered; a wave rose and almost overturned the ship which had moored at one of my shores; the mountains shook and avalanches came down, but they noticed nothing. Their boats hit the shore, and they stepped on the ground; there were hordes of them, and they penetrated the forests. Their language was similar to that of birds, but they did not understand birds; neither did they understand animals, whom they killed in order to eat their meat. They shot their guns, and each bullet that hit an animal's body stitched me through; I would have cried of pain, but I did not know how to.

I decided to ask what they wanted and give it to them, so that they would leave, but I did not know how to ask. I asked through rain, but they did not understand; they built houses to shelter from my questions. I asked through trees, but they did not understand; they cut the trees down so as to burn them and get warm. I asked through the cries of cranes high up in the autumn sky, I asked through sunrises, waterfalls; I asked through dew in the morning, snow in winter, rainbow in summer; I asked with high and low tides, bright butterflies' wings, the last leaf to fall to one's feet: yellow, with green veins, dry, rustling and fragrant. But they did not understand anything, and the gap between us widened while they were building their cities.

Then I pondered. The wind pondered; the clouds pondered; the deer in the thickets were deep in thought, raising their ears keenly. The river whispered: you become me when you

1 See page 23

want to hear me; become like them, and perhaps you will understand. I obeyed. Where the river falls into a deep, quiet lake, among the reeds and water lilies I opened my eyes for the first time. Through the streams of clear water I saw the sky and the clouds flowing above me. I rose slowly from the river bed. Water and lilies fell from my long hair which touched the lake's surface; I looked at my hands, semi-translucent at first, but gradually gaining flesh. For the first time in eternity I inhaled not through billions of tree leaves, but through the lungs that emerged in my new body.

In my new body, I came to them. They looked at me in surprise; they all fell silent. Talk to them, whispered the river in my veins. I opened my mouth, and a gust of wind broke out. They will not understand you like that, prompted the river. I opened my mouth again, and a bird's whistle was heard. Try again, said the river. Finally something tickled my throat, as if pebbles rustled against each other, and I spoke their language.

They treated me kindly. They did not listen to me, but took me with them; they fed me, gave me clothes and jewelry made of colorful stones. I loved stones as much as I loved algae and foam, stems of grass, birds' feathers stuck to a freshly laid egg, like the moon – for me everything was alike, but they taught me how to differentiate between things, explained what was good and what was bad, how it ought and how it ought not be. I listened with interest and agreed to what they said, like I would agree with a small silly child. They taught me to eat the meat of animals who I used to be; they cooked it on fire so it would lose its primordial essence, and I did not sense my own taste when I ate it and drank my own blood pressed from the fruit of the vine.

I wanted to ask them what they needed and give it to them so that they would leave, but they did not ask for anything, they just took all they wanted, even though I could not understand what purpose they pursued. I asked them why they lived, why they built their cities and ships to travel to other planets, but they did not know, even though they answered in great detail, making serious faces and frowning. I told them that a chestnut tree grows so that its nuts can be eaten by squirrels, and the squirrels are there to carry the nuts around the forest, so that they could grow into new chestnut trees, where new squirrels would live. I asked what *they* were for, because they seemed to me completely, strangely useless. I would love to tell them the meaning of existence, which they called a mystery, even though it was no mystery at all – I just could not find simple enough words to explain the evident.

So I stayed with them, but I never became exactly like them. Sometimes I had hair like flax, and aquamarine eyes, I laughed and wore open red dresses. Sometimes my skin was dark and warm like tree bark and my lips were soft like two halves of a plump; I carried water in a large jar on my head, tucking the hem of my skirt in my belt, and cooked food at the doorstep of a clay hut. Sometimes I was wrapped in black fabric from head to feet, hiding my ankles and wrists, white like fine china, inside the folds of my clothes, and kept silence. Sometimes I wore pearls and silvery silk, sang and played, and they applauded me, celebrating what I had learnt from the river and birds. Sometimes anklets rang on my feet, and my skin was golden like an autumn leaf.

I have been different, but my essence has been unchanged: I grieve. Once I was unafraid to be the soil, to be the rain. I was unafraid to be like the river, and it still runs in my veins; deer still lift and drop their ears in the forest thicket. Sometimes, to be honest, I forget who I am, when I try on diamonds or get behind the wheel of a car, or when I allow them to

change my body and influence my thoughts, to cut pieces from me, polish me according to their idea of what I should be like.

But at other times or in other bodies I remember everything, and again I garland my neck with a necklace of algae and foam, plunge my arms deep into the soil, thoughtfully play with a bird's feather, watch colorful dreams, waking reluctantly. I touch the semi-translucent petals of water lilies with the tips of my fingers, bending over the board of a boat, remembering how once my own hands were like that. If only I could return and wipe cities off my face, get rid of the oil spills on my back… But I smile from under a shawl, I smile through silk, I laugh when they make me laugh and I grieve immensely. That is why I am so inconsolable during monsoon, and so generous in summer, and so cold when snowdrops do not melt in my hair. That is why I shiver so much when I hear the drums, when I spill paint on the canvas, when I hear in the night the rustle of rain or of waves; that is why sometimes I am dancing.

USEFULNESS

Why haven't the environmental movement reached its potential?
Do we need to reevaluate what is useful?
How can we do more in education despite declining resources?

The Elephant in the Room: How the Power of Change Is Surrendered

Robert Österbergh
is a PhD student in English literature at Uppsala University and a project coordinator at Dag Hammarskjöld Foundation. Having Sweden as a homeland has made Robert "extremely grateful to grow up in such a wealthy country" while at the same time aware that the possibilities that come with it are "denied to the vast majority of the people in the world."

Aware of the gravity of environmental and equity issues, Robert argues for a reexamination of norms within the sustainability movement, norms that are, according to Robert, limiting its impact.

Over the past fifteen years or so during which I've been engaged in different parts of the environmental movement, I've met countless people committed to progressive social change, people who harbor no illusions about the fact that the current state of things is very bleak – indeed that the very survival of planetary life as we know it may now be at stake. These people virtually devote their lives to seeking to alter this course of things. They work for environment and development NGOs and green businesses, they are high school teachers and university researchers, journalists, PR consultants and intellectuals, and they serve as civil servants in public authorities. But one peculiar thing stands out: hardly anyone is directly involved in parliamentary politics, whether at a local or national level.

I'm intrigued, and troubled, by this prevalent choice to stay away from the parliamentary sphere.[1] What accounts for it? What consequences does it have?

Common sense holds that singling out one principal reason for the considerable retreat from parliamentary action will necessarily simplify a complex situation. Instead, it would point to the existence of several possible explanatory factors interacting in complex ways. The globalization of politics by way of the substantial power transferred to supranational political and economic bodies has created a considerable distance between the sites of political decision-making and the people affected by these decisions, prompting a lack of trust and legitimacy. Financial deregulation allowing capital to rove the planet, crossing nation-state borders at will, has seen political bodies lose sway. In this situation, the relative effectiveness of parliamentarism compared with other modes of political action geared toward social transformation comes out unfavorably in the minds of many. Parliaments, it is held, increasingly take on the role of a lame duck unable to tackle the problems we are up against. What's more, much has been made of the rampant individualism emblematic of the cur-

1 In Sweden, the political parties have lost 90% of their members over the past thirty years. One upshot is that it is more difficult to recruit people to political positions today. See Dahl 2011.

rent postmodern age discouraging commitment to grand narratives and large-scale political agendas. The considerable drop in membership among the political parties over the past decades is taken as a corroboration of this claim.

While all of these reasons hold some truth in light of today's political situation, none explains the relinquishment of direct parliamentary involvement on behalf of the group I am referring to: politically committed people who want to bring about change. Since these people, in a variety of ways and capacities, seek to influence not only society at large but also the sphere of parliamentary politics, whether as watch-dogs, lobbyists, civil servants (seeking to provide the best possible input for sound policy-making) or in related functions, the answer must be a different one.

The main reason I can think of amounts to a truism. But because it is hardly ever recognized, calling attention to it is anything but insignificant. Clearly, what we are facing is *a strong norm* that forecloses direct involvement in parliamentary politics from the set of options considered to constitute the legitimate means in the struggle for social change. To be a politician is simply erased from the discourse and realm of possibilities of so many champions of environmentalism and social justice.

What does it mean to cede direct involvement in parliamentary political work? A speech given by the French intellectual Pierre Bourdieu – a true *engagé* combining teaching and research with left-wing civil society activism throughout his life – offers a useful insight. In the speech, given in 1995 at the Gare de Lyon in Paris in support of the strike against the erosion of public services, Bourdieu said:

> In the work of reinventing the public services, intellectuals, writers, artists, scientists and others have a decisive role to play. They can first help to break the monopoly of technocratic orthodoxy over the means of diffusion. But they can also commit themselves, in an organized and permanent way, and not only in the occasional encounters in a context of crisis alongside those who are in a position to exert influence on the future of society … and help to draw up rigorous analyses and inventive proposals about the major questions which the orthodoxy of the media and politics makes it impossible to raise (Bourdieu, 1998: 27).

Bourdieu's pathos-ridden advocacy of universally available welfare services and public goods along with his acute analysis of what intellectuals and other groups ought to do is truly inspiring. But what interests me here is what I see as a fundamental problem deriving from the division of labor entailed in the model of political work on which his account is premised: its spatial and temporal conditions. When he states that the position of "intellectuals, writers, artists, scientists and others" is "*alongside* those who are in a position to exert influence on the future of society," he lays bare the spatial gap that exists between these two groups. This gap may be wide or narrow, but irrespective of its variability it stands as a dividing line between direct and indirect (that is, uncertain) political impact. He also addresses the temporal condition constitutive of the political activity of non-parliamentary actors: its irregularity and inconstancy *in relation to* the legislative work of the parliamentary sphere. This feature is not exclusively, or even primarily, the result of the activity of civil society activists and other groups themselves (who often work consistently, diligently, and with a burning desire for change). It is a structural property of the political makeup of which they are a part, because they are not actually *in* the parliaments. It is in response to

this makeup that Bourdieu calls for a different temporality that would make the organization of their political work ”permanent” in relation to the parliamentary sphere.

It seems to me that people committed to progressive change who remain outside of the sphere of parliamentary politics ought to ask: Where does most of the formal, large-scale political change ordinarily occur? Answer: in the legislative sphere. And what is the sphere of activity of the civil society activist, the university researcher, the intellectual, and so on? Answer: not the legislative sphere. While agents such as the activist, the university researcher, and the intellectual with a transformative agenda are not actually inside the sphere of parliamentary politics, their actions are largely directed to it. Therefore, they operate in *an in-between space*. This space is one of suspension, uncertainty, and anticipation. Once lobbying and other forms of advocacy work cannot continue, the activist has no other option but to anxiously wait, keeping his or her fingers crossed that the desired change will be brought about, that advocacy will be translated into praxis. But he or she is not the agent directly bringing about change because legislative decision-making is the task of others. This nebulous (spatial and temporal) situation is thus ultimately bound up with a suspension of agency that entails a significant abandoning of political power.

This line of reasoning might appear to offer a straightforward conclusion for those of us who want political change: we need to move from this space of suspension to the legislative bodies themselves. Then again, isn't it too straightforward? Doesn't it sidestep the complexity of the configuration that makes up parliamentary political work today, which renders it a much more dubious and difficult undertaking than what it used to be? The political scientist Wendy Brown is among those who make the case that parliamentary action faces unprecedented difficulties at the present conjuncture. She highlights in particular three reasons for this. Firstly, she foregrounds the effective merging of state and corporate actors. The problem, Brown writes, is not simply

> a matter of corporate wealth buying (or being) politicians and overtly contouring domestic and foreign policy, nor of a corporatized media that makes a mockery of informed publics or accountable powers. More than intersecting, major democracies today feature a merging of corporate and state power: extensively outsourced state functions ranging from schools to prisons to militaries; investment bankers and corporate CEOs as ministers and cabinet secretaries; states as non-governing owners of incomprehensibly large portions of finance capital; and, above all, state power unapologetically harnessed to the project of capital accumulation … (Brown, in Agamben et al., 2011: 46-47).

Secondly, she underlines what she sees as fundamental changes to election campaigns: ”even democracy's most important if superficial icon, 'free' elections, have become circuses of marketing and management, from spectacles of fund-raising to spectacles of targeted voter 'mobilization'” (p. 47). In this environment, political candidates” are packaged by public relations experts more familiar with brand promulgation and handling the corporate media than democratic principles,” she writes (p. 47). Lastly, Brown contends that the supremacy of the neoliberal rationality “[displaces the] basic principles of constitutionalism, legal equality … and universal inclusion with market criteria of cost/benefit ratios, efficiency, profitability, and efficacy” (p. 47). The upshot is that “every human being and institution, including the constitutional state, [are rendered] on the model of the firm and [this] supplants democratic principles with entrepreneurial ones in the political sphere” (p. 47).

Brown's analysis of the current state of things is very worrying. The encroachment of economistic assumptions on the political sphere has had a considerable negative impact on the public perception of politics. When public choice theory is allowed to command political and media discourse, coupled with the putting into action of neoliberal policies on a grand scale, the entire political horizon shrinks to a lamentable pursuit of maximizing self-interest on the part of voters and politicians alike. If politics used to be a term with more "broadly positive connotations, associated with public scrutiny, deliberation and accountability," then it is today, Colin Hay (2007) argues, "an increasingly dirty word, typically synonymous with duplicity, corruption, inefficiency and undue interference in matters both public and private," largely as a result of these developments.

But despite the fact that such developments must be taken very seriously, there is a defeatist ring to the analysis which is problematic. Rather than accepting the situation as it is, which seems to be the only alternative in Brown's account, one might argue the opposite: precisely because the political challenges we are facing are unprecedently arduous, precisely because democracy is being eroded, it is ever more urgent to call for direct parliamentary mobilization.[1] In this light, it is crucial to bring to mind the history of political participation, in particular the immense challenges involved in establishing universal suffrage, a struggle in which people paid with their blood. If such a large-scale social transformation could be brought about – under socio-political conditions that can only be characterized as highly adverse to it – then we must at least believe in the possibility to remedy the present state of things.

Yet another objection often lodged by progressive environmental and social justice activists concerns the lacking feasibility of parliamentary politics, the assertion being that politicians are not courageous enough to face up to the systemic nature of the pressing global problems confronting us now. How else would one explain the fact that although there is widespread awareness of the problems among politicians, very little is done to truly address them? The vast majority of the politicians seem to balk at the necessity to fundamentally transform the organization of social and economic systems. The argument here runs that once a progressive person enters the sphere of parliamentary politics, he or she will inevitably be swallowed up by the dominant discourse and neutralized. When the person seeks to voice radical critique, he or she will be ridiculed and even silenced. The same thing occurs on the level of political parties: parties critical of the mainstream (liberal, capitalist) agenda are treated with contempt in the dominant discourse. I don't wish to play down the real gravity of these objections, but the counter-argument leveled at Brown's analysis is applicable to this line of reasoning as well. If we merely resign ourselves to the current situation, we effectively give up the hope of changing things. As long as no one tries it will – literally – be impossible. But if more and more of us who want genuine social change do try, the chances

1 Brown's despondent outlook may be explained by the fact that the political reality closest to her is the US. By contrast, the conditions in the Swedish context, in which I write, are more favorable to genuine democratic deliberation and participation.

of success will surely not be smaller.

All of this is not to say that involvement in parliamentarism is a silver bullet that would magically solve all the problems we are facing. Nor is it to simplify the complexity of political processes. Parliamentary politics exists in a multi-faceted social and political dynamic, and as parliamentarians are certainly influenced by the activities of many actors, the factual formation of political power is an intricate (sometimes indeterminable) phenomenon. We cannot do without excellent teachers, without a strong civil society taking on issues that parliaments for various reasons do not address, without a steady flow of scholarly research informing decision-makers, and without independent voices in the media capable of scrutinizing social developments. But my main point in this text is the conspicuous absence of direct parliamentary involvement on the part of so many people actually committed to progressive social change today; the fact that we remain in the nebulous non-parliamentary sphere and leave it to others to make the actual decisions on what laws will be passed. Related to this, I think it's necessary to ask whether the best and most committed minds go into politics today. Personally, I'm not so sure. It is a critical problem for those of us who belong to the left that people like Stefan Jonsson, Paulina de los Reyes, Diana Mulinari, Nina Björk and Göran Greider – people who truly want progressive social change in the Swedish context – do not set foot in the parliamentary sphere. Imagine the pathos, intellectual brilliance and level of learning that these people would bring to parliamentary debates and policy-making compared to the rather dismal situation today.

When it comes to those who think that shared solutions to the current problems are unrealistic and instead see the establishment of small-scale, resilient communities as the only possible way forward, I am afraid that such semi-privatization of politics is futile if held up as the only solution. The most serious threats we're facing today – global warming and "peak everything" – will not spare such enclaves. Establishing sustainable local communities may be a necessary condition but it is ultimately insufficient; we cannot dispense with concerted, large-scale political action.

One of the greatest accomplishments of humanity remains the political empowerment of everyone by way of the establishment of universal suffrage and the possibility of direct political involvement. And yet the vast majority of us have vacated the parliamentary arena, confining our relation to it to casting a ballot every four years or so. It would be wrong to say that we must reconquer the parliaments – because they are already ours. But we must reclaim our role in them as active members of the *demos* whose fundamental task it is to govern the operation of society. Unless many more of us do so, unless we stake a claim in the arena in which social transformation can be directly brought about, we cannot hope to change the world.

The Coin of the University – Methods for Questioning Within Higher Education and Means to Active Student Participation

Johan Gärdebo
is a student at Uppsala University in Sweden. He is passionate about creating strong community ties which reflect the mutual responsibility we all have for each other. This is reflected in his article where he argues that we need to ask ourselves how we can "provide and develop higher education for more and diverse groups of students when operating within current and shrinking resource limits".

Johan advocates for an innovative educational model whereby "students should be given real possibilities to enhance each others learning".

> Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?
>
> –T.S.Eliot, *The Rock*

This paper develops the topic of questioning within higher education and why this is relevant for sustainability. To question perspectives is a central ideal of the university. But it is also, as I shall argue, part of the institution's resilience in strict economic terms. This development will encourage and create a more active student participation within higher education.

Uncertainty and Relevance of Higher Education

We live today in a time of knowledge, yet we understand little of the forces and flows that influence society. We have information, but lack understanding of how to assess the vast body of it. Paradoxically, we now find ourselves in a time of uncertainty rather than one of enlightenment. There is also a danger of polarizing debate or categorizing humans, ideals and politics into friends and foes. What questions should we focus on? What solutions should be addressed? And whose perspective has the right to decide what is a suitable course of action?

It is not my intent, nor within my capacity, to answer these questions. But I wish, with

these enquiries as backdrop, to elaborate on how we will be able to do so. My own perspective leans heavily towards the premise that humans are both able to question perspectives and apt at learning how to do so. In the end, it is the ingenuity of our species that encourages me to believe this is possible.

The Need for Understanding Perspectives

At the turn of the 19th century, western society was changing its economic foundation. The shift from agricultural to industrial economy encompassed economic development and trade on a global scale. At the same time, the university system expanded and gave more students than ever before in history access to higher education.

The result by the 21st century is a world with a globalized economy along with a growing corpus of information about the environment. We are increasingly aware of our species' influence on the Earth's ecosystems, globally and locally. Yet it has proven difficult, as well as uncomfortable, to connect one's myopic choices of consumption to that of humanity's unsustainable use of resources.

Two problems need to be elucidated for further discussion. Firstly, education today is still a rare privilege and one that is becoming increasingly expensive to provide for citizens of welfare states. Secondly, higher education provides knowledge towards intensifying humanity's resource extraction. But it does not teach its students how to question the premises of contemporary ecological rationale.

A final note on higher education and perspectives; as resource shortages are accentuated, political debate can be expected to polarize societies along a widening gap between information and understanding. Education must address both the challenge imposed by a changing environment and also apprehend that there *are* different perspectives on how to view this.

Active Student Participation to Enhance Questioning

More students than ever before, in the developing and developed world, are pursuing higher education. These students are the human resource necessary for enhancing and changing higher education into a more critical and qualitative experience. By developing a system where students contribute to the learning of fellow students, changes can be made within the current system with little or no additional resources.

How are higher education institutions able to accommodate and serve todays students, more numerous and diverse than ever before? The short answer is to allow for more active student participation – the underlying assumption being that students are able to enhance each other's and their own learning. The facilities to make this active role more qualitative will be elaborated later in this paper. But an example of how it could be conducted is now suitable.

Imagine senior students mentoring new students, setting up regular meetings and a framework for learning together. Along with individual studies and lectures, the students meet with their mentor to raise problems to course material and elaborate on answers. In time, the new students will have learned both how to formulate relevant questions and pur-

sue adequate solutions.

The earlier and more thoroughly this system is learned the probability increases that these students will be apt, and hopefully keen, at questioning the perspectives that dominate their disciplines.

So how does active student participation encompass a more critical perspective on knowledge? In the short term, these developments will be more complementary to higher education and not too radical. However, given that the university takes responsibility for ensuring the quality, initiatives for active student participation can be entrusted with more challenging tasks. Cemus is a good example of this, with students serving as amanuenses whose responsibility is to coordinate courses and often to work as a kind of mentor for students. At the same time they are themselves students – learning and developing.

With students as partners in learning, changes in content can be expected to increase. We should not presume that this per definition would lead to higher education in sustainability. But if students learn how to question knowledge at an early stage within higher education, and to view perspectives critically, it is hopefully something they can maintain for subsequent courses and later professional life.

Active student participation changes the role of the student from receiving and evaluating courses into a partner with whom the university develops and improves higher education actively. It encourages responsibility and communities of practice, i.e. mentoring and skill sharing between students.

If higher education is to be reformed, it should acknowledge that students can, and will, take an active role in each other's learning. This they do because a mentor system can attract and develop a large enough student base and can improve the study results for both mentors and students alike.

But if questioning of perspectives is to be truly relevant for students, it must be institutionalized into higher education. This is an undertaking that the university should endorse and support, seeing as the benefits and goals for the university are students passing exams and graduating.

Shifting Higher Education Towards Active Student Participation

As we have discussed earlier, students have the willpower to work hard for other students' learning and in turn enhance their own skills and understanding. Here I will develop on the responsibility of the university to support initiatives for active student participation. This reform needs to be economically feasible, meaning it has to be attainable with little or no extra funding. Still, it must be able to provide an adequate incentive structure for both students and teachers participating.

The cost of higher education is a serious obstacle to developing its quality and one that requires a solution. This leads us to discuss students as the true coin of a university, students are the driving force that both generates and legitimize recruitment of a cohort of researchers. One side of this coin is to extract tuition-fees from students in order to maintain quality. The other, which I advocate, is to value students' own time and effort in preparing each other for more advanced learning and later professional life; allowing the many instead of the few to the grounds of the university.

The university should encourage senior students in active student participation by supporting them in the services they perform. For example, if they are required to be mentors, then offer them training in pedagogy and leadership to secure facilitation of large groups discussions among students.

An aspect worth pondering, this being related to knowledge, is how higher education views its assets as fixed and prioritizes education that does not require analytical thinking. Students are encouraged to recite canonical knowledge instead of demanding an in-depth analysis of the course material. This could stem from an unwillingness to question fundamental assumptions while on undergraduate level. But more so it is due to a legitimate concern that most students would fail courses, burdening the system with re-examinations and default contributions from the state. To emphasize my point: the flat learning curve of descriptive learning is preferred to the risks of a more advanced one.

But if higher education is to maintain a broad group of students, this is a challenge that ought to be addressed and requires support from all faculties. The mass university risks losing its legitimacy until it is gradually dismantled when students seek fortunes elsewhere.

This should be averted by simultaneously increasing demands on the analytical level and by supporting the efforts for active student participation that will help students pass courses. For this to work the university should focus on installing incentive structures for all parts involved.

No army marches on an empty stomach, and the same is true for students. The work can be expected to be time-consuming for all parties involved so there must be sufficient incentive structures in place for motivation and quality assurance. For teachers, this means granting pedagogical merits for supervising and administrating student participation. For students a suitable award might be extra credits, nominal salary, supporting administration, and certificates for CVs. The work must be worthwhile and encourage responsibility.

What then allows this reform to take place within current resource restraints? Mainly the work would be financed by an increased amount of students passing examinations and doing so without compromising the analytical quality of higher education. Exactly what incentives and work efforts is necessary will have to be tried according to local circumstances (see below for further discussion). But the basic idea is that more students will pass, with higher grades and a keener understanding of both critical questioning and leadership through the recourse of more active student participation.

Adapting to Circumstances

The process of developing higher education by students' participating in it is likely to be an organic process, drawing on the people available at the moment and learning from trial and error over time. From this follows that a measure of adaptation to context and circumstances is necessary for reforms to be successfully adopted in a system.

In the long term, methods of assessing and working with analytical perspectives can be developed and used more effectively by students themselves while still enjoying the support of the university for framework and quality assurance.

But are staff and researchers able to play the role of critical friends and mentors? Yes, they most certainly are and if available they should. But modern higher education lacks the re-

sources necessary to provide this service for every individual student of the university. Senior students however, can provide the rudimentary critical voice that get other students thinking in new ways and are, relative to university staff, less expensive in providing this service. The fact that higher education continues the trend towards mass produced learning is now turned into an asset. Students are allowed to contribute to each others learning since knowledge is a matter both shared and grown, not a fixed quantity to be evenly distributed on an ever expanding body of students.

That being said there are plenty of good advice that can be picked up along the way, as previous examples and mistakes can be learned from and developed upon. There is an increasing recognition of students as partners at some parts and levels of decision-making at Uppsala University. The story of Cemus is very much the story of students actively participating in their own and other students' learning. This Centre for Sustainable Development has changed over the years and is currently working on managing its own growth rate. It acts as a heart within the Uppsala University campus that encourages its students and staff to redefine education.

Concluding Reflections

I have argued that higher education with active student participation is desirable to that of a more hierarchical perspective where students are supposed to emulate the teachers' knowledge. It is the critical questioning of knowledge that allows for new perspectives and practices to be developed, an appreciation for this practice is made accessible within higher education by enabling students to take an active role in each other's and their own learning.

This requires adaptation to the specific needs and context in which to develop active student participation. Endorsement from the university is relevant in training students in the methods and means to do this. Still, it is an organic process and one in which the student is expected to provide most of the work. This, I have argued, is legitimate as students are benefitting in all stages of the process, both by attending and facilitating discussions. It has the means of allowing more students to pass while maintaining and increasing the quality of analysis.

Particularly in times of uncertainty, we must remember our responsibility as learning students, and human beings. It is also important to nurture a sense of self-esteem among those who make an effort to create education where students play the main role. It is the activation of students, not their tuition-fees, that will preserve the universities resources and ideals and further develop higher education. And with students as partners we may expect to see a more progressive development of disciplines and research towards addressing contemporary issues of sustainability.

BusinessImprove

Markus Nyström

is a course coordinator and editor at Cemus, Uppsala University in Sweden. Seeking to balance the debate within the sustainable development discourse, Markus' vision for this book was to include other lesser discussed perspectives and, "to highlight the existential aspects – how it affects living, community, sense of place – of living in a deteriorating world."

Markus enjoys writing fiction and often will write as a way to wind down after a stressful work day. Although the characters in his story struggle with finding meaning in their actions, Markus contends that, "The meaningfulness of your life and the usefulness of your actions are something you yourself are in charge of. There is no point in giving up."

He had a big, white plastic bag slumped on the ground beside him on which it said "BusinessImprove". The bag was worn and dirty, stained with the greys and blacks of street life. A hole in its side, right beneath the brand name, gave a glimpse of some of the contents; a scribbled notepad and a thumbed copy of a paperback. When he lifted the bag up, the handles – so worn and elongated – were not much more than two plastic strings which cut into his gloveless right hand. November, his knuckles red and stale in the icy, damp wind, he carried the bag unnoticed through the city streets, with the blank expression of going nowhere, slowly, on his face.

He wore a foliage green military style jacket. Pockets and tears, stains and zippers criss-crossing the front of it, it was like a map of strange lands; a history of struggles. The hood was padded with faux sheep skin which, by now, after years of wear and no laundry, smelled intensely of greasy hair and cigarette smoke.

Though, of course, Jonathan Doer, being so used to this second skin of his by now, didn't notice that. Or, when he did, didn't care. Smelling nice was rarely high on his internal list of priorities.

High, on the list, were things of a more immediate nature. Food, for instance. Drink and smoke a close second. He had a place to stay – a dark corner of an unused subway station, reminding him of some forlorn cold war bomb shelter (which it probably was, too) – where he could leave his blankets and sleeping bag, his cardboard pads, and the rest of his modest library. But the few things he couldn't leave there unattended during the day, too precious to him, had to come with him, bumping along in BusinessImprove.

"I wasn't right, back then," Ron had said the night before over a half-empty Vodka bottle. "Not the tightly knit package I am now."

In the darkness of the subway station, the only light coming from a candle stuck in an old PET bottle between them, Jonathan had felt that he and Ron actually were pretty good friends. When the feeling of friendship, of trust, suddenly came over him like that, he felt like a kid again, out camping. Just for a second. He used to go out camping as a kid, sometimes with his dad, sometimes with friends. He remembered the feeling of lying warm and sheltered in a cold and harsh world, hearing the rain hit the canvas, the wind in the tree tops, and the soft voice of another human being in the dark. It had been a feeling of freedom, of adventure, of a tomorrow filled to the rim with possibilities.

But being homeless wasn't camping, and he had soon come to his senses again. There wasn't any freedom attached to this, no adventure, and tomorrow was nothing but a continuation of the hardships of the very recent past.

And they weren't really friends, he knew that too. Well, not more than he knew Ron would sell him out for a bottle of booze. And Jonathan knew, deep down, that he would return the favor, given the opportunity. Uncertainty did that, to friendship.

Fortunately, for both of them, such opportunities for betrayal were few and far between.

"What do you mean?" Jonathan had answered.

"I'm flat, now. Like the sea. Containing myself under a surface. I can reflect things, now. I accept things like they are. When I was younger, teenager and later, I used to go up and down like crazy. I was like a hurricane, humidity all over the place."

"Before the drink?"

"Before the drink," Ron had nodded. "Drink's medicine, you know. For a young hurricane man."

"I used to live as if there was no tomorrow, back then. Or, no, actually the opposite. That there was nothing but tomorrow. Saving the planet, the whales, or whatever. Can't even remember now. Thing is, tomorrow used to be this grand metaphor, you know. Tomorrow meant the future, forever, for everyone."

"And now?"

"What?"

"What's your take on tomorrow now?"

"Tomorrow is nothing but the day after this one, and tomorrow I'm going to get by. Period. I'm going to get food to eat, I'm going to stay warm. How could I afford anything else?"

Getting closer to the harbor, the cold wind picked up. He had neglected a shave for weeks out of pure self defense, handy now.

Sometimes Jonathan went to bed hungry, but usually he'd get something. A bag of chips – sour cream and onion his favorite – was enough to fill his stomach for a whole day, if he restrained himself. Cigarettes helped, too, the nicotine reducing the hunger.

He'd seen kids down in the metro tunnels. They usually came out at night, hidden in the darkness of the tunnels during the day, with gloomy, dark eyes, sniffing glue from paper bags. At least, that's what he thought they were doing. He'd heard about it. They came in small groups of about five, to surface, to loot and glean whatever they could from the world up there, taking aim – he guessed – at the food stores' locked, surveilled and guarded trash containers. Silently going past him while he was just about to fall asleep, they never bothered with Ron and him. Ron called them Night Children. Unwanted, unknown, regarded useless and a problem, they seemed, to Jonathan, to be on a road to complete self-annihilation.

Jonathan couldn't help but feel sorry for them. He'd read about seabirds dying from starvation with their stomachs full of plastic trash that they mistook for food. Albatrosses, gulls, pelicans. These kids were like that, like sea birds. Glue cheaper than food, they probably got more bang for the buck sniffing glue than buying food.

Jonathan stayed with nicotine and alcohol, even though other drugs came his way pretty often. He guessed for conservative reasons. Better the devil you know.

He reached the seaside mall. Silence in the air, the parking lot felt almost dead. There was a grocery store in the mall – one of those big, cheap ones – the size of three football fields. There were surveillance cameras everywhere in the ceiling, but by now it had been empirically proven that the majority of them weren't plugged in. Or, if they were, no one was watching. But you had to buy something, otherwise they'd stop you going past the counter, on pure suspicion.

He went in, with every sense on alert, continually trying to register the presence of other people around him. He needed a moment of privacy, and when that moment came, it didn't matter what he had in front of him, he'd snatch it anyway. He walked slowly down a strangely empty aisle. But the moment came, and he grabbed a handful of bags of freeze-dried vegetable soup, which was the only thing within reach. He squeezed them inside his jacket and continued to the counter. He bought two packs of Rizzla, put them in his pocket, and left the store. A job well done, he walked slowly homewards.

A few years ago, life had been a whole lot easier. And he'd never even seen any Night Children. There had been the soup kitchens, the churches, the helping hands. Back then, he'd even been able to get through the day by just standing on a busy street with a jug and a sign more or less accurately describing his predicaments in a few well selected words. He remembered one time, now, crossing that very street, when he'd been standing no longer than five minutes before this woman – not looking very rich, either – put a 1000 crown bill in his jug without a word, giving him food and drink for a couple of weeks. He'd calculated that it had paid off close to 500 times minimum wage.

It was harder now. People were less willing to give since the crises, and the soup kitchens had run out of funds for the very same reason. In combination with a growing number of people becoming homeless, the queues to the few soup kitchens still open were blocks long, especially at this time of year.

Things were different, now. People were different. Everyone looked after their own, and not much more than that. With recession came uncertainty, and with uncertainty came watchfulness, meanness and protectionism. Uncertainty did that to society.

An hour later, he reached the station. It didn't look like much, just some smashed windows and a couple of big, broken glass doors leading into an anonymous, square concrete structure, all surrounded by a wire fence topped with some old, rusty barbed wire. There was no traffic going past outside on the street. The concrete walls were heavily graffitied and the ground was littered to the point where not even weeds would grow there in the summer. He got in through the hole in the fence, put back the old wooden crate hiding the hole, and slipped in through one of the broken windows, careful not to cut himself on any of the large shards. The iron sky turning to night as he entered, the street dark.

It always took a couple of minutes before his eyes got used to the lack of light. He walked slowly down the corridor, down the long stairs, his worn boots echoing softly in the dark emptiness. He lit his small LED lamp. It was one of those lamps meant to go on a key ring, but he didn't have any keys. Slowly, so as to not trip on any of the garbage lying about, he walked further underground, down the dead escalators.

He finally reached the platform – pitch black except his little LED – and walked to the corner where he and Ron had their stuff. First he didn't think Ron was there since no candle was lit, but when he started fiddling with the matches, the pile of cardboard, newspapers

and old rags beside him started to move and groan.

"Thought you weren't here," Jonathan said, somewhat startled.

"Thanks, you too."

"What've you been up to today?" Jonathan asked while lighting the candle. The place wasn't at all welcoming until at least one candle was lit.

"Not much. You?"

"Got food. Vegetable soup. Do you have any fuel for your stove?"

Ron did, in an unlabeled plastic bottle, and before long, dinner was served.

"Thanks, man," Ron said afterwards, burping. "I just didn't have it in me today, you know. To go up."

"You're buying next time."

"Right. Can I offer my dear sir a glass of spirits?"

"Sure."

Ron poured carefully from the now almost empty Vodka bottle into a white disposable plastic cup.

"Cheers," he said without waiting for Jonathan, and drank from the bottle, emptying it. He threw away the bottle into the dark, smashing it against something hard. He then started crawling back into his pile of insulation.

"Are you alright?" Jonathan asked, suddenly worried, halting the drink midway.

"I'll answer if you answer one first," Ron mumbled.

"Yeah?" Jonathan said and drank the strong drink in one go.

"Did you read the newspaper today? Or yesterday? Or listened to the radio or anything?"

"No. I never do."

"You should. The economy is total shit."

"When isn't it?" Jonathan asked rhetorically.

"But this is worse than usual. Things are really crumbling. Oil prices are skyrocketing and we're running out of food. *Here*, not in Somalia. People are laid off in the thousands, up there. I mean, things are really getting bad."

"I don't wanna know," Jonathan said, shaking his head. "That's why I don't take in the news."

"What a great strategy. I never thought of that. Really takes care of things, doesn't it."

"What can you do, though? Huh? What could you and I possibly do to make it better? Listen to the news, get scared, and hope – that's all we can do. And I'd rather skip the first two."

"We're not gonna make it, Jonathan Doer," Ron said slowly, sitting up. "Were the shelves half-empty in the store?"

"Yeah, they were."

"Soon they'll be totally empty. Don't you get it? We're going to starve if we don't do anything. This winter could kill us." Ron said this quite matter-of-factly, like he was stating the obvious, which scared Jonathan even more.

"But what can we do?" Jonathan pressed again, in pure self-defense. "When I was young, I used to work with this. I was trying to convince everyone this was gonna happen one day. I read and wrote about it, I talked to powerful people. No one cared at all. Nothing ever happened. And at that time I was *in*, you know. I knew people. Now, I'm just a wino in a

glorified basement. And you too, by the way."

Ron looked at him for a little while.

"You've already given up."

"I gave up a long time ago," Jonathan said, feeling more and more irritated. "I had good reasons to."

"They say on the news that people should start sharing more. The politicians are urging people to help each other. The unions are in an uproar 'cause the politicians are asking people to work for free, basically, with things they are good at."

"How nice."

"We could help out too," Ron said a little sheepishly.

"With what?" Jonathan said, still irritated, though calmed a little bit by Ron's attempts.

"I'm pretty good at building stuff. I worked as a carpenter for a while."

"Good for you. You think now that the economy is imploding in on itself is a good time to finally get your hands on a job?"

"Fuck you," Ron said in a sort of soft and kind way, obviously hurt to some degree. Jonathan felt he had crossed a line of some kind and felt acutely ashamed for it. "I just, you know …" Ron continued, looking into the darkness. "I wish I could help, that's all. I wish I could be of use. Yeah, that's it. I wish I was useful. It's the most wonderful thing really, to be and to feel useful. It's been a while. And this crisis or whatever is begging everyone to be just that. If I can contribute with the little I can, I'd not only survive, I think, but actually be a lot happier than I am now."

"But how on earth are you going to get that job? Or are you going to work for free?"

"Every job I've ever had I had for the salary. Nothing else. I know how to build a house, but I got into that trade, once, 'cause I wanted the money. I worked for myself, not for anything else. And every job I ever had, I failed. Eventually. This … What if it would be possible to work for something larger than a salary? Going to work, not because of the paycheck, but because it's simply … good."

Jonathan looked at his friend who obviously struggled with getting the words right. He got the feeling that it was, in equal parts, some kind of action plan, some kind of political statement, and some kind of confession he was hearing. How could he just shoot this down? He couldn't.

"I'm … good with words," he admitted, finally, breaking the silence that was building up. "I've actually written a novel, once, published and everything. Didn't go very big, though. That's kind of obvious."

"What, you're like a proper writer?"

"I guess. Was, anyway."

"I had no idea I've been sharing drinks with a writer for two years," Ron smiled.

"I had no idea you were a carpenter."

"Why don't we … I have a suggestion," Ron said, eagerly. "If this crisis situation is really as bad as they claim, I don't want to sit here and wait and starve. I want to at least give it a try, you know. To be useful again. I'm going up there tomorrow, and I'm not going up there to steal and beg. I'm going up there to see what I can help out with. If I can be of use. Why don't you come with me?"

"I don't think being good with words will help anyone these days," Jonathan said, hear-

ing, somewhere in the back of his mind, his own voice from years before saying the complete opposite in regards to the merits of writing.

"Fuck you."

The Five Key Principles of an Education for Sustainability

Erik Edquist
is a teacher from Falun, Sweden. He grew up in Örebro thinking that, "Everything was fine, until I realized that it wasn't. Therefore, my current aim is to smash that illusion for everyone else so they can start acting."

Change is inevitable, according to Erik, due to the inherent unsustainability of our culture. The question is if that change is going to be a voluntary transformation or an involuntary collapse. "The latter scenario seems less pleasant and unfortunately more likely than the first." Even though his standpoint is rather grim, he maintains that, "It is never too late to act. It can always get worse."

Introduction

In the time of threats of apocalyptic proportions to worldwide ecosystems, it seems to be about time for a new approach to more or less everything. One of the key challenges is to bring education to the forefront of sustainability issues. This paper was inspired by the conference *Challenging (Un)certainties* in the spring of 2011 as a part of the course *Worldviews and Discourses – A Seminar Series*. One of the key issues of the conference was: How can higher education help us meet the sustainability challenges of today and tomorrow? This question is what this paper will be about. However, as a high school teacher, my main interest is how high school education can be organized in order to answer this question, but the paper is relevant for all levels of education. I will present and argue for five key principles an education for sustainability should contain.

Objectives of the Education System

The education system is in many ways the foundation of a society. It is inevitably an institution of fosterage. When organizing educational institutions we therefore need to ask ourselves: What kind of citizens do we want in our society? In this urgent time of ecological crisis there is a clear need for something more than just loyal citizens. We need people who can and will change society towards sustainability. Ultimately, the question we need to answer is: What kind of citizens do we need in order to change society towards sustainability? The five key principles in this paper are based on this question.

In "What Is Education For?", David Orr (1991) argues that the destruction of the ecosystems is not the work of ignorant people. It is the work of people with university degrees of different kinds. Orr's point is that education is no guarantee for decency, prudence or wisdom. It is not more education that we need, but education of a *certain kind*. Orr then recognizes six myths that lay the foundation of modern education and six new principles that could replace them in order to create an education for human survival. Orr's six new principles are:

1. All education is environmental education,
2. The goal of education is not mastery of the subject matter, but of one's person,
3. Knowledge carries with it the responsibility to see that it is well used in the world,
4. We cannot say that we know something until we understand the effects of this knowledge on real people and their communities,
5. The importance of "minute particulars" and the power of examples over words (we learn primarly by how people act, rather than from what they say),
6. The way learning occurs is as important as the content of the particular course.

In his article "The Critical Role of Higher Education in Creating a Sustainable Future", Anthony D. Cortese (2003) argues that "We need a fundamental, transformative shift in thinking, values and action by all society's leaders and professionals, as well as the general population" (Cortese, 2003: 16). To make the necessary change in mind-set for this vision, we need to transform education at all levels. Cortese argues that the present educational system stresses individual learning and competition which results in professionals ill prepared for cooperative efforts. According to Cortese, students don't yet receive any incentive to challenge assumptions such as:

1. Humans are the dominant species and separate from rest of nature.
2. Resources are free and inexhaustible.
3. Earth's ecosystems can assimilate all human impacts.
4. Technology will solve most of society's problems.
5. All human needs and wants can be met through material means.
6. Individual success is independent of the health and well-being of communities, cultures and the life support system.

An opposing view, at least regarding the Swedish curriculum, is presented in the bachelor thesis AIdeologiska innebörder av hållbar utveckling i skolanI (Ideologic meaning of sustainable development in school). In the thesis, Erik Edquist and Martin Höglund (2009) examined whether the Swedish curriculum of Lpf94 could help to create an approach that would enable sustainable development. The main conclusion was that the ideological content of the curriculum is largely consistent with the ideology of ecologism, in which ecological goals serve as a guideline for development. That ecologism is a sustainable ideology, and that there are similarities between the curriculum and the ideology of ecologism, means that the curriculum can contribute to an approach that enables sustainable development. The conclusion raised several reflections for Edquist and Höglund:

If the society develops in an unsustainable way, at the same time as the curriculum is in some perspectives environmentally radical, what does this mean about schoolsI role for sustainable development? Doesn't school affect the development of a society? Or isn't the curriculum implemented? (Edquist & Höglund, 2009: 40 [my translation])

It is obvious that school affects society since all Swedish citizens spend at least 9 years of

their life in school. However, the knowledge taught and the values preached – implicitly or explicitly – in schools are not the only ones encountered by a Swedish citizen. Actors such as media, commercial interests and politicians also influence citizens, and sometimes in an antagonistic direction compared to schools.

The question, then, is whether the curriculum is implemented. There is certainly a need for questioning whether teachers' competence about issues related to sustainability is good enough. A study by Borg (2011) showed that more than 70 % of Swedish high school teachers think they need further training in education for sustainable development. The study also highlights that it is difficult to implement general goals like sustainable development, due to strong subject-bound traditions. Furthermore, teachers, too, are probably influenced by media, commercial interests and current political events and trends. Another explanation could be the structural problems regarding economy, private schools or the traditional division of knowledge into subjects and disciplines. Regardless of whether it is a problem of antagonistic influence, lack of competence or a structural flaw, Swedish society is far from sustainable and desperately needs change. The following principles are therefore aimed at developing action competence in order to make the students change agents for a sustainable future.

The Five Key Principles of an Education for Sustainability

1. A Moral Universe that includes all of the Biosphere.

What if humanity could embrace all beings on the planet into their moral universe. Jeremy Rifkin (2010) shows us that this could be possible. In "The Empathic Civilization", Rifkin shows that humans are wired with mirror-neurons, meaning that we feel similar emotions as a person we observe. In Rifkins words, "we are soft-wired to experience another's plight as if we are experiencing it ourselves" (Rifkin, 2 min. 27 sec.). Rifkins point is that humans are empathic beings and that educational institutions, business practices and governmental institutions are based on false assumptions about human nature as selfish and that the same institutions are actually repressing our empathic nature. Rifkin then asks: Is it possible for human beings to extend our empathy to the entire human race, other species and ultimately the biosphere? If it is possible to imagine, then Rifkin argues that it is possible for us to save our species and the planet. If we can't imagine this, Rifkin cannot see how we are going to make it. Fortunately, it is possible to imagine such empathy. Rifkin turns his attention to history in order to explore how consciousness has changed through the passage of time. In a hunter-gatherer society, empathy is usually extended only to the local tribe. In the emergence of large-scale agriculture civilization, our empathy was extended to the fictional denominator of religion. In the 19th century, and the industrial revolution, we then created a new fiction called the nation state which caused an empathy with no other common denominator than nationality. Rifkin then suggests that if we have gone from empathy in blood tie, through empathy in religious ties, to empathy in national identity, shouldn't it then be possible to move beyond family, religion and national borders to extend our identity to the common denominator of the biosphere, into the empathic civilization?

In a globalized, densely populated world, a moral universe that includes the entire biosphere seems like a necessity for sustainability. One important point however, is that the

suggested extension of the moral universe does not mean that we should have less compassion for people close to us. It does not mean that we shouldn't take care of ourself or our family. It is only natural that we have greater compassion for those close to us, and it shouldn't be in any other way. An expanded moral universe means that we should show even greater compassion for our closest, but without compromising the well-being of others or the planet.

But why should this be included in the educational system? First of all, an education system is an institution of fosterage. As Rifkin explains, right now, many of our educational institutions are repressing our empathetic nature by assuming that we are selfish beings in a competitive race. Secondly, knowledge by itself is no guarantee for empathy or moral behavior. One of Orr's suggested myths of modern education is that knowledge is increasing and by implication human goodness. Many of the ecological instabilities that are threatening us are caused by the work of people with higher education degrees. Thus, education does not guarantee moral behavior (Orr). If an extended moral universe is promoted in our educational system, we would be able to have greater compassion for all residents of the planet and this would inevitably promote sustainability. I therefore suggest that a moral universe that includes all of the biosphere should be one of the key principles in an education for sustainability.

2. A Holistic Perspective

A holistic perspective means that the world is seen as a whole consisting of interdependent parts. All variables are taken into account, which inevitably means that issues related to human/environmental interdependence and sustainability will play a central part in all education. Since a holistic perspective is holistic it needs to include everything, not just knowledge reproduction, but also the learning environment as a whole. A holistic learning environment views the natural environment as an integrated part of the education where students can learn about natural resources, school organization and the local community. It is therefore important that the surrounding learning environment is consistent with the educational values.

One of the key factors to address environmentally sustainable action is interdisciplinary systems thinking. Fragmented knowledge without connections to larger systems results in a view where interdependent challenges are considered separate, hierarchical and competitive. The net result of such thinking is often ineffective, narrow, or even harmful for people or the environment. The academic disciplines are in general organized in highly specialized disciplines. This creates a problem since the process of creating a sustainable future is one of the most complex and interdependent issues humanity has to deal with (Cortese).

Both Orr and Cortese suggest that the flow of material resources – food, energy, water, waste, etc. – should be explored as part of the learning experience. This will give the students an understanding of how to analyze resource flows, as well as the opportunity to participate in the creation of real solutions to real problems. This also relates to what Orr calls the power of examples over word. If we hear about global responsibility as a part of our education at the same time as the institution acts irresponsibly, we will most likely learn about hypocrisy, the frightening gap between ideals and reality, with the potential consequence of despair (Orr). The complex issue of sustainability urgently calls for a holistic approach to

education. It is therefore one of the five key principles of an education for sustainability.

3. Ecological Literacy

The principle of ecological literacy is inspired by Orr's proposal that no student should graduate from any educational institution without this basic understanding of how the world works. Orr suggests that the ecological literacy standards should include: The laws of thermodynamics, the basic principles of ecology, carrying capacity, energetics, least-cost, end use analysis, how to live well in a place, limits of technology, appropriate scale, sustainable agriculture and forestry, steady-state economics and environmental ethics.

Orr also suggests that all education must be environmental education. Orr motivates this by saying that what we include or exclude in education will affect students' perception of whether they consider themselves a part of, or apart from, the natural world. As an example Orr uses economics. If economics is taught without referencing to the law of entropy or ecological laws, then the lesson to the students will be that economy has nothing to do with physics or ecology. That is dead wrong. Similar arguments could be used for other disciplines (Orr).

This kind of knowledge, that our civilization is dependent on nature, may have seemed obvious to members of previous societies, when all aspects of life were focused on the land and its productivity But in a complex society such as ours, where many people live in urban environments with little or no contact with the actual soil, this kind of knowledge isn't obvious. However, it is still the foundation of all aspects of life and urgently calls for our attention. In order for an advanced society to become sustainable, its citizens will need to be ecologically literate, and the educational institutions have to communicate that kind of knowledge. Otherwise it might be that the quote by Ralph Waldo Emerson will eventually turn out to be true: "The end of the human race will be that it will eventually die of civilization" (Quoted in The Dark Mountain Project, 2009: 1). Furthermore, knowledge also serves as the basis of critical thinking and the guideline for our moral actions. It is not the goal of this paper to set ecological literacy targets. The aim of this paper is to state that ecological literacy should be seen as one of the key principles of an education for sustainability.

4. Critical Thinking

To be a critical thinker is to question critically but fairly, and act according to one's conclusion. Finn Mogensen (1997) defines the central characteristic of critical thinking as "reflective and evaluative thinking which must lead to a reasoned judgement" (Mogensen, 1997: 432). As a critical thinker it is not enough to take a stand just for the sake of it. Why and on what basis the position is founded also needs to be clarified (Mogensen).

Mogensen views critical thinking as a central educational concept, since a healthy, just and sustainable future isn't created without thinking and uncritically, continuing in the same old rut. Instead there are many things that indicate that the present growth-oriented so called progress needs to be questioned and challenged in order to create a desirable future. According to Mogensen, education must also be critical and transformative in a non-prescribing manner in order to promote democracy. To understand Mogensen's statement, help is taken by Manus I. Midlarsky (1998) who has evaluated the environmental effects of democracy. In a multiple regression analysis, democracy was statistically shown to lead

to a significant negative effect for three of the indicators examined, deforestation, carbon dioxide emissions and soil erosion, and had a positive effect for protection of land areas, and no significant effect for freshwater availability and soil erosion by chemicals. The conclusion is that assumptions concerning the positive environmental effect of democracy need to be reexamined. Democracy is not simplistic in its relationship with nature (Midlarsky). To promote and sustain a healthy, just and sustainable democracy, knowledge and values need to be continuously questioned. Education should be critical and take a controversial stand rather than a place of accommodation. Tradition and structures in society are not just phenomena that should be reproduced. They need to be continuously critically analyzed and, if the students think it is appropriate, opposed (Mogensen).

Environmental education has a responsibility to develop students' ability, responsibility and motivation to get involved in future problems; in other words, to develop their action competence. Mogensen argues that there is a close connection between action competence and critical thinking. Critical thinking is a way of qualifying the ability and will to act. Mogensen therefore argues that education has an obligation to promote critical thinking. Knowledge and conviction is nevertheless enough for major change. What the world needs is action on the basis of comprehensive reflection. Mogensen argues that this kind of action competence can be met by embracing the complementarity of critique and possibility. The aim of critical thinking is not to promote pessimism, apathy or unnecessary fear. Nevertheless, "too much" critical thinking in a vicious world could promote these feelings. The language of possibility can then serve as a complement in order to promote action competence. Critique can contribute to clarification of problems, while possibility contributes by making the solution meaningful and possible (Mogensen). For these reasons, critical thinking is one of the five key principles of an education for sustainability.

5. Creativity

Albert Einstein once said: "The significant problems we face cannot be solved at the same level of thinking we used when we created them" (Quoted in Cortese, 2003: 16). This statement is probably more valid than ever and there is therefore an urgent need for creative citizenship in our society. Our economy can no longer rely on fossil fuels as the main energy source or the belief in endless material growth. We now need to use technology better, organize labor smarter, cooperate more, localize further and enjoy life more. These change processes demand a new kind of thinking and calls for creative minds. Another important aspect of creativity is that it will help us to imagine. If we are going to transform the world, we need to be able to imagine a better one.

Imagine a society in which all present and future humans are healthy and have their basic needs met. What if everyone had fair and equitable access to the earth's resources, a decent quality of life, and celebrated cultural diversity. [...] Imagine that we are managing human activities that restores and increases the biological diversity and complexity of the ecosystems on which we all depend. (Cortese, 2003: 15-16)

These are ideals that most people would agree on. Cortese argues that in order for us to create this future we need a major shift in thinking, values and action on all levels of society.

Another reason for including creativity in the learning process is to raise the efficiency in the learning process. Orr argues that the way learning occurs is as important as the content of the particular course. A key understanding is that the process is important for the learning. Too much lecturing tends to induce passivity, for instance. Indoor learning also creates an illusion that the learning process only occurs between the school walls. Active, experiential, inquiry-based learning and real-world problem solving is more effective than lecturing since we retain 80 % of what we do and only 10-20 % of what we hear or read (Orr). The much needed transition of the society demands a new kind of thinking, the ability to imagine a better future and activating pedagogic methods. Creativity is therefore one of the five principles of an education for sustainability.

Final Words

I have argued that an education for sustainability is founded in five key principles. With the five principles I have tried to answer the question: How can high school education help us meet the sustainability challenges of today and tomorrow? Hopefully, this article has contributed to the debate on how the goal of an education for sustainability could be met. This article argues that this is done by promoting:

1. A moral universe that includes all of the biosphere;
2. a holistic perspective;
3. ecological literacy;
4. critical thinking and;
5. creativity.

In the end, the only thing that stops us from creating a happy, prosperous and sustainable future is the mind-set of all the people. Changing that mind-set is what education is for.

The Young Sustainability Enthusiast Contemplating Sustainability of the Young Self

John Hu

Born in a deteriorating industrial suburb in Taiwan, John Hu is now a student and community volunteer living in Canada. Inspired primarily by the idea of being in times of (un)certainty, he wrote this "rational or not, funny or desperately-trying-to-be, serious or pretentious? stream-of-consciousness short story/poem in a matter of minutes. It's a step back from the rational and the moral, to a raw look at being in "the reality of unsustainability".

> Promotion of hand washing and breastfeeding, delivery of vaccinations, and distribution of condoms to control the spread of sexually transmitted diseases are examples of common public health measures.
> – Wikipedia

I

Having a passion for needles, milk from breasts, condoms, and dirty hands … an aspiring public health professional I am. I am also a proud vegetarian (I have a t-shirt to prove it) who has learned to savor the likes of beans, broccoli, and lentils at the age of 21 – when it is absolutely too late to improve your employment status in any way through a healthier diet despite what the professionals tell you. I meant to say health status. But 36.7% of the time I am not vegetarian, but please don't say it: I do not wan to hear the words "unreliable narrator" ever again after looking up SparkNotes with the most disorienting episodes of confusion upon finishing three novels on three separate accounts. Was that grammatically correct or have I been confused by re-stating a solid strategy for stalking on social networking sites? I am telling you the truth. I am also not a pervert, unless you have already been convinced by the Wikipedia quote above, which seems to be as politically correct and polite as one can get about favorite pastimes and personal preferences. For me, that has to be a good old-fashioned slap-fight. My 3rd grade teacher told me that fighting is not the solution to anything. But I grew up to learn that anything worth your time in life requires fighting against something or fighting for someone. There is a kid who goes around the streets walking backwards as an all-out anti-mainstream effort. His name is Scotty. He has a scalp that is a lot of fun to look at if you can see it. He also stole the fake love-of-my-life who remains convinced that she can look skinnier in her pants if she buys an Iphone for her and her sister. Her and Scotty say sorry every time he walks into a car parked on

the streets but the car alarms on my neighbour's cars are so loud you'd think they're just lip-synching it. Nevertheless, I accept their apology every single time, especially when I am not at home. I'd like to think that a home is not a home anymore when I am not at home anymore.

II

Until you come home again and realize everyone has been fine without you, and you sigh. Then you feel the greatest sense of relief in the world. I certainly have a neckache: a crisis of our times, but not yet a proper word. Have you ever wondered, for all those times when people around you told you they had a "headache", that a large percentage of those debilitating and dehumanizing life-events are actually neckaches? Those neck support thingies people wear after a car accident shall become the single item of prestige in the coming century. Mark my words. Who can earn lots of legit money without staring at the legit computer screen for hours and who can stare at the computer screen for hours and not get a neckache? And, what better way to show off lots-of-money and a neckache then by wearing a neck support thingie designed by rich Italians whose fathers knew all the other rich Italians? I'd like to clean my foresight one day, because I am growing sad now that I see the process will not work in reverse. No one will stand up for those who wear neck support thingies but never earn enough. Already, I hear vain voices on the hypothetical streets: "What are you trying to be? Rich?!" And yet, the neckaches of the poor are more real. The alliteration of the word reminds me of how I keep myself awake at night, half-crying, wondering why I never went to a cooler elementary school with girls named Nikika, NeKeyshka, and NeKaylakya. I could've been a different self in high school. I should've been aware of that before I entered high school. I once ordered some sushi at a Japanese restaurant and there was a song about ping-pong in an Asiatic form of communication that is referred to as K-pop. In good English, the waitress came and made an extremely racial remark while pretending to talk about some sushi that they named inappropriately.

III

I refuse to regurgitate that name here, but you may choose to locate it on every Japanese menu. Bök says "I have put in a long, hard day at work, and I finally get to go home, to go to bed, where I close my eyes—and immediately I wake up and realize that my whole day at work has in fact been a dream, in which you sell all your waking life for minimum wage, while they get your dreams for free." Celine Dion says Google with a "the" in the front. Argh! Don't you just hate it when your pinky misses the shift key and your ")" turns into a "0", leaving your smiley face with less-than-intelligent eyes and a widegapingmouth? Academic journals are lots of fun. I know this place at Simon Fraser University where people throw a lot of paper aero planes, some of which land on the window sills 2 to 3 stories high. "Woot-woot" and high fives are common celebratory expressions for having one's plane land anywhere that is not land. One evening we ripped off all the ads on the bulletin boards for law school and med school entrance examinations and for medical school in the Carribeans and then we spent sweet time meticulously crafting paper aero planes. Little fingers moved

nimbly. And we sat beside each other at a small white table. For the record, the song goes "da dada, da da dada DA, I wish I could fly away, on a paper airplane". I cannot screw this one up, I'm telling you with a crisp snap of my fingers. That line is among the top three or four favorite lyrics from songs I have bookmarked from Youtube TM (pronounced "tee-em", which stands for "TeleMubbies") so I do not infringe upon any copyright laws nor lose family income by actually downloading the songs. In no particular order these most memorable lyrics are: 1) "forgive me, forgive me, forgive me-ology"; 2) "and some machines are dropped from great heights, lovingly"; and 3) "Farewell so long 'cause I was wrong I guess."
When it ends, sometimes there is that moment of silence. It feels like you are awake for the very first time, when you did not know that you will miss it for the rest of your life.

Thanks

While editing this anthology, I have had ample opportunity to be impressed be the contributors hard work, patience and creativity. This book would be nothing without you – a statement as close to truism as they get. I – and Cemus as a whole – owe you our sincere thanks.

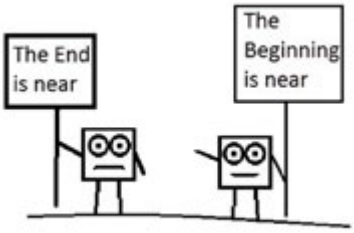
I want to thank Rose Dumas, Mark Wilson and Joel Lindberg for their contributions in the editing process and layout, and also for being supportive and positive.

I am also very grateful to Hanna Andersson, Justin Makii, and Christian Williams for their readiness to help out with illustrations.

Petra Hansson, Brian Palmer, Tatiana Sokolova and Kristin Follis aslo deserve special mention as their work in the editorial committee was vital. Without your help, opinions and support this book would not be what it is.

Visual contributors

Agree to Disagree?



Markus Skoog

is a student at Cemus currently living in Uppsala, Sweden. The inspiration for his bluntly comical cartoons originally came in the classroom when studying sustainable development, when the frustration over the state of the world made him draw some doodles in his notebook.

To Markus, the future looks grim. But hope and meaningfulness is in one's own hands: "hope is not something that is given to you, it's something you create. I create my hope by participating, trying to make a change. It brings meaning to my life."

In The Balance

Elin Hjulström

is an illustrator and animator living in Gävle, Sweden. She grew up further north, in Jämtland, where the forests, mountains and the silence gave her a "slightly philosophical approach to life". This picture represents a way of being in the world, where one is sometimes torn between "the faceless circumstances your everyday life."

Burning Cold Ashoona

Greg Stones

is from Canada and is currently studying sustainable development in Uppsala, Sweden. The wilderness and sense of isolation of Greg's native country is contrasted by his country's government which is showing a "decaying sense of responsibility" in environmental and social issues. This disparity motivates Greg.

Fish have become an important symbol for Greg as their gaping mouths and staring eyes remind us that, now, nature is at our mercy. Apart from Admiral Ackbar, Greg admires the old man in the picture, asking how different cultures are "affected by the current and coming climate issues."

Deer Summer

Tatiana Sokolova

is a masters student in Sustainable Development at Uppsala University and SLU. She comes from a large industrial city in Siberia from which as a child she wanted to run away: "I am still running, but it will never let me go. In which fact I find comfort, in a strange way."

With her lyrical writing and artwork, where the natural world seamlessly metamorphoses with the human one, Tatiana explores the wide range of emotions that living in uncertainty awakens; "It is nerve-racking and heart-splitting – and humbling, overwhelming and hopeful."

Untitled

Malin Östman

lives in Uppsala, Sweden, where she works as an educational coordinator and course coordinator at Cemus. To Malin, the dominant culture in the the world is one that, to a large degree, does not have the empathy and understanding of "the magnitude of how our culture affects nature and people". Her art here is a respons to that lack of empathy and understanding, inspired by the simple fact "that all people feel and suffer, love and long".

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