ROTTERDAM SCHOOL OF MANAGEMENT
ERASMUS UNIVERSITY

NATURE RESILIENCE

ORGANISING ECOLOGICAL RESTORATION BY PARTNERS IN BUSINESS FOR NEXT GENERATIONS

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IUCN CEM

RSM Erasmus University

Nature Resilience: Ecological Restoration by Partners in Business for Next Generations

Willem Ferwerda

A plea for the establishment of an international mechanism that actively creates collaborative Ecosystem Restoration Partnerships between businesses, investors, business schools, civil society organisations, farmers and local people, that international restoration targets will be reached, investments will be returned, and practical lessons are learned by working together.

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IUCN, International Union of Conservation of Nature, helps the world to find pragmatic solutions to our most pressing environment and development challenges.

"We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely." ***E.O. Wilson – Pulitzer Prize winner, author, and ecologist at Harvard University.***

Ecological Restoration at the Loess plateau in China.
Above: September 1995; Below: September 2009. *(Photo: John Liu, EEMP, China).*

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Foreword

Land degradation, climate change, biodiversity loss, new markets for natural resources: each has highlighted the need for society to 'come to terms with nature' if we are to ensure a safe space for humanity's development within planetary boundaries.

Our understanding of the true value of nature and the real prosperity we derive from it is more controversial than ever before. Nature cannot be seen as something different and separate from society but still needs to be appreciated as a force beyond humanity's control. The gap between our vast capacity to transform the natural environment and our limited ability to control the impact of our activity on that environment and the services it provides, has had untold repercussions for the entire planet.

It is one of the major contradictions and critical considerations for contemporary society. Prevailing attempts to resolve this contradiction through narrow managerialism, have been woefully insufficient to address the mounting crisis. Existing institutions and mechanisms cannot resolve the ecological crisis on their own. New solutions or better and different approaches are needed for the sustainable management of natural capital.

I am honoured, therefore, to introduce this new initiative. *Nature Resilience: Ecological Restoration by Partners in Business for Next Generations* is an ambitious and powerful new concept that will aim to do things differently.

Foreword

Nature Resilience will take a holistic view, going beyond traditional silos and disciplines. Instead, partners will focus on practical solutions and scaling up successful projects to restore land and seascapes. By calling for a rethink of the relationship between society and nature, Nature Resilience partners will accelerate positive impact towards a goal of restoring at least 200 million hectares of land in the next 20 years. This will help restore the Earth's systems and create a secure and resilient economy that improves human livelihoods while sustaining the natural capital resource base on which life and business depends. This reflects the core rationale of global efforts to strive to achieve a land degradation neutral world, agreed at Rio+20.

I welcome the fact that a broad coalition of stakeholders has already accepted the Nature Resilience challenge. Business imagination, invention, skills and talent are needed. The full spectrum of stakeholders must be engaged if we are to change how land and nature are perceived and valued, so that human development can continue within planetary boundaries.

Luc Gnacadja

Executive Secretary
United Nations Convention to Combat Desertification (UNCCD)

UNCCD

Preface

Over the past 17 years I've been researching and documenting the world, seeking to understand how natural ecosystems function and why human activities degrade them. What I have learned is that the air, water, food and energy on which we depend have all been processed by living systems on the Earth. We depend on micro-biological and biological life to generate, filter, constantly renew and naturally regulate the atmosphere, hydrological cycle, and natural fertility in the soil. My research shows that the Earth's natural systems have historically been degraded (and continue to degrade) because humanity has mistakenly valued production and consumption of goods and services higher than the natural ecological function of the Earth. I have also seen that there is no biophysical reason why these systems must be degraded and that it is possible to restore them to ecological health through purposeful and enlightened human effort.

The work of supporting the natural resilience of the Earth to restore ecological function is the single most important thing that all who are alive today must do. Given the complexity and scale of what needs to be done it is clear that new structures of management and implementation of ecological restoration

at scale are needed. Currently humanity faces fundamental challenges from pushing against the Earth's planetary boundaries. Biodiversity loss, food insecurity, desertification, human induced climate changes, chemical pollution and economic crisis all threaten our lives, families, communities, nations and civilization. We do not have decades or generations to ponder these issues: we must process this information and act now. Having the courage and the determination to face these daunting tasks is of vital importance.

The Nature Resilience initiative is creating a collaborative effort to envision a comprehensive and integrated way in which humanity can bring its best awareness, management, capital and technical capacity to bear to ensure human survival and sustainability by restoring fundamental ecological functionality to degraded landscapes on a planetary scale. This effort is urgently needed to stimulate and catalyze the monumental efforts needed to show that humanity can act as a species on a planetary scale. There is a role for every human being in this the "Great Work" of our time. I'm happy to dedicate my life to this effort and encourage all who understand this and can contribute to do so immediately.

John Dennis Liu

Documentary maker and Senior Research Fellow Ecosystem Restoration IUCN (International Union for Conservation of Nature, Switzerland)
Director, Environmental Education Media Project (EEMP, China)

Summary

"There are no economies without ecosystems, but there are ecosystems without economies ..."

The Economics of Ecosystems and Biodiversity

Our economies are based on production methods and consumption patterns that generate jobs and wealth, while simultaneously degrading and destroying the ecosystems that form the very basis of this wealth creation. Healthy ecosystems are at the heart of a sound and sustainable economy. Restoring damaged ecosystems is thus an essential way in which we can reverse the depletion of our primary asset and keep ecosystems functional for future generations. But while restorative efforts are currently being undertaken by NGOs, local farmers and government organisations, these efforts must be urgently scaled up. A wider global initiative is required that can mobilize and engage the expertise and resources of the full business community.

Ecosystems form the basis of all wealth creation. Ecosystem services flow from natural capital and are an investor's primary asset. According to the United Nations Environmental Programme (UNEP), ecosystem services are worth over US$21–72 trillion annually – comparable to the World Gross National Income of US$58 trillion in 2008. Ecosystems provide societies with soil fertility, food, water, shelter, goods and services, medicines, stability, pleasure, knowledge and leisure.

2 billion hectares are degraded. Today 60 per cent of the services provided by ecosystems are threatened. Economic activities aimed at achieving short-term wealth are destroying ecosystems worldwide and thus economies' primary asset. Restoring damaged ecosystems is essential if we are to secure the livelihoods of future generations. The United Nations Environmental

Summary

Programme (UNEP), the UN Convention to Combat Desertification (UNCCD) and the World Resources Institute (WRI) estimate that there are 2 billion hectares of severely degraded land suitable for rehabilitation through forest and landscape restoration. Of that, 1.5 billion hectares are suited to mosaic landscape restoration, in which forests and trees are combined with other land uses, including agro forestry, and smallholder agriculture.

Current efforts to scale-up restoration efforts are not succeeding. While several NGOs, farming and governmental organisations are working hard on ecosystem restoration, these efforts are currently not collaborative. Business, farming and ecological interests are generally not well aligned or integrated. In spite of international intentions such as those of the ministerial Bonn Challenge on ecosystem restoration, efforts to restore damaged ecosystems continue to fall short of stated goals. A situation has arisen whereby we know what needs to be done, but do not have the structure in place to implement it.

Only a collaborative effort between stakeholders will achieve restoration goals. We know from experience the immense power the business sector has as a driver of new partnerships and schemes. We also understand that a Return in Investment (RoI) is possible within this area when we increase the duration of projects. A scenario in which business and investors enter partnerships with science and other stakeholders thus holds the promise of effectively restoring degraded ecosystem functions to a state in which they can support a balanced socio-economy based on ecological functions.

Summary

An international 'dealmaker' is needed. This paper proposes the creation of an international mechanism for creating collaborative partnerships between stakeholders such as scientists, NGOs, governments and foundations and the business community. The proposed mechanism **Nature Resilience** would initiate and organise 20 year, tailor-made **Ecosystem Restoration Partnerships** between companies and stakeholder groups, wherein the explicit goal would be the restoration of millions of hectares of land in cooperation with local people, farmers and NGOs, in a way that conforms with international established guidelines.

Within the learning circle of Ecosystem Restoration Partnerships, **business schools** will be involved in such as way that ecology will be part of a new set skill set for a new generation of business leaders.

Ecosystem Restoration Partnerships would offer incentives for businesses to participate in the form of RoI and new connections with local implementing partners, while business-driven solutions and resources would aid in the significant scaling-up of current projects and the restoring of millions of hectares of degraded landscapes and seascapes.

Key words: natural capital, mosaic landscapes, institutional silos, ecosystem services, ecosystem restoration, biodiversity, resilience, business case, systems thinking, scalable, replicable, business schools.

1 Introduction

"Hope is definitely not the same thing as optimism. It is not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out." ***Vaclav Havel***

This paper is about hope and the potential for humans to address one of the most challenging issues of today: the degradation of natural ecosystems and the depletion of agro-systems, together called mosaic landscapes. Indeed, greater awareness and understanding is growing among strategic decision makers in government, business, science, and civil society that the current global economic turmoil is rooted in unsustainable production and consumption practices combined with a growing and more demanding population.

According to scientists of the Stockholm Resilience Centre, mankind is rapidly approaching the boundaries of the productive ecological capabilities of the planet. Nobel Prize-winning atmospheric chemist, Paul Crutzen, describes society as having entered a new geological period called the *Anthropocene*, in which human activity has significantly impacted and influenced planetary events. Just as we now recognise that our activities are a major cause of the problems associated with the age, we are also in a position to play a key role in positing the solutions necessary to reverse the damage done. But how and where do we start? Insights and personal experiences from specialists and local people in the fields of ecology, agriculture, economics, sociology, business, governance and finance have all contributed to this paper.

a. Planetary Boundaries

Many international studies have detailed the urgency of the environmental crisis facing mankind, including the *Global Biodiversity Outlook* (2011, www.cbd.int/gbo3), *The Economics of Biodiversity and Ecosystems* (TEEB,

2010, www.teebweb.org), the *2005 Millennium Ecosystem Assessment* (www.maweb.org), the 2012 *Global Energy Assessment - Towards a Sustainable Future* (www.iiasa.ac.at/web/home/research/researchPrograms/Energy/Chapters_Home.en.html) and the international barometer of biodiversity: *the IUCN Red List of Threatened Species* (www.iucnredlist.org), as well as studies from a resources perspective (McKinsey Global Institute[1]).

The concept of the nine planetary boundaries, as defined by the Stockholm Resilience Centre (www.stockholmresilience.org)[2], serves to provide us with an understanding of how the world's different global environmental threats interconnect. Figure 1 from Oxfam[3] shows the relationship between the environmental ceiling of each of the nine planetary boundaries as well as the 11 dimensions of human well-being as identified on the governments' priorities for Rio+20.

The conclusion we can draw from this figure is that, given the interconnectness of global environmental issues, one cannot be resolved without at least some understanding of how it influences and is influenced by the others.

b. Rethinking our relationship with nature

Solving the ecological crisis requires more than simply technical innovation. It requires the integration of knowledge and experiences of different stakeholder groups who have established a clear vision of a sustainable future, whereby economic activity operates within the functional boundaries and capabilities of the planet. It requires us to rethink our relationship with nature and the basic essentials provided by it: food, water, topsoil, energy, air, not to mention the planet's enormous variety of species (biodiversity) or,

1 McKinsey Global Institute 2011, Dobbs, R., Oppenheim, J., Thompson, F., Brinkman, M., Zornes, M. Resource Revolution: Meeting the world's energy, materials, food, and water needs.

2 Rockström, J et al. Planetary boundaries: Exploring the safe operating space for humanity. Ecology and Society 14, 32 (2009).

3 Kate Raworth, A Safe and Just Space for Humanity. Oxfam Discussion Paper, February 2012. Oxfam

more comprehensively, the biosphere as a holistic structure (closed system). In sociological terms, it requires us to re-establish our relationship with nature and human culture such that it is healthy and sustainable one for both parties. In this context, the debate on the concept of the "societal relationship to nature" unveils some interesting insights on the relationship of modern society and nature that are often missing in mainstream debates[4].

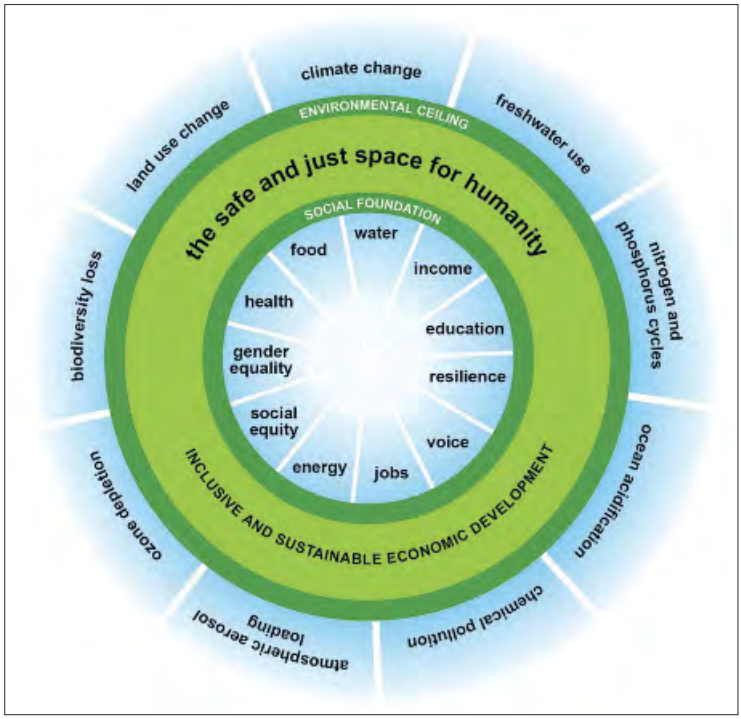

Fig. 1. **The nine planetary bounderies (Stockholm Resilience Centre, 2009) in relation to a safe and just space for humanity (Oxfam, 2012)**

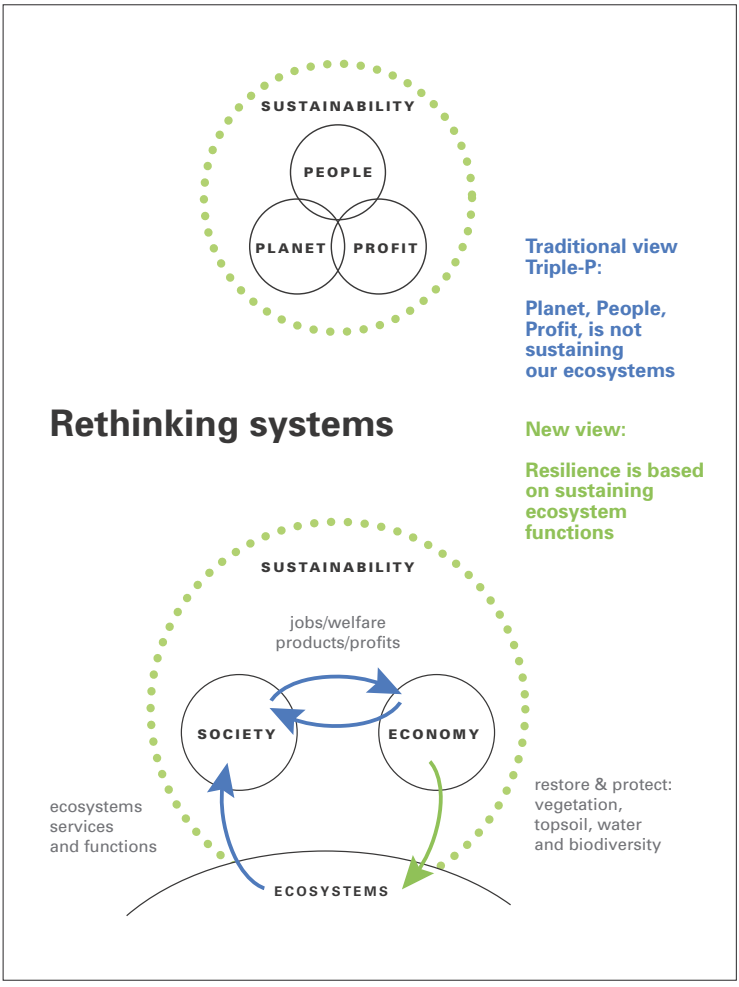

Fig. 2. The traditional view of the sustainability model (above), versus a more complete view where ecosystems form the basis (below). The green arrows are the basis of our unsustainable economic system. We need to organise the green arrow with all stakeholders including business to sustain ecosystem functions.

In economic terms, this change requires us to shift from a linear understanding of finance and business activity to one that is cyclical (feedback loops) in principle and operation, and based on a solid understanding of how natural systems work. It is imperative that we restore the mutually beneficial relationship between mankind and nature and meanwhile move towards a circular economy[5].

Much of the Earth's degraded lands are the result of modern (intensive, industrial) agriculture, with biodiversity and ecosystems functioning at levels comparable to heavily urbanised and industrial areas. Despite this, a wealth of recent knowledge and experience presents a strong case that it is still well within our collective ability to recover the functional health of degraded and unproductive ecosystems. What is needed is simply a better understanding of how both people and economies depend on nature.

c. Sustainability: From Triple P to Planetary Resilience

How does the 'Planetary Boundaries theory' fit into the present sustainability model of Triple P (Planet, People, Profit)?

The traditional view of sustainability is one that gives equal emphasis to three key stakeholders: People, Profit and Planet (Triple P or Triple Bottom Line) or Society, Economy and Ecosystems (figure 2). What we see in most Corporate Social Responsibility (CSR) reporting however, is that ecosystems are not an integrated part of CSR reporting by companies or institutions but viewed as something separate. Furthermore, despite the increasing number of companies working on sustainability issues, biodiversity continues to be reduced at an unprecedented rate while millions of hectares of natural ecosystems are cleared, species disappear, and soil and agricultural lands suffer erosion.

5 Circular Economy: www.thecirculareconomy.org www.circleeconomy.org

The Triple P philosophy has encouraged the idea that reducing your impact is sufficient. This has led to only minor changes, while major degradation of the planet continues. Ecosystems are the basis of our socio-economic systems. The conclusion must therefore be that the present Triple P model does not work in advancing the preservation of ecosystems. We need to adopt a new model where ecosystems form the fundament of our planetary resilience (see figure 2). We need to go from 'Triple P' to 'Planetary Resilience' and understand that Ecosystems are Economics.

The model illustrated shows us that sustaining ecosystems and restoring and conserving biodiversity is the key to sustaining our economy. This should form the core business of companies and governments. The logical conclusion is that sustainable companies should not only work on lowering their unsustainable impacts, but also on scaling up their **positive impacts** by 'giving back' to nature – through ecological restoration in partnership with other stakeholders. It is time to scale up efforts with meaningful actions.

Fig. 3. **Accumulation of muddy loess debris, product of erosion caused by degradation of the Loess plateau ecosystem, China (Photo: John Liu, EEMP).**

d. Scaling up by breaking down silos

Scaling-up means that we have to work together, and understand the complexity of ecological and socio-economic drivers. But first we need to remove the barriers that exist between various stakeholder groups and that prevent essential knowledge-sharing and collaboration. Breaking down institutional silos, and designing and implementing restoration projects and programmes that are effective, efficient, and engaging will enable businesses and investors to cost-effectively scale-up efforts to restore ecosystems through collaboration with scientists and practitioners and partnerships with countries and communities. Projects such as the Chinese Loess Plateau Watershed Rehabilitation Project, provide a practical example of how this can be successfully achieved (see box 1). But it takes time and trust. What is needed are governments, companies and other stakeholders who are interested in long-term, intergenerational projects instead of short-term, lacklustre activities that achieve no real impact in terms of sustainability[6].

Fig. 4. **The Chinese Loess plateau: degradation of the ecosystem after 2000 years of civilisation (inset picture: 1995) and an area after restoration activities in 2009. (Photo: Kosima Weber Liu, EEMP).**

6 Jelte van Andel, James Aronson (editors): Restoration Ecology: The New Frontier. 2012. Wiley-Blackwell, UK.

Box 1

Chinese Loess Plateau Watershed Rehabilitation Project

The Loess Plateau Watershed Rehabilitation Project was conducted by The World Bank's International Development Association. It started in 1995. With a total budget of approximately $500 million USD applied over an area covering 3.5 million hectares = 35,000 km² (the size of a country like Belgium²), the investment per unit area for the Loess Plateau Project was just under US$143 USD per hectare. The outcome provided many useful lessons. Sediment flow into the Yellow River was reduced by more than 53 million tons just during the life of the project, and continues afterwards. A network of small dams stores water for use by towns and farmers when rainfall is low, and reduces the risk of flooding. Replanting and bans on grazing increased the perennial vegetation cover from 17 percent to 34 percent. Local food supply increased. More than 2.5 million people in four of China's poorest provinces – Shanxi, Shaanxi and Gansu, as well as the Inner Mongolia Autonomous Region – were lifted out of poverty, reducing the rate of poverty from 59% to 27%. Farmer incomes rose from around US$ 70 per year per person to around US$ 200. In addition, the project produced substantial benefits downstream as a result of reduced sedimentation, and globally through carbon sequestration. The projects' principles have been adopted and replicated widely throughout China. It is estimated that as many as 20 million people in China have benefited from the replication of this approach. The aim is to restore the whole of the degraded Loess plateau, which is the approximate size of France.

Fig. 5. China: rehabilitated hills of the Loess Plateau at Gao Xing Zhuang Village. Before 1995 the landscape was heavily eroded (Photo: Kosima Weber Liu, EEMP).

In order to achieve significant results in terms of scaling-up 'ecosystem restoration' projects and programmes, we need to take into account the following enabling factors:

- **Agreement on the definition of 'ecosystem restoration'** – Various different definitions of the term exist and are used by scientists and NGOs (see box 2). We should strive for a shared, single and one page definition that is understandable and concise;
- **Long-term vision and commitment** – For many governments and donor agencies, restoration and conservation projects generally last five years. This expectation is short sighted and one of the main reasons why many projects do not generate adequate or expected results. Within the private sector and current education programmes at business schools, not enough attention is paid to long-term (> 20 years) profits and sustainability-concerns. The ambition should be to stimulate **intergenerational** sustainable profit models (with a 20-40 year time-frame);

- **Simplicity and practicality** – Most stakeholders work in their own silos and use their own language to describe the world. Often complex methodologies and frameworks have been developed that have little or no practical application, thereby creating frustration among stakeholders and a lack of progress in the field. Our ambition is to encourage the use of simple and effective guidelines and criteria, and to encourage people to find commonly shared, inspiring and practical solutions. An appropriate stakeholder model endorsed by a range of institutions and businesses is also needed (see paragraph 3). Success can only be guaranteed if we develop solutions together;
- **A common language** – Ecologists, farmers, businesses and governments speak different languages. We need to develop a common language and recruit story tellers to promote it worldwide;
- **Developing solutions in partnerships** –– If we do not work together we will not be able to restore the vast number of degraded landscapes. We need to actively create new and surprising partnerships between all stakeholders and connect these directly to hectares.

e. Common Goal

The best way of developing such a mechanism, one which enables business and other stakeholders to come out of their silos and work together, is to identify common goals that are clear, attractive and take into account the complex context. Our common goal should be to:

Restore Millions of Hectares – to upscale ecosystem restoration projects with the aim to restore millions of hectares (>200 million) in 20 years and build upon other initiatives to create jobs, alleviate poverty, enhance food security and biodiversity, and absorb carbon from the atmosphere.

To achieve this shared goal we need to:

- **Bring different interests together** – those of companies and investors, with research institutions, business schools, civil society organisations, local governments, and farmers;
- **Create an active broker mechanism** – a simple mechanism (team) that acts as a driver and endorser and is replicable in other regions. It will use international standards and criteria through the scientific networks (Universities, IUCN specialized institutions, and others);
- **Work with system thinkers** – attract people in the business community, NGOs and scientists who are committed to a mission that envisions a new way of achieving socio-economic and ecological sustainability based on systems thinking[7];
- **Use all available technology** – make use of a tailor-made innovative toolbox for ecosystem restoration and sustainable agriculture;
- **Educate future business leaders** – create a direct relationship between business schools and restoration projects for educational purposes in order to influence the new generation of business leaders. In this way we ensure that economic and business activities protect and restore the good health of ecosystems and that business models are built to make restoration a viable business and investment proposition;
- **Be complementary to existing efforts** – many global commitments and targets on ecosystem restoration have been agreed to, including the UN Convention on Biological Diversity[8] to restore 15% of degraded ecosystems by 2020 and the UN Framework Convention on Climate Change (UNFCCC) which agreed to slow, halt, and reverse forest loss and related emissions in developing countries[9].

7 Systems thinking is the process of understanding how things influence one another within a whole. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals (including humans) work together to survive or perish. In organisations, systems consist of people, structures, and processes that work together to make an organisation healthy or unhealthy. Systems Thinking has been defined as an approach to problem solving, by viewing "problems" as parts of an overall system, rather than reacting to specific parts, outcomes or events and potentially contributing to further development of unintended consequences (Peter Senge, The Fifth Discipline, 1990).

8 The Aichi Biodiversity Target 15: www.cbd.int/sp/targets

9 Cancún, Mexico 2010: www.unfccc.int

➲ At the UN Conference on Sustainable Development (Rio+20) in June 2012, the UN Convention to Combat Desertification (UNCCD) sheparded the latest commitment to ecosystem restoration whereby countries will strive to achieve a Land Degradation neutral world (The Future We Want[10]). The Bonn Challenge[11], a core commitment to restore 150 million hectares of lost forests and degraded lands worldwide by 2020 was launched at a ministerial conference in Bonn in September 2011.

The time of making things more complex is gone. This broker mechanism should not be about controlling complexity, but about distributing complexity among partners. It should be practical and replicable. And it has to actively search for business cases.

Ecosystem restoration is not a philanthropic endeavour but also a core economic issue. This mechanism will establish new partnerships between companies and local organisations for working together on long-term projects that give priority to tailor-made business cases. With the advent of this paper, we anticipate an increasingly larger group of participants from the business, finance, scientific and civil society spheres to come together, paving the way for designing and implementing practical solutions. Another critical goal of this initiative is to help encourage business schools to integrate and emphasise the essential importance of 'natural capital' in their curricula. Working with nature will not only strengthen the long-term technical and strategic functioning of businesses overall, but boost the morale and passion of its employees for the work they are tasked with.

10 The Future we Want: www.futurewewant.org
11 Bonn Challenge: www.iucn.org/?uNewsID=8147

2 Ecosystems are Economics

"The degradation of ecosystems costs the global economy between US$21–72 trillion per year … Ecosystem decline cannot be considered in isolation from other trends. Business risks and opportunities associated with biodiversity and ecosystem services are growing."

The Economics of Ecosystems and Biodiversity in Business (TEEB and Enterprises) [12]

There is an emerging consensus that all is not well with today's market-centric economic model. Although it has delivered wealth over the last half century and pulled millions out of poverty, it is recession-prone, leaves too many unemployed, creates ecological scarcities and environmental risks, and widens the gap between the rich and the poor. Around $1 trillion a year in perverse subsidies and barriers to entry for alternative products maintain "business-as-usual" while obscuring their associated environmental and societal costs. The result is the broken system of social inequity, environmental degradation, and political manipulation that marks today's corporations.

Former TEEB study leader, Pavan Sukhdev, describes in Corporation 2020[13] a nuanced analysis, how corporations need to align their aims with society, becoming viable communities, institutes and financial, human and natural capital 'factories'. The continuing degradation and loss of ecosystems has an alarmingly detrimental effect on our well-being. Reduced food and water security, depletion of soil fertility, reduced access to energy and its efficient utilisation, a decline in biodiversity, and the increased occurrence of extreme weather events (drought, floods, hurricanes) are just a few of the detrimental consequences of degradation.

12 Bishop, J. editor (2012). The Economics of Ecosystems and Biodiversity in Business and Enterprises. Earthscan, London, New York.

13 Sukhdev. P. (2012) Corporation 2020: Transforming Business for Tomorrow's World, Island Press.

Among most scientists, and increasingly among members of the business community, it is widely accepted that healthy ecosystems (box 2) form the basis of a sound and sustainable economy. The G20 study on TEEB (The Economics of Ecosystems and Biodiversity, 2008-2011) provides important insights into the relationship between ecosystem degradation and its costs to society and businesses. TEEB[14] estimates this loss to be between US$21–72 trillion per year. It concludes that the restoration and conservation of ecosystems is no longer an issue to be tackled solely by NGOs and other charitable organisations or by donor-funded development projects (Public Private Partnerships). It would be beneficial if we could integrate TEEB and the **Economics of Land Degradation**[15] (ELD) initiative. This initiative intends to produce a global study on the economic benefits of land and land-based ecosystems, highlights the value of sustainable land management and provides a global approach for the analysis of the economics of land degradation. It aims to make the economics of land degradation an integral part of policy strategies and decision making by increasing the political and public awareness of the costs and benefits of land and land-based ecosystems. Together with the TEEB study, a genuinely holistic view of the issues at stake could be established.

In the report, 'TEEB for Business', seven steps[16] are recommended for companies to better account for the value of natural capital. An initiative such as the Ecosystem Marketplace[17] conveys the ongoing story of ecosystem service pioneers and, importantly, provides businesses with the information services that are required for building an integrated economy, incorporating and accounting for the values of ecosystems and their services.

14 The Economics of Ecosystems and Biodiversity: www.teebweb.org

15 Economics of Land Degradation: www.eld-initiative.org

16 These 7 steps are: 1. Identify the impacts and dependencies of your business on Biodiversity and Ecosystem Services (BES); 2. Assess the business risks and opportunities associated with these impacts and dependencies; 3. Develop 'BES' information systems, set SMART targets, measure and value performance, and report your results; 4. Take action to avoid, minimize and mitigate BES risks, including in-kind compensation ('offsets') where appropriate; 5. Grasp emerging BES business opportunities, such as cost-efficiencies, new products and new markets; 6. Integrate business strategy and actions on BES with wider corporate social responsibility initiatives; 7. Engage with business peers and stakeholders in government, NGOs and civil society to improve BES guidance and policy (www.teebweb.org)

17 Ecosystem Market Place: www.ecosystemmarketplace.com

"Awareness of environmental risks has moved to the forefront of global consciousness during the past 25 years. However, this awareness has not translated into comprehensive action to address the problem of land degradation, which poses a serious threat to long-term food security. This inaction is primarily the result of limited knowledge of the costs related to land degradation and of insufficient institutional support." ***'Economics of land degradation. The costs of action versus inaction' (2011) - International Food Policy Research Institute (www.ifpri.org)***

Ecosystems provide four types of services (Millennium Ecosystem Assessment[18], 2005):

- **Provisioning services:** food (including seafood and game), crops, wild foods, spices; water; pharmaceuticals, biochemicals, and industrial products; energy (hydropower, biomass fuels);
- **Regulating services:** carbon sequestration and climate regulation; waste decomposition and detoxification; purification of water and air crop pollination; pest and disease control;
- **Supporting services;** nutrient dispersal and cycling; seed dispersal; primary production; infrastructure and housing;
- **Cultural services:** cultural, intellectual and spiritual inspiration; recreational experiences (including ecotourism; scientific discovery).

As stated earlier, the ecosystem services that are provided by nature are at the basis of all wealth creation. According to this, all forms of capital are more or less substitutes for one another; no regard has to be given to the composition of the stock of capital. It allows for the depletion or degradation of natural resources, so long as such depletion is offset by increases in

18 Millennium Ecosystem Assessment: www.maweb.org

the stocks of other forms of capital and if capital is left constant over time intergenerational equity, and thus sustainable development is achieved. Given this premise it makes no sense to degrade and destroy your primary asset in an effort to make money in the short-term. Logically speaking, one would do everything possible to either save or conserve the asset's value (at the very least) or improve or enhance its condition, subsequent worth and continued productivity (which would be the ideal). To provide an analogy, one would assume a factory owner would frown upon the suggestion that sacrificing his or her production equipment for the sake of the product being produced was a sound business decision. But, this is precisely what occurs with our current management of ecosystems and landscapes: natural capital stocks are being sacrificed for the sake of what they produce (flows).

3 Restoring Ecosystem Functions is Restoring our Economy

"The nation that destroys its soil destroys itself."

Franklin Delano Roosevelt [19]

Several companies have understood that investing in environmental sustainability is highly profitable in the medium and long-term. Many have pursued actions on the basis of corporate social responsibility and environmental impact reduction strategies. Companies now realise that sustainability will, in the long-term, lower costs and increase revenues[20].

Good initiatives abound in direct investment projects and through the introduction of environmentally (and socially) friendly production processes, including those that embrace new certification schemes and introduce participatory processes with all relevant stakeholders. This has resulted in many certification initiatives based on supply chains, such as the Forest Stewardship Council, Marine Stewardship Council, Sustainable Trade Initiative (IDH), the soy and palmoil roundtables, Utz Certified, Rainforest Alliance and ISO 26000. Almost all of these schemes are related to commodities for the international market, including coffee, cocoa, soy, palm oil and timber, where the consumer pays a premium. The focus here is on reducing environmental impacts, which is important but not in itself sufficient to properly protect the Earth's ecosystems.

New business models have to move beyond certification and Environmental Impact Assessment (EIA). The private sector must now find a way to go beyond impact reduction – if we take from ecosystems, we also need to give something back in order to keep them functional. Ecosystem restoration is an important approach to reversing the depletion of natural capital, an approach that has been underutilised and under funded.

19 Letter to all State Governors on a Uniform Soil Conservation Law, 26 February 1937

20 R. Nidulomu, C.K. Prahalad et all. Why Sustainability Is Now the Key Driver of Innovation. 2009. Harvard Business Review

Although there are enormous opportunities for increasing food, biodiversity, water security and the accumulation of biomass in the top soil by recovering lost functionality in production landscapes, not one global initiative or consortium has succeeded in involving the business sector in the large scale restoration of degraded lands and biodiversity. This is particularly serious, given the urgent need to scale-up and accelerate ecosystem restoration (UNEP, 2010[21]) and the relationship with alleviating poverty in many developing countries. We urgently need the power of the private sector to scale-up.

The challenge is how to convince companies to step up. Reasons to act include:

1. It is ethical, companies recognise that they have to take up this responsibility;
2. It is about being prepared, as governments sooner or later come with legislation; and
3. It addresses the enormous challenges of sustaining business operations (supply chain, new markets, reputation, social stability, engagement, positioning, jobs, new market developments).

Over the years, a wealth of experience has accumulated across countries on policies, approaches and measures to reduce or avoid environmental damage, to restore degraded ecosystems and conserve those that are intact and healthy. A good overview was given by TEEB's Green Economy Contribution to RIO+20 (www.uncsd2012.org).

21 Dead planet, living planet: Biodiversity and ecosystem restoration for sustainable development (UNEP, 2010): www.grida.no/publications/rr/dead-planet/

a. Two billion hectares of degraded land

As a contribution to the Global Partnership of Forest and Landscape Restoration, the World Resources Institute (WRI) partnered with the University of Maryland and the International Union for Conservation of Nature[22] (IUCN) to map opportunities for forest and landscape restoration – where they can be found and how significant they are. They calculated that 2 billion hectares have been degraded or destroyed as shown in WRI's Atlas of Forest and Landscape Restoration Opportunities (www.wri.org/tools/atlas).

Recently, the PBL-Netherlands Environmental Assessment Agency established a project on mapping large-scale ecosystem degradation in conjunction with World Soil Information-ISRIC, Wageningen University Research, Potsdam Institute, University of Utrecht, and World Resource Institute. Two global, high resolution maps are in development, one on historical degradation, and one on currently ongoing degradation. Subsequently, a preliminary calculation will be made of the resulting loss of a limited number of basic ecosystem goods and services. Early 2013, a first verification of the results is planned, and if assessed sufficient, future scenarios and opportunities for restoration will be explored. This project aims at including degradation processes and restoration options in PBL's global environmental assessments in the near future such as the Global Biodiversity Outlook of the CBD and the Global Environmental Outlook of UNEP[23].

The good news is that many examples exist of successful ecosystem restoration. Some have been documented in the powerful presentations and documentaries of the Chinese American documentary maker and scientific story teller John Liu[24]. These examples show that we can restore vast areas of degraded lands to a state of relative health. They contain a message of hope and create an awareness that 'yes we can' (see figure 6 images below

22 IUCN: www.iucn.org
23 PBL-Netherlands Environmental Assessment Agency: http://www.pbl.nl/en
24 John Liu is director of the Environmental Education Media Project: www.eempc.org

from the Loess plateau in China). The restoration of natural capital forms an essential part of Rio+ 20 and the indicators of UNEP's Greening the Economy. Other examples of forest landscape restoration can be found at the Global Partnership on Forest and Landscape Restoration[25].

Fig. 5. **Oman: a moon landscape as a result of tree cutting of the *Ficus vasta* forests for timber and charcoal. The vegetation is not coming back because of pressure from goats and dromedary. Conclusion: no vegetation, no biomass, no water, no agriculture and finally almost no local economy. (Photo: Pieter Hoff, Groasis).**

25 Global Partnership of Forest and Landscape Restoration: www.ideastransformlandscapes.org

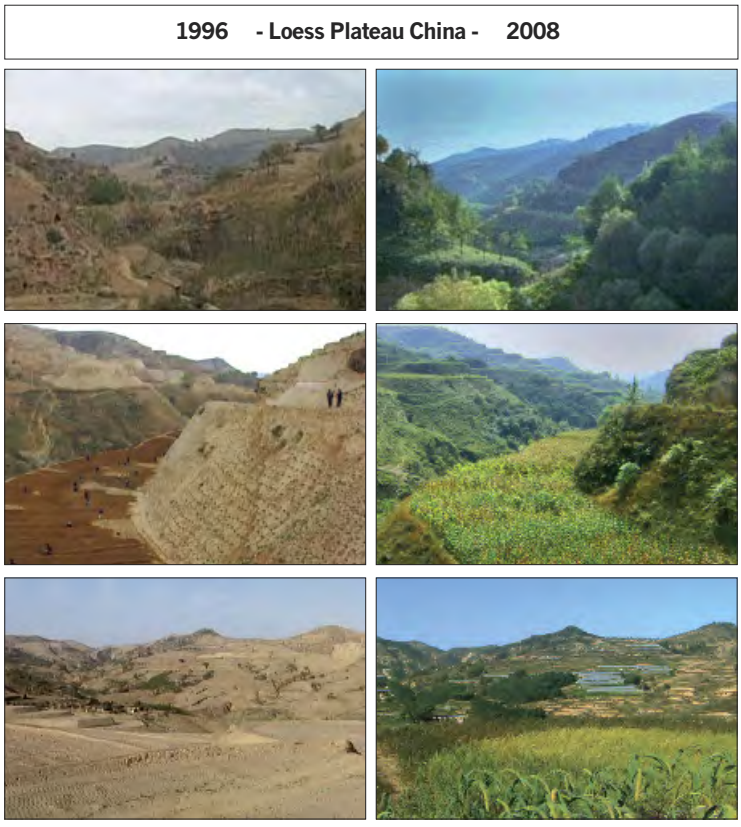

Fig. 6. **Ecosystem restoration Loess Plateau Watershed Rehabilitation Project, China. Pictures taken in September 1995 and September 2009 (Photos: John Liu, EEMP).**

b. One international definition

Another challenge is the different scientific views and perspectives on what landscape and ecosystem restoration is. These dominate the scientific debate and often slow down actions on the ground (box 2).

Box 2

Definitions of Ecosystem or Landscape Restoration from literature

Different views on landscape and ecosystem restoration. International accepted criteria, summarised in one page, will motivate business to become partners in restoration. (Table from Dead planet, living planet (UNEP, 2010).

The definitions presented here are sufficiently broad to allow for a variety of responses to ecosystem degradation across a wide spectrum of contexts. Ecological restoration refers to activities aimed at returning an ecosystem to its pre-disturbance condition, insofar as possible, and also to rehabilitation and other activities focused on the protection and recovery of biodiversity, ecosystem functioning, and / or other indicators of *ecosystem health* and *ecological integrity*. (Society of Ecological Restoration, 2004).

"Ecological restoration is the process of assisting the recovery of an ecosystem that has been damaged, degraded or destroyed." (Society of Ecological Restoration, 2004)

The objective of ecological rehabilitation is to re-establish the productivity and some, but not necessarily all, of the plant and animal species thought to be originally* present at a site. (For ecological or economic reasons the new habitat might also include species not originally present at the site). In time, the protective function and many of the ecological services of the original habitat may be re-established (FAO 2005).

The concept of landscape restoration tackles the broader range of issues and needs via a landscape-scale approach, "a planned process that aims to regain ecological integrity and enhance human well-being in deforested or degraded landscapes." (WWF International 2007).

Land restoration: Reversing land degradation processes by applying soil amendments to enhance land resilience and restoring soil functions and ecosystem services (UNCCD, 2012).

Regeneration is often viewed as the growth or re-emergence of the native species in a place after it has been destroyed or degraded, resulting from the protection of an area from biotic interference. Regeneration may come about naturally or result from human intervention (CFIOR websites).

Reclamation aims to recover productivity (but little of the original biodiversity) at a degraded site. In time, the protective function and many of the original * ecological services may be re-established. Reclamation is often done with exotic species but may also involve native species. (WWF/IUCN 2000) n.b. Reclamation is also used for creating new land from the sea, the polders (WF).

Recovery of a habitat is linked to the ecological succession of a site. That is the site returning naturally to the state in which it had been before being degraded or destroyed without any intervention from humans (CFIOR websites).

*** While restoration-related definitions often focus on 'original' habitat cover, it may be more appropriate in the future to focus on restoring resilient natural habitats, for example through paying attention to connectivity and dispersal, rather than assuming that all 'original' species will persist under changed conditions. From this point of view, 'potential' would be substituted for 'original' in the above definitions.**

The variety of definitions is the result of decades of scientific debate. But it is an illusion that humanity can go back to the natural state of ecosystems prior to man's interference. In the near future more people than ever will need to live from the land, sharing the world and its resources. The question is: how to involve the business community in restoration partnerships if we have to work with a jungle of definitions?

c. Different landscapes, different approaches

Each landscape calls for its own kind of restoration. Our plea is to take the **resilience of ecosystem functions** as the starting point of the definition. The restoration of ecosystem functions will increase biomass, biodiversity and the accumulation of organic matter. It will increase ecosystem services such as pollination, retention of water, soil fertility and well being. In such a way landscapes will be created where an increase of biodiversity and vegetation cover will go hand in hand with newly developed agricultural lands. Within those mosaic landscapes ecological, sustainable agricultural and economic zones will co-exist in an ecological balance, as they are based on sustaining the natural resilience of the ecosystem. Restoring ecosystem (figure 7) functions is more than only restoring our economy, it is about restoring man's relation to nature, or of Vivir Bien, the Latin American concept of 'Living Well'.

"The most meaningful indicator for the health of the land, and the long-term wealth of a nation, is whether soil is being formed or lost. If soil is being lost, so too is the economic and ecological foundation on which production and conservation are based." ***Christine Jones, Australian soil scientist (in Creating Topsoil, 2006).***

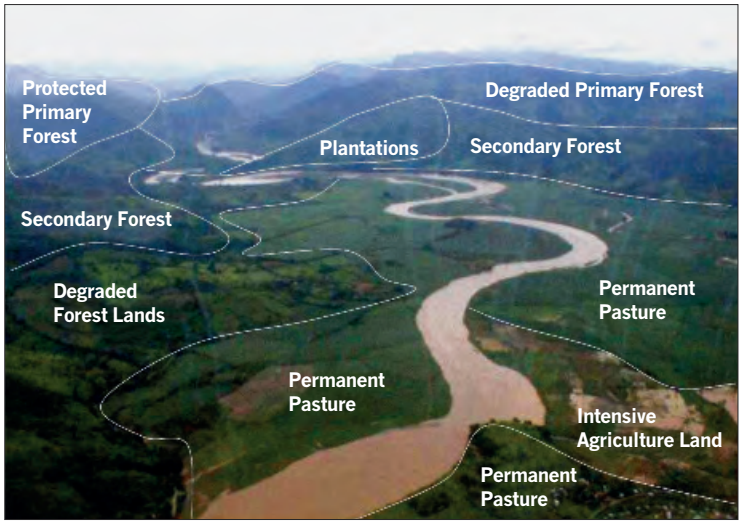

Fig. 7. **Different landscapes, different approaches. Each landscape calls for its own kind of restoration (Photo: Global Partnership on Forest and Landscape Restoration).**

d. Why should companies join?

Until now the business community as a whole has not been particularly active in restoring or re-greening the planet. Although some individual companies may contribute to carbon compensation schemes (REDD+[26]) or support individual restoration projects, a wider global initiative (consortium, mechanism) to engage business is urgently needed. The business community has many of the essential capabilities required, such as a hands-on approach, the ability to mobilise local communities and the resources to finance on-the-ground projects. It is strengthened by the *Call to Action of the World Conference on Ecological Restoration* of Society of Ecological Restoration[27] (2011, Merida, Mexico) and the 2011 *The State of the World's Land and Water Resources for Food and Agriculture* [28]) of the Food and Agricultural Organisation (FAO).

The questions is: how to scale-up existing successes and catalyse the full engagement of the business community? An excellent signal was given at the ministerial conference in 2011 in Bonn, Germany. *The Bonn Challenge* aims to restore 150 million hectares of degraded land with associated actions such as *Plant a Pledge*[29].

The IUCN's latest analysis, announced at Rio+20 by Stewart Maginnis (IUCN Director of Nature Based Solutions), shows that once restored, 150 million hectares would pump more than $ 80 billion into national and global economies and close the climate change 'emissions gap' by 11-17%. Based on the data presented by the TEEB studies (2009, see table 1. below) mean investments ('other forests') are US$ 2390/hectare. For the restoration of 200 million hectares, the sum needed is US$ 478 billion or about € 450 billion over 20 years. That's approximately € 2.25 billion a year. Besides protecting and conserving, ecosystem restoration has a high benefit-cost ratio.

26 Reducing Emissions from Deforestation and forest Degradation including the role of conservation
27 Society of Ecological Restoration: www.ser2011.org
28 FAO: www.fao.org/nr/solaw/solaw-home/en
29 Plant a Pledge: www.plantapledge.com

Table 1. **Estimated returns from ecosystem restoration (The Economy of Ecosystems and Biodiversity, TEEB, 2009)**

Returns from Ecosystems Restoration					
Estimates of costs and benefits of restoration projects in different biomes					
Biome / Ecosystem	Typical cost of restoration (high scenario)	Estimated annual benefits from restoration (avg. scenario)	Net present value of benefits over 40 years	Internal rate of return	Benefit / cost Ratio
	US$ / ha	US$ / ha	US$ / ha	%	Ratio
Coral reefs	542,500	129,200	1,166,000	7%	2,8
Coastal	232,700	73,900	935,400	11%	4,4
Mangroves	2,880	4,290	86,900	40%	26,4
Inland wetlands	33,000	14,200	171,300	12%	5,4
Lakes / rivers	4,000	3,800	69,700	27%	15,5
Tropical forests	3,450	7,000	148,700	50%	37,3
Other forests	2,390	1,620	26,300	20%	10,3
Woodland / Shrubland	990	1,571	32,180	42%	28,4
Grasslands	260	1,010	22,600	79%	75,1

Some companies are already involved in the restoration of ecosystems. For instance mining companies such as Rio Tinto and Holcim as well as some energy companies (coal mining) have experience in restoring lands which they themselves degraded over time. Guidelines would be developed by NGOs and companies.

4 A Toolbox of Promising Solutions

a. Making re-greening possible

A "perfect storm" is brewing. A range of inspirational examples demonstrate that it is technically possible to re-green eroded areas. Once stakeholders understand how to combine greening with successful economic activities, a business case will emerge. Mostly those small-scale projects are science based and make use of participatory approaches. Examples with good results are the **African Re-greening Initiative**[30] led by **Chris Reij** (Free University Amsterdam and World Resources Institute) and the mangrove restoration projects of Wetlands International[31] in West Africa and Indonesia.

Low-tech solutions are creating biomass in dry degraded lands through **permaculture techniques**, as **Geoff Lawton** (Permaculture Research Institute, Australia[32]) shows in an eroded desert land in Jordan[33].

A very promising device is the **Groasis Waterboxx**[34]. Former Dutch bulb grower **Pieter Hoff** invented a device to capture the humidity in the air, store it in a very sensitive box, and use that condensation to water plants. While planting during the first year, water savings are estimated to increase by over 90% compared with other planting methods. Using biomimicry technology, the process involves improving the soil with mycorrhizae, leaving the capillary structure intact, and using plants with the right primary roots. According to Hoff, the waterboxx will be instrumental in replanting human-made deserts or eroded areas, restoring vegetation cover and making deserts productive.

Impressive results have been achieved through the restoration of degraded soil using soil organisms, particularly mycorrhizal fungi. These fungi improve nutrient and water uptake from the soil for the plants enhancing seed germination and plant growth as well as reducing drought stress.

30 Africa Regreening Initiative: www.africa-regreening.blogspot.com
31 Wetlands International Restoration Specialist Group: www.wetlands.org/wsrg
32 Permaculture Research Institute, Australia: www.permacultureglobal.com
33 Green Gold Documentary: www.youtube.com/watch?v=sohI6vnWZmk
34 Groasis, The Netherlands: www.groasis.com

Fig. 8. **Above: Planting of the Ghaf tree (*Prosopis cineraria*) in Dubai's desert with the waterboxx.**
Below: Spain, planting native trees on dry eroded slopes of a mining pit with a biodegradable waterboxx. (Photos: Pieter Hoff, Groasis).

The result is enhanced yields with more economic profit[35]. There are many more of these low-tech innovative ideas available and which we can capture and connect to business, local people and governments. Many of them are in the process of being scientifically tested and analysed, but the results so far are promising. They are often the result of citizens' initiatives, an entrepreneur's inspiration, or an individual or collective sense of responsibility, and are indicators of local common sense and our ability to restore what once was lost, in an attempt to regain lives and livelihoods.

> "If the area was small enough to cut, it is certainly small enough to replant." ***Pieter Hoff - Groasis***

Another very effective method is the purchase of land and water to create intact natural ecosystems by local people and civil society organisations. **The World Land Trust, UK**[36] in cooperation with IUCN NL, has extensive experience and a wide and reliable network of local implementing partners. CEO **John Burton** has created an excellent local network of organisations working together on ecosystem purchase projects.

35 Biomygreen: www.biomygreen.com
36 World Land Trust: www.worldlandtrust.org

Fig. 9. **Argentina (Misiones) and Brazil (below the rivier): Area 8 (lote 8) is privately purchased to be restored. A forestry company has selectively logged but Lote 8 but no clear felling has occurred (Photo: World Land Trust-Google Earth).**

In Kalimantan, **Willie Smits**[37] has been working for almost 30 years on conservation and the restoration of ecosystem functions by planting sugar palm forests (*Arenga pinnata*) on degraded former rainforest lands. With his **Masarang Foundation**[38] Smits is restoring habitat forests around the world and empowering local people. In 2007, Masarang opened a palm sugar factory that uses thermal energy to turn the juice tapped daily from sugar palms into sugar or ethanol, returning cash and power to the community in an attempt to move toward a better future for the people, forest, and native orangutans, while saving 200,000 trees per year from being cut down as fuel wood.

37 Ted Talk Willy Smiths: www.ted.com/talks/willie_smits_restores_a_rainforest.html
38 Masarang Foundation, Indonesia: www.masarang.org

Low Tech

A. Low tech: waterboxx (www.groasis.com)

B. Low tech: Permaculture in Jordan, before and after (www.permaculture.org.au)

C. Low tech: Mycorrhizal application resulting in enhanced plant growth and more productive yields (www.biomygreen.com)

Fig. 10. **Many low tech solutions exist or are being developed to re-green degraded lands. Some examples:**
A. The waterboxx lets trees grow in degraded dry areas without irrigation, as well as vegetables.
B. Permaculture is bringing organic material back into the ecosystem cycle;
C. Natural microbiome species, like mycorrhizae of fungi, are enabling plants to grow faster.

In **Brazil, Leontino Balbo Jr.** is the director of the Balbo group and head of **Native**[39], a Brazilian sugar cane company that has been taking innovative action to achieve complete sustainability for nearly thirty years. Through the Green Cane Project, Native realised a methodology of sugarcane agriculture that halted soil erosion and increased biodiversity and top-soil fertility without using chemicals. The company carefully studied the ecosystem and applied the lessons learned. The first thing they changed was people's mindset regarding agriculture. In agribusiness, minds are often set to maximum profitability, with the farm viewed merely as a means of production. Native wanted to set the focus on sustainability going hand-in-hand with profitability, and for people to see farming as a way of life. A real cultural shift was achieved. Cane burning was eliminated. Native spent five years working to develop the first Brazilian green cane harvester.

The work conducted by Living Lands of **Living Lands**[40] and PRESENCE (Participatory Restoration of Ecosystem Services & Natural Capital in the Eastern Cape) in the **Baviaanskloof, South Africa**, resulted in a large stack of information on ecosystem services, water, vegetation and land use, erosion, socio-economic data, and so forth. Based on this information and management by Living Lands, several cooperating organisations could begin implementing restoration measures. Amongst others, the measures consisted of replanting nearly 1000 ha of the indigenous Spekboom on the overgrazed hill slopes by Working for Land, and the restoration of the water system in united action with the South African National Biodiversity Institute (SANBI). The measures were taken to hold the rainwater longer in the area, raise the groundwater table, and restore vanished wetlands in the future. As an organisation their vision is to have collaborations and stakeholder ownership (stewardship) of a living landscape (for sustainable water catchments). They see living landscapes

39 Native, Brazil: www.nativealimentos.com.br
40 Living Lands, South Africa: www.livinglandscapes.co.za

as those with a healthy ecosystem that is home to ecological, agricultural, social systems and a green economy and which are managed so that they can function sustainably. These landscapes will build more socio-ecologically resilient systems that are better adapted to climate change and provide more water and food security. The international **Desire** project gives a good overview of examples of sustainable land management and the greening of dry eroded lands.[41]

b. Inspiring local participation

Technical tools are not enough. It is about local peoples lifes to live well. Social participatory skills are equally or even more important to achieve success in restoration. Many lessons can be learned from development organisations, conservationists and farmers. Economic drivers are the key to success, but not the only driver. It should all make sense as well. Living Lands integrate the "U" methodology, trans-disciplinary research and ecosystem approach. The "U" methodology of leading profound change is expanded and deepened in Theory U and 'Presencing' developed by Otto Scharmer and Peter Senge[42]. The approach provides opportunities for all stakeholders, by moving through the "U" process, to engage with a deeper place of inner reflection on the social-ecological system and themselves in order to identify and create viable community-based responses. Here we are able to see our own blind spots and pay attention in a way that allows us to experience the opening of our minds, our hearts, and our wills. This systemic opening constitutes a shift in awareness that allows us to learn and recognise the future towards which we are heading, underlying social problems on an individual, community and institutional level and change behaviour to better reflect the values of inclusion, fairness and opportunity.

41 Desire for Greener Land. Options for Sustainable Land Management in Drylands. 2012. Schwilch, G., Hessel, R. and Verzandvoort, S. (Eds). Bern, Switzerland, and Wageningen, The Netherlands: www.desire-project.eu.

42 Peter M. Senge, C. Otto Scharmer, Joseph Jaworski, Betty Sue Flowers: Presence: An Exploration of Profound Change in People, Organisations, and Society. 2004

"Restoration is needed for society to sustain, for government to deliver and for business to keep their products." ***Dieter van den Broecke – Living Lands, South Africa***

Fig. 11. **Ecological restoration at Baviaanskloof, South Africa (Photo: Living Lands).**

Under the leadership of former businessman **Doug Tompkins** and his wife **Kris**, 2 million hectares of land in Argentina and Chile has been conserved and restored by their organisation **Tompkins Conservation**. Degraded agricultural lands have been restored and biodiversity increased.

"Ecological restoration is a "growth industry" and the work of the future: since we humans have degraded so much of the planet, we have almost endless opportunities to return ecosystems to health. While nature left alone will begin to regain its balance, often times thoughtful,

direct actions can jumpstart the restoration process. We find little more rewarding than playing a role in restoring ecosystems, whether in the form of reviving habitats, monitoring wildlife species, or even reintroducing extirpated keystone species. Bringing order, health, and steady prosperity to local communities represents an important parallel to restoring ecosystems: we see restoration as a broad concept that blurs the divisions between human and nature in reinstating a more thoughtful relationship between the two." ***Vision Tompkins Conservation*** [43]

Fig. 12. **Argentina: Laguna Blanca. Agro-ecology farm of former degraded agricultural lands restored by restoring the ecosystem functions, maintaining and connecting the left-over indigenous forests, active soil restoration leading to a biodiversity increase (Photo credit: Tompkins Conservation).**

43 Tomkins Conservation, USA: www.tompkinsconservation.org

More than 40 years ago **Paolo Lugari** started restoration initiatives in **Las Gaviotas**, situated in the eastern plains of **Colombia**. Centro Las Gaviotas[44] created new forest cover, agriculture, and increased topsoil and biodiversity in a way people thought was not possible.

Based on learning from natural herds, **Allen Savory**[45] developed restoration efforts on ecosystems with a holistic livestock methodology in the United States.

Fig. 13. **USA: Land before and after holistic livestock management of the Savory Institute was adopted (Photo: The savoryinstitute.com).**

Contour trenching, developed by **Peter Westerveld**[46] in Kenya, can sometimes be used in dry degraded areas to capture rainwater flowing downwards above ground. Using these trenches, destructive above-ground water flows no longer erode the soil and wash away the fertile top soil as well as vegetation still present.

44 Centro Las Gaviotas, Colombia: www.centrolasgaviotas.org
45 Savory Instititue, USA: www.savoryinstitute.com
46 Naga Foundation, Netherlands: www.nagafoundation.nl

Fig. 14. **Kenya: retaining water in dry areas by making contour trenches (Photo: Naga Foundation).**

Fig. 15. **Chile, Patagonia National Park: grasslands restoration (right) compared to degraded land (left) (Photo: Tompkins Conservation).**

Fig. 16. **Indonesia: Mangrove restoration in Banten Bay Offset Project (Photo: Sander Carpay, Wetlands International).**

Not only dry lands have great opportunities for restoration, but millions of hectares of degraded mangroves, wetlands and reefs that also represent a threat to human well-being, biodiversity, agriculture and a sustainable economy. The international organisation Wetlands International[47] is looking at ecosystem based approaches to resilience (nature and people) as a unifying concept. Flooding disasters, such as Katrina in the USA, showed us that healthy ecosystems can function as buffers and greatly reduce the risks. Again, a system approach is essential here: disaster risk reduction cannot only be achieved by working at the local community or household level, when the floods are caused by deforestation or mining upstream, for example. New concepts, mechanisms and tools to bring them together are needed also at the ecosystem level.

47 Wetlands International: www.wetlands.org

Fig. 17. **Senegal: Planting mangroves by local people. The people who live in degraded lands are the first to benefit. (Photo: Richard DaCosta - Wetlands International).**

5 The Path to Positive Impact: A New Role for Businesses and Business Schools

"The Corporation 2020 is the firm of the future. It produces positive benefits for society as a whole, rather than just its shareholders. It encourages positive social interactions among workers, management, customers, neighbours, and other stakeholders. It is a responsible steward of natural resources. It invests in the productivity of its workers through training and education. It strives to produce a surplus of all types of capital – financial, natural, human – it is thus a "capital factory." We believe that the firm of the future can be best characterised with four terms – goal alignment, community, institute, and capital factory." ***Corporation 2020*** [48]

a. First steps to involving business

An increasing demand exists for producers and consumers to understand and reduce their ecological footprints, including the natural resource footprint throughout the entire value chain. TEEB studies with business cases on ecosystem restoration and biodiversity conservation should thus form part of the agenda and curricula of business schools.

There exist already many good efforts. Organisations like the World Business Council for Sustainable Development [49] (WBCSD), the World Resources Institute [50] and the IUCN have together developed a *Corporate Ecosystem Services Review* (2008) and a *Guide to Corporate Ecosystem Valuation* (2011). These tools assist businesses in evaluating their impact and dependency on ecosystems, and determining the risks and opportunities of their current operations.

48 Corporation 2020: www.corp2020.com
49 World Business Council for Sustainable Development: www.wbcsd.org/work-program/ecosystems.aspx
50 World Resources Institute: www.wri.org

However, mainstream valuation tools should be simple, practical and inspiring. Despite a wide array of methods and frameworks, none of the present options are very easily applicable by the business community. Often these valuation tools are complex and presented in a manner and using language that is not immediately relevant to decision making in the private sectors.

Some valuation frameworks help businesses to understand and identify the 'material' (tangible) risks and benefits of ecosystem services. However while the *Corporate Ecosystems Valuation* can be seen as an important step forward, it still does not provide the sufficient incentives for companies to restore natural capital, also for the benefit of agriculture.

It is essential for business to understand its own "inconvenient truth" and act to reconcile growth with sustainability based on healthy ecosystem functions. This process begins with reducing their impact on ecosystems by properly valuing natural capital in value chains and the development of innovative product lines. The *Business Ecosystems Training* (BET) of the WBCSD is designed to improve the understanding of managers and employees across business functions about their company's direct and indirect impact and dependence on ecosystems and ecosystem services. Increasingly more managers are following this BET training. These type of trainings, as well as the continued existence of externalities must then provide impetus for implementing and financing ecosystem restoration initiatives. A global standard for the assessment and valuation of ecosystem services is urgently needed so that the private sector can assimilate restoration activities into their decision-making frameworks.

There exist some interesting examples of business involvement such as the Danone Livelihoods Fund. Initiated by Danone in 2011, Livelihoods Fund[51] is a completely autonomous entity that incorporates today four other investors

51 www.danonecommunities.com/en/blog/livelihoods

who adhere to its approach: Schneider Electric, CDC Climat, Credit Agricole and La Poste Group since February 2012. Livelihoods Fund concentrates on the restoration of natural ecosystems (mangrove replanting, reforestation), agroforestry and rural energy (improved stoves project for decreasing the use of firewood).

"Danone's food business is closely linked to nature's cycles. Protecting natural springs and producing milk in sustainable conditions have been key concerns of our business units for years. When we opted to put nature at the heart of our strategy, we adopted an ambitious target: reducing our carbon footprint by 30% from 2008 to 2012. Livelihoods is a new step forward, with carbon offset projects that associate restoration of natural resources and food security – two concerns at the heart of Danone's corporate mission." ***Myriam Cohen-Welgryn, General Director of Danone Nature.***

Corporation-level analysis of their impact on ecosystems requires quantification, both monetary and non-monetary, based on agreed-upon methodologies that are general enough to be applied at a global scale yet specific and flexible enough to allow for adaptation to local circumstances. These will only be effective if published (as a disclosure item) in the financial statements of corporations. Regulators such as the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) are already working to establish standards that are credible and consistent internationally and will hopefully contribute to scaling up ecosystem restoration initiatives. There is definitely a need for 'ecologically skilled accountants'.

b. A new mission for business schools

The lack of 'intergenerational' thinking within current business education programmes is a real threat to sustainability and our future economy. The value of nature's services, which depends on the functioning of ecosystems, are not systematically included in the present economic and business decision-making models. The study 'The Economics of Ecosystems and Biodiversity (TEEB)' has shown us that a new model for sustainability is critical, and that we must adapt linear economic models to account for feedback loops and externalities', as ecosystems form the fundament of a circular economy.

Fig. 18. **Greening the next generation business leaders at business schools by bringing in ecology at MBA level (Photo: Rotterdam School of Management).**

There is a **disconnect** between the educational curriculum promoted at business schools and the growing recognition among government bodies and within academic circles of the importance of healthy ecosystems for the survival of our planet. Studies such as *TEEB for Business* (2010) are insufficiently known about, and their value for business not recognised. The restoration of degraded ecosystems is not considered relevant for future business managers.

Business schools must embrace new ways of thinking and acting that involve promoting sustainable business models, and thus make themselves a breeding ground for a new generation of business leaders and visionaries. Concrete examples of businesses implementing and financing ecosystem restoration projects and programmes on the ground offer excellent examples and tools for how we can practically achieve this mission. The WBCSD and business biodiversity networks such as Leaders for Nature should form the basis of new ways of educating on nature resilience. However ecology should be incorporated in a **new mission** for business schools, such as: "To educate the next generation of business leaders on the balance (trade-offs) between the economy and the environment with practical examples of ecosystem restoration projects on the ground."

By making Ecosystem Restoration Partnerships part of the curriculum in business schools, future business leaders will soon understand the crucial importance of systemic thinking and ecology in future decision making.

6 Closing the Gap between Business and Ecosystem Restoration

"If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea." ***Antoine de Saint-Exupéry***

Businesses are now actively seeking ways in which they can make concrete positive contributions to the cause of environmental degradation. There is also evidence that they are deepening their understanding and awareness of ecosystem impacts and dependencies.

Many things are now in place for the private sector to contribute to ecosystem restoration. Numerous successful projects are available for scaling-up. A large body of knowledge on how to achieve ecosystem restoration has been accumulated. Even given the possibility of gaps in our existing knowledge, implementation of large-scale restoration is the obvious next step and further learning must come from 'doing'.

a. Role for Business

Not only has the value of businesses' contribution to ecosystem restoration been established, but the various ways in which businesses can contribute, broken down and defined. The UNCCD outlined in its RIO+ report on Land Degradation[52] the following role for the private sector:

- Engage in investments that increase efficiency in land use and the resilience of related ecosystems functions and services, and reduce or mitigate risks;
- Invest in Research and Development on sustainable land use management;
- Establish and implement public-private partnerships that also ensure social inclusiveness;

52 Adapted from UNCCD: Zero Net Land Degradation, 2012

- Support the development of information-sharing mechanisms, especially at the local level, with a focus on sustainable land use management and related goods and services;
- Within the framework of corporate responsibility, the private sector could also be engaged in reporting at the national and international levels on actions towards the achievement of halting degradation and on best practices, lessons learnt and management models that are in use and suitable for attaining such target.

b. Barriers preventing productive partnerships from developing

But while motivation and awareness within the private sector is increasing – many companies have begun to consider issues related to this area including no-net-loss – the net-positive-impact action on ecosystems remains scarce, even given the steady influx of new project initiatives to re-green the planet and restore natural capital.

This lack of engagement is largely due to the significant barriers that exist between businesses and those organisations and communities involved in ecological initiatives. These barriers range from a lack of networking across groups, to differences in the use of language and a lack of trust.

Clearly, greater involvement from the private sector requires us to remove the barriers that exist between local communities, NGOs, farmers, businesses, business schools, ecologists, economists and policy-makers. At the same time, new alliances must be actively forged based on common understandings of what must and can be done.

In other words, private sector involvement depends on:

- Inter-sectoral and inter-institutional collaboration established that necessitates the break down of institutional silos;
- An easy-to-use global standard ecosystem service valuation tool developed that is backed by science;
- International and widely accepted guidelines, tools and technologies for ecosystem restoration outlined that include a means of reintroducing sustainable agricultural practices;
- A 'Wiki' database of ecosystem and landscape restoration projects established that can provide models for replication and scaling up implementation ("clearing house");
- A smart and simple broker mechanism put in place that engages companies in major restoration projects, and that is regionally replicable and endorsed by leaders in the field thus ensuring it represents the best expertise and can be highly effective in its role of connecting people, communities and organisations;
- The commitment of all participating companies, scientists, governments, NGOs and local communities to a long-term approach and perspective on this undertaking.

c. Dealmaker of Trust

An *inter-institutional framework or mechanism* must be established that can build the necessary trust and connections between the business community and stakeholders (civil society organisations, governments, and educational institutes among others) based on ecological science in order for these barriers to be broken down and productive collaboration on major projects undertaken.

The partnerships created as a result of this framework would hold immense promise for ecosystem restoration, where the costs and benefits would be distributed proportionately (i.e. equitable and just) and take into account long-term time horizons. Serious attention would need to be given to the recommendations of TEEB.

Among the benefits companies could expect from these partnerships (ROI) are new tools and insights into sustainable decision-making, experience working with different sectors, the development of new networks, and positive brand and reputation affects including internal brand-building among employees who are aware that their organisation is playing a meaningful role in regards to the current environmental crisis. The Business Engagement Strategy (2012) and Operational Guidelines for Private Sector Engagement (2009) of IUCN are important references in this matter[53].

53 IUCN Business and Biodiversity:
http://www.iucn.org/about/work/programmes/business/bbp_aboutus/strategy/

d. Land grabbing and green washing

It is not necessarily a problem when wealthy companies invest in ecosystem restoration to create new agricultural lands in poor countries for commercial use. But when local people are kicked off the land or less food is grown as a result, that's a very big problem indeed. This process is called 'land grabbing'. Recent data indicates that at least 80 million hectares of land deals have been identified since 2001. Oxfam rightly states[54]:

> "Massive investment in agriculture is desperately needed to help fix the broken food system. Private sector investment can play a vital role in delivering inclusive economic growth, environmental sustainability and poverty reduction. However, in order to do so, it must be adequately regulated and should adhere to some key principles, such as focusing on local food markets, working with producer organisations and respecting the rights of small-scale producers, workers and communities".

Ecosystem Restoration Partnership through Business should be aware of the potential dangers of land grabbing. Cooperation with local organisations as well as the use of accepted international restoration guidelines should avoid these practices. In a way the same applies for greenwashing, which is used to promote the perception that a company's aims and policies are environmentally friendly. Whether it is to increase profits or gain political support, greenwashing may be used to manipulate popular opinion to support otherwise questionable aims. Working in long-term partnerships will not give the space to these unethical activities.

54 Oxfam (2012) Discussion paper Private investment in agriculture: why it's essential and what's needed: www.oxfam.org/sites/www.oxfam.org/files/dp-private-investment-in-agriculture-250912-en.pdf

7 Creating a Mechanism for Ecosystem Restoration Partnerships through Business Partners

"We must break down the silos if we are to advance the cause of ecological restoration. Creating new partnerships with business will both facilitate the sharing of knowledge and complementary expertise but also enable business to become a major driver of ecological restoration."

This paper proposes the creation of an international mechanism, **Nature Resilience**, for ensuring the productive involvement of the private sector in ecological restoration efforts.

a. Nature Resilience

By design, **Nature Resilience**, will be flexible enough to be adapted to different circumstances around the world and/or scaled up to meet the demands of the largest initiatives. In its approach and operations it will draw on best-practice examples of other, successful mechanisms for creating inter-institutional collaboration and contribution from the private sector.

One such model is the business network Leaders for Nature[55]. IUCN NL founded this network in the Netherlands in 2005 as a breeding ground for business and biodiversity (figure 19). It is now being rolled out in several other countries including India. Thanks to the efforts of this network, in 2011 eleven multinationals[56] signed an MoU agreeing to work together on the restoration and sustainable management of ecosystems for the next 20 years. Nature Resilience will help to facilitate the mobilisation and redirection of investment funds and business participation by acting as a broker or match maker between businesses (investors and individuals), governments, NGOs, communities, farmers and local civil society organisations (CSOs) working in the field of restoration and conservation. **Nature Resilience** will actively seek the creation of **Ecosystem Restoration Partnerships**.

55 Leaders for Nature: www.leadersfornature.com

56 Agreement was signed on 13 December 2011 by the Dutch offices of ABN AMRO, AkzoNobel, ARCADIS, Cofely Nederland NV (part of GDF Suez), DHV, DSM, InterfaceFLOR, KLM, Nutreco, Philips and PwC.

Nature Resilience will be a neutral and independent agency that brings together existing networks of businesses and business schools, scientific institutions, governments and local development partners. It will be empowered, endorsed and financed by committed private sector institutions as well as business schools and student communities.

b. Critical success factors

Ecosystem restoration projects will be funded through a variety of finance and incentive mechanisms including a social investment fund that may pay off its interest in the form of quantities of carbon sequestered, groundwater recharged, or through increases in agricultural production. The critical success factors of **Ecosystem Restoration Partnerships** are:

- **Focus:** Restoring hectares of degraded landscape and seascape based on ecosystem science;
- **Endorsement:** From ecosystem scientific institutions and civil society organisations;
- **Connecting companies & implementing partners:** Through business networks and business schools and implementing partners (NGOs, farmers);
- **Business cases:** Agriculture, Food, Water, CO2, Biofuels, Mining based on ethics and responsibility;
- **Long-term commitment:** 20 years (e.g. in 4 x 5 years periods);
- **Results:** # consortium projects (= # of hectares)
  # involved business schools & educational projects
  # investors & companies involved
  # ecosystem services coming back as part of the whole
  # increase of local agro production and income
- **Organisation:** smart and small broker mechanism supported by partners;
- **Income model:** start up investment, after 3 years; % over projects;
- **Replicable:** model regionally replicable.

c. Ambition

The ultimate goal is to attract the Fortune 500 companies and private sector investors to partner in this initiative. The following groups of stakeholders will be part of the mechanism (see figure 20):

A **A Business Network** starting with, for example, the Leaders for Nature network. Over the last few years the World Business Council for Sustainable Development (WBCSD) has created an excellent strategy for the business community on sustainability. Their Vision 2050 includes an Ecosystems Focus Area. Cooperation with IUCN and WBCSD will be enhanced.

Fig. 19. Business members of Leaders for Nature in 2012.

B **Business schools and TEEB network**. It is important to include business schools since training and education is a critical success factor for long-term private sector involvement. The Rotterdam School of Management, Erasmus University (which is associated to the WBCSD) as well as the Nyenrode Business University have already confirmed their participation. What would a Corporation in 2020 look like? How will it be involved in restoration?

C **Investors**, family companies, and social entrepreneurs, who understand the importance of a long term vision and investment (20 years) for their companies. Multilateral and bilateral institutional investors may be invited to join, such as the World Bank, Global Environment Facility, regional developments banks, like the Dutch FMO[57].

D **Local stakeholder networks and field activities** through learning networks, in which all relevant stakeholders can connect and search for new modes of collaboration and ways of creating synergies around a common objective. Local stakeholders are farmer associations, local entrepreneurs and Civil Society Organisations working on ecosystem restoration and conservation. Such a learning network is in the process of creation under the umbrella of the Global Partnership on Forest Landscape Restoration (GPFLR). This learning network envisages a "blended approach" of face-to-face meetings, and the use of social media and other web-based learning support tools (e.g. e-learning modules). In such a learning network, a diversity of projects and initiatives are brought together via a collective platform. The real investment is in people and communities, and in activities to restore biodiversity and ecosystem functioning for food and water security,

57 Dutch Development Bank: FMO: www.fmo.nl

sustainable livelihoods, and climate change mitigation and occasionally adaptation. Ecosystem Restoration Partnerships should make use of existing local networks of rural cooperatives in combination with local civil society organisations like IUCN members and development organisations, as well as conservation organisations, such as the Society of Ecological Restoration and the World Land Trust. The idea is to set up Vocational Training Centers for Ecological Restoration with help of companies. The business case is essential to help local communities overcome the first few years in which they may have less income. Tools like microbiome cultures (including mycorrhizas), analogue forestry, permaculture, waterboxx, traditional management practices and many others are valuable cost-effective mechanisms that will help restore the delivery of ecosystem services.

E **Science** as developed and endorsed by recognised international institutions and bodies, such as Center for International Forestry Research (CIFOR)[58], FAO, Universities, soil experts as well as the scientific IUCN Commissions. IUCN is well recognised on the basis of its biodiversity standard setting, such as the **Red List of Threatened Species**[59].
Of particular relevance are the IUCN Commission on Ecosystem Management, the World Commission on Protected Areas and the IUCN Species Survival Commission. The IUCN Commission on Ecosystem Management is currently working on a **Red List of Threatened Ecosystems**[60] and the World Commission on Protected Areas just released its best practice guidelines for ecological restoration in protected areas.

F **Governments:** there are increasingly positive and visionary initiatives on various scales taking place in countries like Ethiopia, Burkina Faso, Niger

58 CIFOR: www.cifor.org
59 Red List of Threatened Species: www.iucnredlist.org
60 Red List of Threatened Ecosystems www.iucn.org/about/union/commissions/cem/cem_work/tg_red_list

China and recently Rwanda[61]. Likewise in the Latin American countries, where new legislation in Mexico, Argentina, and Colombia aims to promote sustainable development, reduce climate change and alleviate poverty. Enormous challenges for governments still lie ahead in degraded countries like Spain, Greece and the Middle East.

G **Knowledge transfers, communication and learning:** practical examples, case studies and news will be placed on the web and in the media.

61 In 2011 Rwanda announces the Forest Landscape Restoration Initiative to reverse degradation of soil, water, land, and forest resources by 2035, and to use ecosystem restoration as a way to create jobs

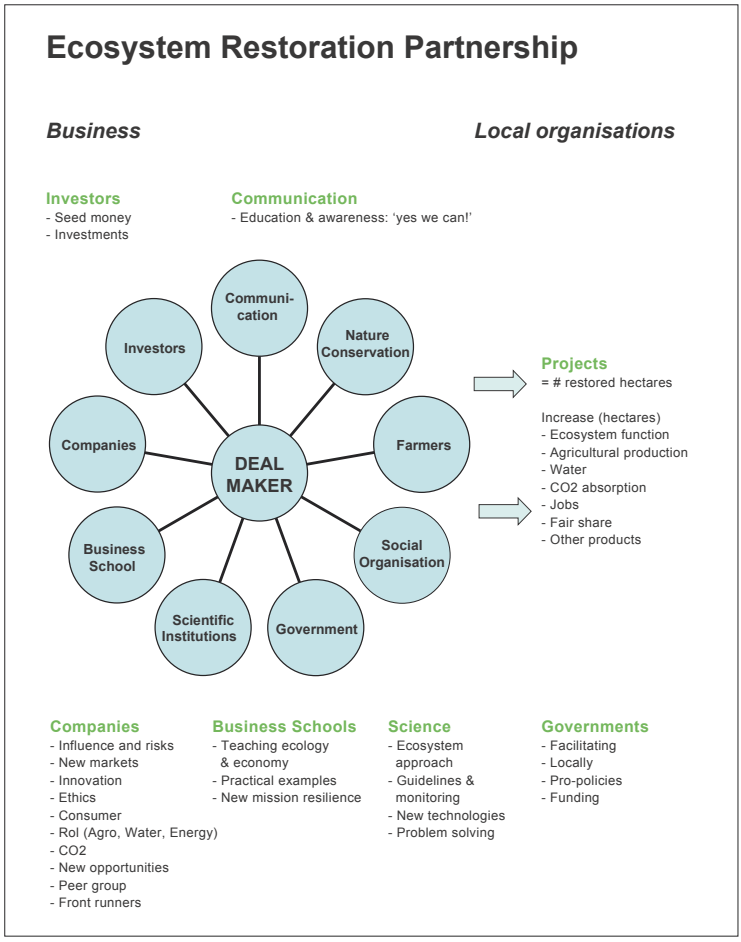

Fig. 20. **'Nature Resilience is acting as a deal maker or 'broker' that establishes the best available combinations of stakeholders for implementing large scale restoration projects based on a business proposition. An additional advantage is that business schools will learn to work with new sustainability models through the projects elaborated by this venture.**

8 The Value Proposition for Business

"We have a choice to make during our brief visit to this beautiful blue and green living planet: to hurt it or to help it." ***Ray Anderson - Founder and Chairman of Interface, Inc.***

a. Return of Investment

What return on investment (ROI) can investors and companies expect from these partnerships? This depends on the nature of the partnership, the duration of the project and the local ecosystem. Potential ROI's for companies or investors include: an increase in agriculture, carbon credits, and new market development; a local marked increase; insights into sustainable resourcing; being part of a new 'business to business' peer group with new business opportunities; innovation potential, becoming a front runner in new emerging issues (biofuels, loans, local agro development; water; biodiversity offsetting, no net loss); better-meeting the demands of consumers/clients; enhancing the company's level of corporate responsibility and ethics with positive implications for its brand and reputation; an increase in innovation potential; and increase in good will, attractive for high potentials.

b. The value proposition

- **Actively seeks out and creates new business partnerships** between businesses, local users such as farmers, pastors and ecological organisations. For each partnership, tailor-made business case solutions are sought out, based on sound economics. In turn, partnerships contribute to the education of new business leaders (at business schools);
- **A positive approach:** our message is that sustainability is not only about *Reduction* (Triple P) but also about *Adding Value*, e.g. Restoration (Support Resilience, or Net Positive Impact) for food, water, topsoil, biodiversity and jobs;

- **Systemic approach:** seeing the landscape from an ecosystem perspective, not as a production unit for solely one crop or product, as well as from a long term (intergenerational) viewpoint;
- **Science based** and supported by a range of international bodies. Supportive of international agreements under UNEP, UNCCD, UNCBD and IUCN CEM;
- **Operates independently**, but is a complementary addition to existing initiatives such as the Bonn Challenge, Plant Pledge, World Resources Inititiative, Society Ecological Restoration, and UN organisations such as UNEP, UNCCD and IUCN, etc.;
- **Uses a toolbox** of practical restoration possibilities (waterboxx, mycorrhiza, permaculture, fencing, purchase, participatory approaches, integrated agriculture, etc) and makes use of available local knowledge;
- **Endorsed** by international institutions;
- **Communicates** hope and a new perspective to upcoming generations by story telling and and developing a common language. The work of John Liu (EEMP) will be strengthened (documentary Green Gold[62], 2012);
- **Trouble shoots and solves problems** between partners during duration partnerships, based on knowledge such as presencing, etc.;
- **Well embedded** in a global network of experts and business;
- **Offers its own team of experts as well as others the different networks.**

62 Documentary Green Gold about John Liu (2012): www.youtube.com/watch?v=YBLZmwIPa8A

Fig. 21. Communication of Hope: documentary maker and story teller John Liu at Kamiranzovu River, Lake Kivu (Rwanda). Liu is IUCN Ambassador Ecosystem Restoration and has increased the awareness of millions of people including decision makers about re-greening the planet (Photo: EEMP, China).

c. How does it work? An example.

Below is a fictitious example of how the foundation **Nature Resilience** would develop an **Ecosystem Restoration Partnership** through Business, and the steps that would be taken to manage it.

An inventory of the interests of five companies is made on how they can deliver more on sustainability and ecosystems. All five companies have stakes in land-related issues such as agriculture, energy or water. All five companies have a business interest in a country, which has a severe issue with degradation, in this fictive case: Brazil. The foundation **Nature Resilience** acts as a broker or partnership composer, a deal maker, and brings reliable science and monitoring in. A key value proposition is that it

will give guidance and problem solving during the 20 years of project implementation.

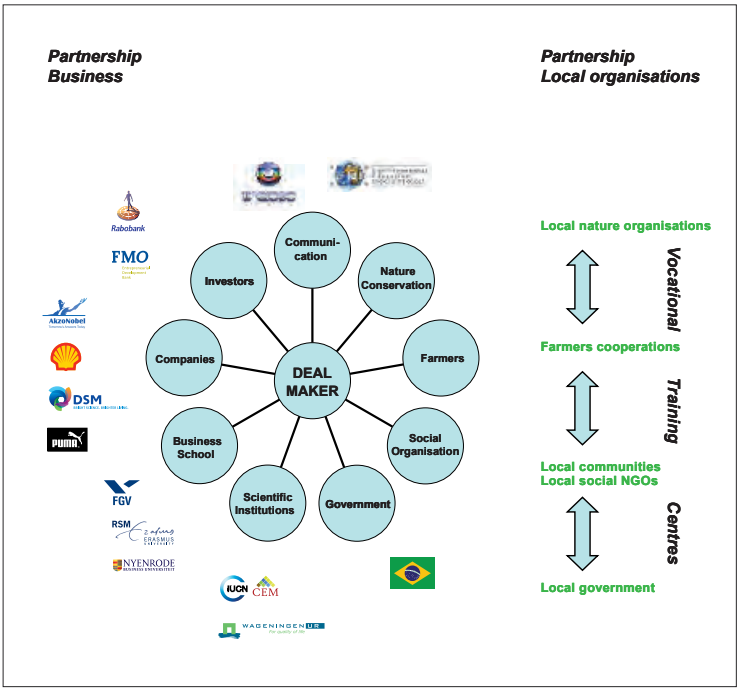

Fig. 22. An Example: Restoring 1 million hectares in Brazil. The key elements of an **Ecosystem Restoration Partnership**: include the role of the deal maker as binding mechanism and problem solver in the centre of the circle of stakeholders and implementing organisations and training centres. It will act during the 20 years of the partnership.

d. Phases of identification

Four different phases are essential to create an **Ecosystem Restoration Partnership:**

1. Identifying the business case for an Ecosystem Restoration Partnership
2. Identifying the right site
3. Identifying the right tools
4. Identifying the role of the broker mechanism

1. Identifying the business case for an Ecosystem Restoration Partnership

Key elements of the business case (return on investment over 20 years) include the following:

- CO_2 compensation
- New market development
- Sustainable resourcing
- Risks assessment and opportunities
- Business to business peer group -> new business opportunities with peers
- Leading stance on critical emerging issues: creating jobs, biofuels, sustainable agriculture, loans, local agro development, water, biodiversity offsetting, no net loss etc.
- Meeting the demands of consumers / clients
- Enhanced corporate social responsibility
- Ethics, good future stakeholdership
- Potential for stronger marketing, reputation and Good Will
- Increased innovation potential
- A head-ups on and enhanced awareness of new governmental policies

2. Identifying the right site

Site selection criteria for local partners and companies:

- Site Location; type of ecosystem & mozaic landscape.
- # of hectares?
- Land tenure. Local interests/conflicts/stability.
- Restoration potential in relation to agriculture, water, carbon, jobs.
- Existence of local implementing organisations.
- Costs benefits, risks, duration (20 years).
- Guaranties assessment: banks, development banks, investors.
- Return on investment: fair share between local people and investors.
- Other parties, funders.
- Application of Criteria Ecosystem Restoration (IUCN Ecosystem Approach).
- Partnership agreement of 20 years, or 4 x 5 years.
- Decide: go / no go.

3. Identifying the right tools

Toolbox:

- Participatory approach on the site and vocational training centres.
- Alternatives local incomes.
- Ecosystem survey done.
- Deciphering which mix of technical tools are possible, such as analogue / agro forestry, fencing, trenching, waterboxx, permaculture, adding native mycorrhiza, microbiome treatments.
- Establishing a finance & investment portfolio.
- Addressing local governance issues.
- Addressing legal issues.

4. Role of deal maker or broker; Nature Resilience

How to proceed?

- To ensure sustainable long-term management strategies.
- Support, problem solving and learning during 20 years of partnerships.
- Signing Principles of Cooperation for 20 years with companies, local organisations and Nature Resilience.
- Formation of Project Management Team on field site.
- Guidance of Criteria and Guidance Monitoring process.
- Enabling participation in business school (MBA) education of the various partners.
- Updating our knowledge with new scientific findings.
- Maintaining a project database through partners.
- Engaging in the requisite problem-solving and learning curve required for this undertaking.
- Enabling the creation of a Wiki database by others.

9 Next Steps and Key Strategic Targets

The time is ripe for new partnerships that make use of existing experiences and knowledge. These partnerships should last a minimum of 20 years and constantly seek out creative solutions to complex stakeholder problems.

Over the past months, numerous scientists, investors, businesses, business schools and field implementing institutions have been consulted and their advice sought on the proposed key strategic targets below. A business rationale will be formulated with the input of company executives and business schools. International and local networks from nature, farmer and civil society organisations will be contacted and consulted.

The aim is to establish a legal structure for **Nature Resilience** at the beginning of 2013 and to be fully operational with creating partnerships as of January 1st 2014. A concise business plan and a lean structure will be set up in consultation with partnering organisations. Several organisations and institutions are already lending their support to the idea. The mission of the organisation will be to:

"Restore degraded ecosystems for the sake of the world's upcoming generations by creating new partnerships between business and local stakeholders."

A small team of professionals will be formed. They will actively strive to create tailor-made partnerships between stakeholders and companies willing to restore millions of hectares of land, in cooperation with local stakeholders and based on international established guidelines. The team will be connected to the worlds of both business and ecology – they will speak the language of business and the language of ecologists, farmers and local people. The deal making will only be successful if **Nature Resilience** as a new organisation will

operate in a way that is complimentary to others, is endorsed by international experts, NGOs and scientists and supported by business schools, private companies and foundations. These networks have access to the best databases and networks and form the basis of a simple Wiki Restoration tool. The proposed strategy to achieve this is through the following **Key Strategic Targets:**

1 The promotion of ecosystem restoration as an **intergenerational approach** and with a specific 20 to 40 year time-horizon with key stakeholders (sponsors, scientists, civil society organisations, farmers, companies and governments) to re-establish and strengthen "nature resilience of agro-ecosystems".

2 An **enabling environment** for key stakeholders to step 'out of their silos' and work together to create partnerships for meaningful ecosystem restoration.

3 A set of **ecosystem restoration criteria** that is accepted by all stakeholders and given a simple, straight forward monitoring system. Measures must be taken to ensure that practical and widely accepted guidelines on ecosystem restoration are used for business and implementing organisations.

4 A **basic infrastructure** must be created that inspires and motivates companies and others to participate. This supportive institutional setting composes, facilitates, selects and gives guidance to all ecosystem restoration partnerships.

5 The **organisation of ecosystem restoration partnerships** will be organised (composition, # projects, # hectares), with the specific goal of establishing 500 tailor-made partnerships (Global 500) between companies, local civil society organisations, farmers and governments with the objective of working together to restore large areas of degraded land in different countries.

6 **20 years time frame**
Each partnership must be based on a business case, have a duration of >20 years, and realise the restoration of hundreds to eventually millions of hectares.

7 A **value proposition** that is based on matching positive impact instead of only reducing negative impact (see above).

8 Showcase partnerships with the goal of educating a **new generation of business leaders at business schools**. Learning by doing.

New technologies and communications, new ways of producing food and energy … All these things only make sense to 'live well' if we are able to restore and sustain the fundament of this planet, the ecosystems and the diversity of species.

Support

Many people working at environmental and development organisations, as well as scientists and business people, have indicated that the time is right to establish a practical deal-making mechanism for ecological restoration.

During the last months the following organisations and scientific institutions have indicated that they endorse the idea and would like to work together on it.

The following institutions and organisations are supporting this initiative and will be involved in one way or another in the creation of the mechanism and Ecosystem Restoration Partnerships.

Consultation

We welcome practical feed back and reactions on this plan.

Please send it to: **nature-resilience@rsm.nl**

or **nature-resilience@iucn.org**

About the Author

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The paper used for this book was granted the FSC label (inside) as well as the EU Ecolabel (cover)

UNEP

UNCCD

Nature Resilience: organising ecological restoration by partners in business for next generations

The essence of sustainability is about reconnecting man's relationship to nature. This paper proposes the creation of a practical international mechanism for creating collaborative partnerships between stakeholders such as scientists, NGOs, foundations, local authorities, and the business community. The proposed mechanism Nature Resilience would initiate and organise twenty years, tailor-made *Ecosystem Restoration Partnerships* between companies and stakeholder groups, wherein the explicit goal would be the restoration of millions of hectares of ecosystems in cooperation with local people, farmers and NGOs, in a way that conforms with international established guidelines.

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