

**Profiles of Tools and Tactics
for
Environmental Mainstreaming**

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THE NATURAL STEP

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The Natural Step Framework (an approach to strategic leadership)

Note: We are grateful for review comments provided by Tom Chambers, Forum for the Future, Cheltenham, UK

<i>What is a The Natural Step for?</i>	<i>What issues does the Natural Step focus on?</i>																													
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Purpose

The Natural Step (TNS) Framework is a simple science-based tool to help individuals and organisations understand sustainability and build sound programmes. It provides a robust definition of sustainability – to enable a vision to be developed of a sustainable future (for whatever is being designed), and gives a planning process to do it (the ABCD phases described below). The TNS Framework is a well-developed planning methodology used for assessment, visioning and action that encourages dialogue, consensus-building, and systems-thinking and creates the conditions for profound change to occur. It does not prescribe or condemn other approaches but rather introduces and expands on new possibilities by providing a model to check the relevance/robustness of other approaches/tools/strategies – and spotting what is missing.

The science-based TNS Framework aims to help individuals and organizations understand sustainability and build sound programmes, tools and metrics. It is a methodology for successful organisational planning, based on systems thinking. It begins by understanding the broader system within which problems occur and the principles governing success within that system. This upstream approach to sustainability means problems are addressed at the source and are turned into opportunities for innovation and success.

Using the TNS Framework (Box 1), businesses, government agencies, policy-makers, individuals and communities are engaged in training and partnerships, research and development, and community involvement to lead the transition to an ecologically, socially and economically sustainable future. Many businesses use the Framework to integrate environmental considerations into strategic decisions and daily operations. It provides a way for business leaders to see "risks" as new opportunities for success and is used to:

- reduce operating costs and environmental risk;
- get ahead of regulatory frameworks;
- enhance the organization's standing among stakeholders;
- incorporate environmental concerns into the workplace;
- differentiate products and services and build a positive brand image;
- ensure definition of, and progress towards, a genuinely sustainable outcome – aiming to provide a 'true north' of sustainability and a compass for getting there.

Background facts

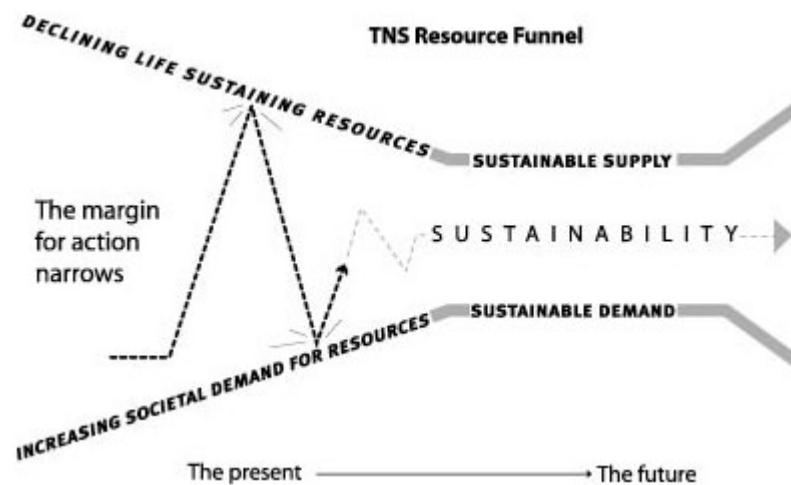
TNS was pioneered by Karl-Henrik Robèrt who established it as a nonprofit organization in Sweden in 1989. This has now grown to an international network of non-profit, educational organizations working together to build a sustainable society (see: <http://www.naturalstep.org/com/Start/>). Various national offices are licensed to use and spread the TNS Framework. There is a focus now on the Real Change

Programme to engage universities around the world to use the Framework to structure research on key areas of SD application (eg water and energy).

Environmental limits:

The TNS Framework uses the metaphor of a funnel (Figure 1) to help visualise the economic, social and environmental pressures that will inevitably impinge on society as natural resources continue to diminish and population grows.

Figure 1: The TNS Framework resource funnel (www.naturalstep.org/tns-f-the-funnel-p-asp)



Chambers *et al.* (2008) explain this funnel as follows

“Imagine humanity being poured into the funnel. The sides of the funnel represent the way in which we encounter natural and social limits. One side is the ‘supply’ axis: the declining ability to provide products and services as a result of damage caused by pollution and the destruction of habitats. The other represents demand: the increase in the world’s population, and with it the rate of resource consumption.

Entering the funnel, humanity finds itself in increasingly stressful conditions, leading to more intense competition for the remaining resources. As well as further impacting on the natural environment, this increased competition yields social problems: inequalities, limited access to the essentials for life, and conflict.....

As the walls of the funnel close in, we need to ensure we do not place more demands on the environment than can be sustained, either by reducing per capita consumption, or reducing population, or a range of other activities that will avoid a damaging impact with the many factors that make up the walls of the funnel. This is what is meant to live ‘within environmental limits’. Ultimately, it is possible for the walls of the funnel to open out again, as we work to restore the capacity of the environment whilst reducing our demands on it.”

The Framework translates the fundamental principles that lie behind the environmental limits within which we must live into a set of four basic System Conditions – the rules that govern the relationship between all of us, business included, and nature (Box 1).

Box 1: System Conditions and sustainability objectives

Fundamental System Conditions for sustainability

In a sustainable society, nature is not subject to systematically increasing

- ***concentrations of materials from the Earth's crust.*** This principle means that fossil fuels, metals and other materials must not be extracted faster than their slow re-deposition into the Earth's crust.
- ***concentrations of substances produced by society.*** This principle means that chemicals and nuclides must not be produced at a faster rate than they can be broken down and reprocessed.
- ***physical degradation of nature.*** This principle means that society must not harvest more resources than are regenerated and must maintain a surface area of nature with sufficient capacity to reprocess waste products and convert them to essential ecological functions.

and, at the same time, society does not systematically

- ***undermine people's capacity to meet their needs.*** This principle means that resources and services obtained from nature must be used where they are needed most for global equity.

Fundamental sustainability objectives (The four System Conditions can be translated into four ultimate sustainability objectives applicable at all levels from societal to individual)

- ***Eliminate our contribution to systematic increases in concentrations of substances from the Earth's crust.*** This means substituting certain minerals that are scarce in nature with others that are more abundant, using all mined materials efficiently and systematically reducing dependence on fossil fuels.
- ***Eliminate our contribution to systematic increases in concentrations of substances produced by society.*** This means systematically substituting certain persistent and toxic compounds with ones that are normally abundant or break down more easily in nature, and using all substances more efficiently.
- ***Eliminate our contribution to the systematic physical degradation of nature through over-harvesting, pollution and other forms of ecological modification.*** This means drawing resources only from well-managed eco-systems, systematically pursuing the most productive and efficient use of land and resources and exercising caution in all kinds of interventions in natural cycles and processes.
- ***Contribute as much as we can to the meeting of human needs locally and worldwide,*** above all through substitution and dematerialization measures to meet the first three objectives. This means using all of our resources efficiently, fairly and responsibly so that the needs of all people on whom we have an impact, and the future needs of people who are not yet born, stand the best chance of being met.

Sources: Chambers *et al.* (2008) ; Robert *et al.* (1997) Robert *et al.* (2002)

Main steps in applying The Natural Step Framework:

TNS involves a four-phase *A-B-C-D Analytical Approach* (see: <http://www.naturalstep.ca/implementation-methodology.html>) which is repeated as the business/organisation/activity progresses along various pathways towards sustainability. The process usually begins with a short, intensive session with key decision-makers, and proceeds according to the capacity, priorities and resources within the business, covering all four steps with a team drawn from across the organisation.

A = Awareness:

The involves aligning the business around a common understanding of sustainability and the 'whole-systems' context for the organisation. A presentation or other ways are used to introduce the TNS Framework principles of sustainability, basic science and whole-systems approach – to build a shared understanding of the system in which we operate (nature's laws, principles for success (Systems Conditions) and in which the particular organisation operates)¹. This provides a platform from which strategies for living in balance with nature and the global community are developed. Participants review details of the state of the earth's systems, including the ecological, social and economic trends that are undermining our ability to create and manage healthy and prosperous businesses and communities.

B = Baseline Mapping (What does your business/organisation/activity look like today?)

An analysis (through gap analysis, systems mapping, etc) of the major flows (inputs, outputs) and impacts of the business or public sector organisation is conducted, using the System Conditions (see Box 1), to see how activities are running counter to sustainability principles. This allows the business/organisation to identify critical sustainability issues, the business implications and opportunities for moving forward. Bounded by natural systems and communities, this analysis can ultimately include the impacts of a business's entire supply chain and an evaluation of products and services, energy, capital and human resources from 'cradle to grave'. Another critical component of the assessment is the social context and organisational culture, which provide dimensions to the analysis essential for understanding how changes can be positively introduced into the system.

C = Creating a Vision (What does the business/organisation/other entity look like in a sustainable society? Imagine what operations will look like in a sustainable society based upon the four System Conditions)

Key decision-makers and stakeholders work together to create a compelling long-term vision for a sustainable enterprise, and brainstorm possible actions in creative and innovative ways. It is here that businesses/organisations/others often begin to identify the service they are providing the world independent of any one product (for example, providing energy services versus oil). Incorporating this awareness into the visioning process unleashes innovation and releases the entity from certain existing limitations. From this vision, a strategy and action plan for moving towards sustainability is developed. Individuals are encouraged to come up with ambitious goals which may require radical changes in how an institution operates. Some goals may take many years to achieve. Once sustainability stretch goals are set, the TNS Framework advocates a step-by step implementation strategy.

¹ An E-learning module is available at <http://www.thenaturalstep.ca/elearning/> and many training course are available (see internet).

Strategies are developed based on looking backwards from a vision of success (called "Back-casting" from principles). This prevents the group from setting a direction based on simply overcoming the problems of today. Instead, they begin moving towards a shared vision and goal of sustainability, with each action intended to provide a platform for further improvement.

Opportunities and potential actions are identified and prioritised, with priority given to measures that move the entity toward sustainability fastest, while optimising flexibility as well as maximising social, ecological and economic returns.

D = Down to Action (Supporting effective, step-by-step implementation. Entities set their priorities for improvement, based on the vision they have created, against three key issues: progress against System Conditions, flexible platform, and return on investment) The TNS Framework helps select the appropriate tools to support the strategy.

Advice and support may be provided for executing specific initiatives through appropriate training, techniques, and tools for implementation, followed by measuring progress towards goals and suggesting modifications as needed. Back-casting is used on an ongoing basis to continually assess whether decisions and actions are moving the business towards the desired future outcome identified in Step C.

Sustainability principles provide new design parameters that drive product and process innovation throughout the 'business system'. This phase also incorporates organisational learning and change methods, which are both essential for effectively moving people into new ways of thinking and behaving together.

Once a person masters the principles, they can get more and more skilled at handling the details. In a sense, the principles help people to stay on course as they process the myriad bits of information and decisions involved in long-term planning. What is considered to be realistic today never determines the direction of change, only its pace. The approach is fundamentally based on systems thinking, setting ambitious goals, and developing realistic strategies for moving forward.

Businesses/organisations/other entities are not expected to achieve long-term goals immediately. On the contrary, they are encouraged to move systematically by making step-by-step investments that will provide benefits in the short-term, while also retaining a long-term perspective.

Expected outputs

Significant change, particularly in business practices, so that they are environmentally, socially and economically more sustainable. Companies achieve greater effectiveness, competitive advantage, bottom line results, security, employee satisfaction and public acceptance. Problems are avoided, a vision and core values developed within a framework for social and ecological sustainability, and/or the vision refreshed in a step-by-step way while doing good business.

Basic requirements

Data:

Data requirements vary depending on the specifics of the work being undertaken and the depth with which it is pursued. Be it an organisational strategy or a sustainable product innovation, the key thing is to be able to 'baseline' current performance against the System Conditions. This means identifying, and (if helpful) quantifying, resources that are consumed (inputs) and emissions/wastes released (outputs), so as to identify where the sustainability principles (System Conditions) are being compromised. Hence the data required depends on the organisation's activities, but would likely span the usage of energy, metals, synthetic chemicals, and biosphere materials (e.g. wood, soil, water, animals). The outputs of these resources (eg greenhouse gases and other pollutants) will need considering along with human and social issues such as employee and community welfare. An introductory workshop would likely do a qualitative scan of these issues, whereas more in-depth work could go into more detail. TNS emphasises a pragmatic approach. For instance, TNS have developed the Streamlined Life-Cycle Assessment tool, which guides people through assessing the impacts of a

product from cradle-to-grave, rapidly identifying approximately 80% of the key issues without necessarily needing to be exhaustive on numbers. This helps speed-up change.

Cost:

Ultimately the work is delivered 'in-house'; it does not cost money to apply TNS ideas as such, although there are fees involved in building initial capacity to do so. TNS offices country are non-profit making and have sustainability and their clients' interests in mind, however, and clients benefit from the international knowledge sharing of the TNS community of practice. Costs vary according to where you are in the world, and what bespoke programme is developed.

Skills and capacity:

The TNS Framework boils complexity down into manageable principles – so once grasped, it is almost by definition a simple approach and becomes an invaluable mental model. It does require initial effort to learn key sustainability principles and the ideas of Back-casting from a vision of success. However, armed with the four System Conditions and knowing how to apply them, equips practitioners with a way to navigate the many complexities of living sustainably in a complex system. It is perhaps a unique framework in that regard.

Online e-learning courses are available, at 1 hour or 3 hour durations, to provide a self-paced introduction to the TNS Framework. Training programmes can also be discussed with national TNS offices. The Blekinge Institute of Technology offers a masters degree in Strategic Leadership Towards Sustainability (ie the TNS Framework)(<http://www.bth.se/tmslm>). Some universities engaged in the Real Change Programme are building in-depth capacity in particular aspects of sustainable development.

Flexibility

The TNS Framework is flexible in its application: from households to products to organisations to town planning, and so on. The Framework emphasises flexibility as important in developing strategy – our choices need to be flexible enough to respond to likely circumstances in the future. The process itself is also flexible, and the cyclic nature in which strategy is refreshed is aimed to ensure that.

It is important to get high-level support for organisational change, but different organisations will implement their TNS process in different ways. Ideally an organisational commitment is made, although specific projects might be developed initially. National TNS offices often create bespoke work programmes for client organisations/projects in order to build capacity. Aspects of the TNS Framework are published in peer-reviewed literature, and hence are available to all, although to ensure high standards it is advisable to work with a national TNS office.

Pros (main advantages) and Cons (main constraints in use and results)

The TNS Framework can be adapted to a broad range of applications and its main advantage is perhaps giving a strong mental model with which to approach a transition to sustainability. It enables us to move towards a position of *sustainable success*, rather than run the risk of incremental progress towards something that may prove unsustainable. The Framework can provide a *shared model* for planning, to ensure people understand each other and the goals of their collaboration. Without a shared understanding of success and how to get there, it is difficult to move forward. The TNS Framework is science-based and rigorous, but also accessible as the TNS guides for householders and children demonstrate.

Results are unconstrained when high-level endorsement is in place to enable organisational innovation. Where there is scant investment in training (to develop the shared model) and in resourcing the strategy development process, change will of course be restrained.

Box 2: The TNS Framework in practice: some cases

Companies and organizations that are embracing The TNS Framework have already started innovating and incorporating sustainable practices into their methodologies and objectives. For example:

Collins Pine Company (Oregon/USA.) found that the TNS Framework provides a logical support mechanism for all of its operations. Its first accomplishment was to train the 600 employees in its Klamath Falls composite-panel plant in TNS Framework principles. Collins has also established methods for evaluating capital expenditures based on the four System Conditions and is working on more decision-making and measurement methods.

Electrolux (Sweden) adopted the TNS Framework after it lost a multi-million-dollar deal because it did not offer a refrigeration system without chlorofluorocarbons (CFCs). The company used TNS Framework principles to phase out CFCs and won back that customer. It has introduced washing machines that use 12 gallons of water instead of 45, and substituted canola oil for petroleum-based oil in its chain saws -- all while reducing total energy consumption and hazardous waste.

IKEA (Sweden), the largest furniture company in the world, adopted the TNS framework in 1991 in response to consumer pressure against rain-forest wood. Its four-year environmental plan called for implementing the TNS Framework throughout the company. IKEA first redesigned one furniture line to eliminate metals, persistent glues, and toxic dyes, reducing energy consumption and increasing material efficiency. By applying this experience company-wide, IKEA is becoming more profitable.

Interface (Georgia/USA.), the world's largest commercial flooring company, aims to produce zero waste and to "never take another drop of oil from the ground." Innovations include leasing carpets instead of selling them and powering a factory with solar energy. Design and manufacturing improvements have saved the company approximately \$50 million. Sales have grown \$200 million, topping \$1 billion, without increasing consumption of the earth's resources.

Nike (Oregon/U.S.), the athletic apparel company, is integrating the notion of sustainability throughout its business operations. Nine out of ten Nike shoes are now put together with water-based adhesives rather than petrochemical-based solvents, eliminating 1.2 million gallons of toxics and improving the safety of workers--all while saving Nike \$4.5 million.

Source: <http://www.ortns.org/framework.htm>

Key sources of further information and useful web-links

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