Profiles of Tools and Tactics
for
Environmental Mainstreaming

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SCENARIO PLANNING

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[DRAFT FOR COMMENT]

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SCENARIO PLANNING

What is Scenario Planning for?

Policy development	√	Tests robustness and adaptability
Planning	√	Ditto
Field work		
Investment	√	
Assessment		
Monitoring		
Campaigning		

What issues does scenario planning focus on?

Environmental	√)
Social	√)
Economic	√)
Institutional	√

Purpose

*"All knowledge is about the past; and all our decisions are about the future" (*Ian Wilson, 1975)

Scenarios focus on the *joint* effect of many factors and provide alternative views of the future. They identify some significant events, main actors and their motivations, and they convey how the world functions. Building and using scenarios can help us explore what the future might look like and the likely changes of living in it. Scenario planning (also called scenario thinking/analysis) is a method for thinking systematically about and understanding the nature and impact of the most uncertain and important driving forces affecting our future. It is a flexible and adaptable ***group process*** to encourage knowledge exchange and development of mutual understanding of central issues important to sustainable development. But the purpose of scenario planning is not to imminently decide which scenario is correct; rather it is to look at each plausible future scenario and examine how prepared an organisation or company ism or how robust a policy/plan/programme (PPP) is, for the potential change and consequences

Scenario planning helps policy-makers to anticipate hidden weaknesses and inflexibilities in organizations, methods and policies/plans/progammes (PPPs). Most development PPPs are fixed in that they tend to assume a self-validating future – one usually based on extrapolation or prediction that dominates decision-making (an usually termed the ***default scenario***). But we live in world of discontinuities, with sudden change and ***uncertainties*** – so PPPs fail to hold up under the stream of real events – and lead us into ***shocks and surprises.*** Scenario planning deals with "what if?" questions and helps clarify a vision of the way ahead, capable of modification but allowing progress. This can be compared to *moving from a ballistic artillery shell to a guided heat-seeking missile –in order to deal with a moving target.*

There will always be major events that few people anticipated or expected, that cause severe shocks and strongly influence political systems, the way we live and conduct our lives, etc. Some examples include:

- Collapse of the world's banking system in 2008
- Collapse of USSR
- Fall of Berlin wall and merger of E & W Germany
- Iraq invasion of Kuwait
- Severe Acute Respiratory Syndrome (SARs)
- Emergence of internet communication (www)
- Explosion of cell phone use

Scenario planning provides a ***learning mechanism*** to enable PPPs to be more robust and capable of responding to or adapting to shocks and surprise (ie to make it "future proof"). It helps policy-makers, planners and decision-makers make more resilient strategic decisions. It also enables the crafting of divergent stories about the future – not the past or present. These portray images of the future and a pathway of events through time to get there – by extrapolating uncertain and heavily influencing driving forces.

Background facts

To a large extent, scenario planning is an adaptation of classic simulation games methods used by military intelligence. It emerged in the 1960s and its theoretical foundations were mainly developed in the 1970s. At this time the power of scenario planning for business was established by Royal Dutch/Shell as part of a process for generating and evaluating its strategic options. The company has since led the commercial world in the use of scenarios. By the early 1980s approaches had developed to using sophisticated forecasting techniques (such as Delphi and cross-impavt matrices), bringing together groups of experts to seek reduced risks.

Numerous organizations have applied scenario planning to a broad range of issues, from relatively simple, tactical decisions to the complex process of strategic planning and vision building. Scenario planning works best if it includes systems thinking, which recognizes that many factors may combine in complex ways to create sometimes surprising futures (due to non-linear feedback loops). The method also allows the inclusion of factors that are difficult to formalize, such as novel insights about the future, deep shifts in values, unprecedented regulations or inventions. Systems thinking used in conjunction with scenario planning leads to plausible scenario story lines because the causal relationship between factors can be demonstrated. In these cases when scenario planning is integrated with a systems thinking approach to scenario development, it is sometimes referred to as structural dynamics.

Brief description of the main steps in scenario planning

There are many methodologies & approaches to scenario planning but they share a number key steps.

- ***Establish an initial scenario planning team***. This will likely include all those involved in the strategic planning process of the organisation, key decision makers and stakeholders. Find a location or one or two day retreat, and establish the 'rules' (eg respect, no idea is too crazy, all alternatives to be recorded).

- ***Decide on the key question to be answered by the analysis***. This makes it possible to assess whether scenario planning is preferred over the other methods. If the question is based on small changes or a very few elements, other more formalized methods may be more useful. The narrower the scope of strategic decision, the easier will be the scenario construction

- ***Set the time and scope of the analysis***. Consider how quickly changes have happened in the past, and try to assess to what degree it is possible to predict common trends, eg in environmental change, demographics, product life cycles, etc. A usual timeframe can be 5 - 10 years

- ***Identify major stakeholders***. Decide who will be affected by and have an interest in the possible outcomes. Identify their current interests, whether and why these interests have changed over time in the past

- ***Map basic trends and driving forces***. Many trends and factors can be expected to bring about change, for example: new technologies & products; societal and economic dynamics; political and legal developments, international relations, globalisation, environmental shifts (eg climate, land degradation). Describe each trend/driver (sometimes called variables), how and why it will affect the organisation or PPP. In this step of the process, ***brainstorming*** (often in interviews or workshops) is commonly used, where all trends that can be thought of are presented before they are assessed, to capture possible group thinking and tunnel vision.

  Participants will be more effective when they adopt different ***mindsets***, eg a politician trying to see things from another (eg business) perspective, or an older person trying to see world through a teenagers' eyes. Some driving forces are *predetermined* by nature – others are *uncertain*. For example: (i) if the question depends on number of voters, then those eligible to vote can be predicted, but the number who will actually vote is uncertain; (ii) if question depends on use of public transport, it is possible to predict number of people (the population in the area concerned), but the number who will use public transport is uncertain

- ***Find key uncertainties***. Map the driving forces on two axes, assessing each force on an uncertain/(relatively) predictable and important/unimportant scale. For example, if it has been determined that the two most critical uncertainties are the state of world economy and the weather in Central America. Then there are four possible combinations: good weather/good economy; good weather/bad economy, bad weather/good economy, and bad weather/bad economy. All driving forces that are considered unimportant are discarded. Important driving forces that are relatively predictable (eg demographics) can be included in any scenario, so the scenarios should not be based on these. This leaves a number of important and unpredictable driving forces. At this point, it is also useful to assess whether any linkages between driving forces exist, and rule out any "impossible" scenarios (eg. full employment and zero inflation).

- ***Group linked forces*** and, if possible, reduce the forces to the *two* most important - to allow the scenarios to be presented in a neat x-y axes diagram to visualise interconnections.

- ***Identify the extremes*** of the possible outcomes of the (two) driving forces and check the dimensions for consistency and plausibility. Three key points should be assessed:
  (a) *Trends*: are the trends compatible within the time frame in question?
  (b) *Internal consistency*: do the forces describe uncertainties that can construct probable scenarios.
  (c) *Stakeholders*: are any stakeholders currently in disequilibrium compared to their preferred situation, and will this evolve the scenario? Is it possible to create probable scenarios when considering the stakeholders? This is most important when creating macro-scenarios where governments, large organisations, etc., will try to influence the outcome.

- ***Define the scenarios***, plotting them on a grid if possible. Usually, 2 to 4 scenarios are constructed. For example, the scenarios used for a major bilateral aid agency (not a public document) used economic growth-economic collapse on one axis, and global interdependence-national isolation as the other axis, enabling four scenarios. For environmental mainstreaming, one might use a similar economic growth-economic collapse axis, tgoether with one regarding commitment to environment. The current situation does not need to be in the middle of the diagram (inflation may already be low), and possible scenarios may keep one (or more) of the forces relatively constant, especially if using three or more driving forces. One approach can be to create all positive elements into one scenario and all negative elements (relative to the current situation) in another scenario, then refining these. In the end, the pure best-case and worst-case scenarios should be avoided

  Plots are sought that convincingly portray possible futures. The key "characters" in the plots are identified, eg Institutions (eg corporations, govt. bodies, entire industries); Ecological forces (eg global/regional weather);Mass entities (eg population of voters or high school males); Societal trends (eg religious fundamentalism, private cars); Key individuals (major players). A plot develops when there is conflict or synergy between the characters. Factors are pushed to plausible extremes to develop the scenarios and consideration is given to what such 'worlds' would be like to live in. For example, one could imagine the greatest plausible level of technological progress (i.e. with routine use of computer-chip implants to monitor blood chemistry and heart rates). In developing the plots, time frames must be clear. This produces 'stories' that might unfold. Some process is needed to flesh out story lines (eg working in groups)

- ***Write out the scenarios***. Narrate what has happened and the probable reasons for the proposed situation, including good reasons *why* the changes have occurred - this helps further analysis.

  This can best be illustrated by showing the effects of the scenario on a day in the life of a hypothetical person, group or community. The story should show how conflicts and/or synergies would be manifested in the lives of people, and answer several questions. For example:
  - How did we get here? What plausible chain of events, what combinations of action and counter-reactions, could lead to this future?
  - How does it affect particular groups of people directly related to the core question/factor
  - How diverse a future is it? For example: does it play out differently for wealthy and poor areas? in cities and rural areas? Or among well- and poorly-educated? Or among technological haves and have-nots?

- What does this future tell us? Is there an element or degree of surprise? Are there any unexpected convergences and barriers?
- What is going on in critical arenas? For example: What kind of economy is consistent with this scenario? How is technological change unfolding? What types of political reactions would have to take place, to make this scenario plausible?
- What will the scenario it be called? It is usually given a catchy name/ or slogan.

Finally, give each scenario a descriptive (and catchy) name to ease later reference For example, the four UNEP Global Environmental Outlook scenarios are clear: Security First, Markets First, Policy First, and Sustainability First (UNEP 2007). See Figure 1 for the often-cited four Millennium Ecosystem Assessment scenarios.

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- ***Assess the scenarios*.** Are they relevant for the goal? Are they internally consistent? Are they archetypical? Do they represent relatively stable outcome situations?

- ***Identify research needs***. Based on the scenarios, assess where more information is needed. Where needed, obtain more information on the motivations of stakeholders, possible innovations that may occur in the industry and so on

- ***Develop quantitative methods***. If possible, develop models to help quantify consequences of the various scenarios, such as growth rate, cash flow etc. This step requires a significant amount of work compared to the others, and may be left out in back-of-the-envelope-analyses

- ***Converge towards decision scenarios***. Retrace the steps above in an iterative process until reaching scenarios which address the fundamental issues

Use the scenarios to test the robustness of policy options. This will usually require modelling and extensive use of data.

Expected outputs

A set of scenarios of plausible futures against which to test organisations and PPPs – enabling judgements to be made about how organisations might need to change or how PPPs may need to be modified/improved or alternatives addressed so that they are robust, adaptable and able to respond to unforeseen changes.

Basic requirements

Scenario planning requires interest and commitment to new ways of thinking by political leaders, top management, senior decision-makers – and for them to explain and propagate that interest to others.

It may take some time to create a scenario, and even more to arrive at a comprehensive set of scenarios. It can be quite time-consuming to analyse various policy options within the context of one or more scenarios, especially since this is usually a group exercise.

Range from half-day ‘frame-breaking’ sessions involving select top management team members to lengthy 6-12 month ‘visioning’ exercises involving greater numbers of different stakeholders

Data

Extensive data gathering involved.

Cost

The costs of scenario planning depends on numerous variables such as the organization size, timeframe of the scenarios, teams and those partnering in the strategic planning process (outsourcing and

consulting professionals would increase costs) and methods of analysis and data collection involved in the planning process (methods such as Delphi survey, Monte Carlo Simulation are expensive).

Skills and capacity

Usually involves an experienced, or at least well-briefed, facilitator(s

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

- Systematic yet hghly flexible approach, and highly participative, forces reflection at individual and collective levels.
- Scenario planning improvese the quaility and robustness of PPPs
- Generates buy-in of participants
- Uses known informatiom
- Provides rigour as well as opportunities to draw upon the creativity of those involved, resulting in new views and interpretations on important external developments
- A popular, creative yet structured approach that generates new ideas
- Stretches decision makers' thinking about their organization's business model and its future environment, overcoming corporate blind-spots, and enhancing strategic flexibility

Scenario planning has a number of limitations:

- It has emerged from practicee and its appeal is based more on anecdotal than scientific evidence
- It has rarely been subjected to academic validation
- Decision makers tend to prefer one future scenario; they find it difficult to entertain multiple futures. They often take scenarios too literally as though they were static beacons that map out a fixed future. In actuality, their aim is to bound the future but in a flexible way that permits learning and adjustment as the future unfolds.
- Sets of scenarios simplify a complex picture and inevitably introduces distortions, as withm for example, a geographic map.
- It is highly dependent on the way the process is conducted (eg team composition, role of facilitators, etc.).
- It is usually only weakly integrated into planning and budgeting systems and with other forecasting techniques.
- Time consuming
- Requires a high resource commitment (personnel and costs)

Key sources of further information and useful web-links

Davis G. 2002. *Scenarios as a Tool for the 21st Century*, Shell International

Fahey L. and Randall R. M. (1998) *Learning from the Future*. Wiley & Sons

Ringland, G. (1998) *Scenario Planning: Managing for the Future*. Wiley & Sons

Schoemaker, P.J.H. and van der Heijden K. (1992) "Integrating Scenarios into Strategic Planning at Royal Dutch/Shell," *Planning Review*. Vol. 20 (3): pp.41-46.

UNEP 2007. Global Environmental Outlook 4: environment for development. UNEP, Nairobi

van der Heijden, K. *Scenarios: The Art of Strategic Conversation*. Wiley & Sons, 1996.

van der Heijden, K, Bradfield R., Burt G., Cairns G., and Wright G. (2002) *The Sixth Sense: Accelerating Organizational Learning with Scenarios*, New York: John Wiley

Wikipedia entry: http://en.wikipedia.org/wiki/Scenario_planning

Scenario planning resources – provides references and texts about scenario planning (http://www.well.com/~mb/scenario_planning/)

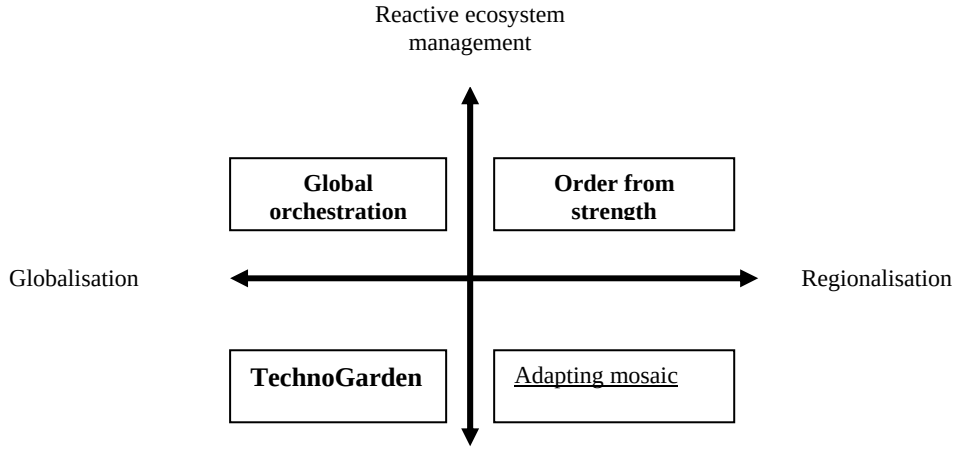
JISC Infonet – provides information on tools and techniques (http://www.jiscinfonet.ac.uk/tools/scenario-planning

Academic futures resources – http://www.universityfutures.org/prospective_methods

Box 5.10.1: Case example: Millennium Ecosystem Assessment scenarios

The MEA Scenarios Working Group considered the possible evolution of ecosystem services during the twenty-first century by developing four global scenarios exploring plausible future changes in drivers, ecosystems, ecosystem services, and human well-being.

Three of four detailed scenarios suggest that significant changes in policies, institutions, and practices can mitigate some but not all of the negative consequences of growing pressures on ecosystems, but the changes required are substantial and are not currently under way.



Global Orchestration – This scenario depicts a globally connected society that focuses on global trade and economic liberalization and takes a reactive approach to ecosystem problems but that also takes strong steps to reduce poverty and inequality and to invest in public goods such as infrastructure and education. Economic growth in this scenario is the highest of the four scenarios, while it is assumed to have the lowest population in 2050.

Order from Strength – This scenario represents a regionalized and fragmented world, concerned with security and protection, emphasizing primarily regional markets, paying little attention to public goods, and taking a reactive approach to ecosystem problems. Economic growth rates are the lowest of the scenarios (particularly low in developing countries) and decrease with time, while population growth is the highest.

Adapting Mosaic – In this scenario, regional watershed-scale ecosystems are the focus of political and economic activity. Local institutions are strengthened and local ecosystem management strategies are common; societies develop a strongly proactive approach to the management of ecosystems. Economic growth rates are somewhat low initially but increase with time, and population in 2050 is nearly as high as in Order from Strength.

TechnoGarden – This scenario depicts a globally connected world relying strongly on environmentally sound technology, using highly managed, often engineered, ecosystems to deliver ecosystem services, and taking a proactive approach to the management of ecosystems in an effort to avoid problems. Economic growth is relatively high and accelerates, while population in 2050 is in the mid-range of the scenarios.

Source: http://www.millenniumassessment.org/en/Scenarios.aspx