

Thinking and Acting Sustainably: Profile of a 21st Century Professional



The institution of
environmental sciences

pp4sd
PROFESSIONAL PRACTICE FOR
SUSTAINABLE DEVELOPMENT

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The Materials

Purpose

This manual is to support trainers leading a one-day (or equivalent) workshop introducing sustainable development to professionals.

The materials are designed to help professionals:

1. Improve awareness of the principles that underpin sustainable development;
2. Identify drivers for change;
3. Be aware of the benefits of applying sustainable development principles to professional activities;
4. Apply systems thinking to work situations; and
5. Develop a personal action plan for sustainable development.

Timetable

09.30 - 10.00		Registration
10.00 - 10.25	0:25	Introduction
10.25 - 11.05	0:40	Introductory Activity
11.05 - 11.35	0:30	Drivers for Change
11.35 - 12.25	0:50	Case Studies & the Case for Sustainable Development
12.25 - 12.50	0:25	Professional Challenges
12.50 - 13.15	0:25	Joined-Up Thinking
13.15 - 14.00		Lunch
14.00 - 14.20	0:20	Applying the Systems Approach
14.20 - 15.10	0:50	Joined-Up Thinking and Planning Activity
15.10 - 15.40	0:30	Your Profession in 5 Years Time
15.40 - 16.10	0:30	Action Planning
16.10 - 16.30	0:20	Final Questions, Evaluation, Close

The approach

The PP4SD training model is one of “facilitated dialogue”, a shared investigation into what sustainable development means within a given context. There is a limit to what can be achieved in presenting information about sustainable development. Individuals have to come to develop their own understanding of the concept, which usually requires a shift in perspective that allows situations and issues to be viewed from another angle. This is not something that can be imposed, but the opportunity for learning and change can be created through the trainer and the participants engaging in dialogue.

This dialogue will lead to an “appreciative inquiry” into the enterprise or organisation in which the participant operates. Appreciative inquiry focuses on how to use the principles of sustainable development to develop new and positive ways of organising activities sustainably rather than focusing on what is wrong with an enterprise or organisation. Appreciative inquiry seeks to instigate a continued process of questioning and inspiring positive actions.

Each activity in the manual is set out in three columns. “Description” describes the activity. “Notes on delivery” is the instructional information for the trainer leading the workshop, this includes reference to materials needed, and “Content” which provides the trainer with background information on the activity and any underpinning theoretical information or rationale for the activity as appropriate.

Use of the materials

The materials offer information, activities, practical suggestions and other materials necessary for the workshop. They are intended to help trainers develop a programme that is appropriate for their situation. The trainer may wish to reorder or remove some of the slides.

Components of the materials

The materials have several components that are found in separate files on the CD:

- Pre-workshop reading materials that should be sent out a couple of weeks before the workshop
- The training manual that provides an overview of the materials, management of the workshop and an annotated description of running the workshop sessions
- Additional information for the workshop leader
- Resources that can be copied and handed out during the workshop.

Rationale for the programme

The ‘Introductory Activity’ helps participants get to know each other and their perceptions of sustainable development. With some common understanding established, participants explore some global concerns that are driving the move towards sustainability. ‘Case Studies’ describe how some businesses have responded, showing that sustainable development practice can also make good business sense. Participants then look at how the ‘Drivers for Change’ will affect their own businesses and what challenges this will present. Some practical tools for dealing with these challenges are presented and used. ‘Joined up Business’ uses a systems approach to help participants identify aspects of their professional activities that need addressing and offers possible solutions. The ‘Five Capitals model’ is offered as a way of analysing the problems and potential solutions so that an action plan can be developed.





Introduction to the Session

Description	Notes on delivery	Content
<p>Aim To introduce the programme and the overall aims.</p> <p>Objectives By the end of the session participants will:</p> <ul style="list-style-type: none"> ■ Know about housekeeping arrangements. ■ Know the purpose, format and style of the workshop. ■ Know a bit more about each other and the trainer. ■ Recognise the emphasis on the professionally related approach to sustainable development. <p>Summary The introduction helps participants get to know each other better. If the facilitator can create a friendly, safe environment, it will help discussions flow.</p>	<p>Materials required</p> <ul style="list-style-type: none"> ■ Slides of aims ■ Programme <p>Timing 25 minutes</p> <p>Method Run through domestic and any health and safety announcements.</p> <p>Introduce the aims for the workshop (see next column) and the programme. Ask for any comments or concerns about the programme.</p> <p>Introduce yourself and invite participants to introduce themselves¹. When inviting the participants to introduce themselves they can be asked to describe their professional role. They can also be asked to give their hopes/expectations for the day.</p> <p>To “hook” participants emphasise that the session will involve introducing them to a sustainable development perspective that is relevant to their professional role. They will be able to start analysing their activities from this perspective and hopefully identify potential opportunities and management processes.</p> <p>Remember to refer to the pre-course reading material at the start of the session to acknowledge its importance and the time and effort participants may have spent reading it. Quote from the materials to show that the subject is topical, relevant and important. For example, ask if the pre-course reading reinforced or changed ideas of sustainable development.</p> <p>Link to next session</p> <p><i>“If there are no further questions, then I will move into the first activity during which we will explore our perceptions of sustainable development and sustainability.”</i></p> <p><small>1 If there are sufficient participants to be divided into groups, this should be done at the start and introductions can be made in each group, probably as part of the introductory activity.</small></p>	<p>Give background information on PP4SD (see <i>Additional Materials</i>).</p> <p>Purpose of workshop The workshop will help you to integrate sustainable development principles into your professional practice. You will be able to keep ahead of the increasing demands to operate in more sustainable ways.</p> <p>In particular you will be more competent to:</p> <ul style="list-style-type: none"> ■ Explain the terms sustainable development and sustainability to your colleagues and customers. ■ Assess how pressures from government, employers and customers for sustainable development might impact on your practice. ■ Apply ‘joined-up’ thinking to working out solutions to professional and sustainability issues. ■ Apply techniques that help you integrate sustainable development principles into your professional planning. ■ Prepare a sustainable development action plan. ■ Know where to obtain further advice and support. <p>Groups Working in groups has many advantages. Those in the same group can work co-operatively, but there can also be friendly competition with the other groups to provide a further incentive to get involved. In small groups everyone has the opportunity to contribute to discussion.</p> <p>The more groups there are the longer the individual sessions are likely to take. Trainers need to take allowance of this when planning the workshop programme.</p>



Introductory Activity - what is sustainable development all about?

Description		
<p>Aim</p> <p>To explore perceptions of sustainability and sustainable development held by participants.</p> <p>Objectives</p> <p>By the end of the session, participants will be able to:</p> <ul style="list-style-type: none"> ■ Compare their perceptions with those of others. ■ List some key principles that underpin sustainable development. ■ Explain the difference between sustainability and sustainable development. ■ Recognise those aspects of their professional activities that are more sustainable and those that are less. <p>Summary</p> <p>The activity will stimulate discussion about the meaning and scope of sustainable development. There are no right and wrong answers; the activity is asking for personal perceptions.</p> <p>Two alternative activities are presented to stimulate discussion on sustainability and sustainable development.</p> <p>By sharing their own perceptions, participants will recognise common aspects as well as the complexity of the concepts. Hopefully their understanding of the topic will be expanded.</p> <p>By the end of the session try to agree some key features or principles of sustainable development.</p>	<p>Option 1 - Oh yes it is! Oh no it isn't!</p> <p>Materials required</p> <ul style="list-style-type: none"> ■ Slides ■ Flipchart and pens ■ Copies of photographs or food labels (<i>see Resources file on CD</i>) ■ Copy of the Development Compass Rose for each group (<i>see Resources file on CD</i>) <p>Timing</p> <p>40 minutes</p> <p>Method</p> <p>Each group is provided with a photo from those in the manual or provided by the workshop leader. One person is appointed to record the answers to questions on the flip chart and later summarise the group's findings to the other groups. Explain the instructions using the slides:</p> <ul style="list-style-type: none"> ■ Place the picture in the middle of a piece of flip chart paper and write next to it the main activity shown. ■ Give an instant response to the question 'Do you think this activity is sustainable or unsustainable?' Write down the majority verdict at the top of the sheet. ■ On the left of the paper write down all the things that you think might be sustainable about the activity. ■ On the right of the paper write down all the things that you think might be unsustainable about the activity. 	<p>Many professionals have an understanding of the need for sustainable development. Many will be committed to the principles of sustainable development and enact them in their daily lives. However, there will still be different perceptions of what sustainable development and sustainability mean in theory and practice. This activity provides an opportunity to identify and challenge diverse perceptions.</p> <p>For Option 1 a number of photographs are provided as part of the package, but your own choice may be more appropriate for your participants.</p> <p>For Option 2 participants work in groups to agree a diamond ranking of food labels, such as Freedom Foods, Fair Trade and Suitable for Vegetarians, according to what they consider are the most sustainable.</p> <p>Diamond ranking, with most important at the top:</p> <div> <div>1</div> <div>23</div> <div>456</div> <div>78</div> <div>9</div> </div> <p>Information about sustainable development to provide additional support for the trainer is available in <i>Additional Materials - What is sustainable development all about?</i></p>



Notes on delivery *continued*

- At the bottom write down questions you would like to ask about the activity to help you decide how sustainable the activity is. The Development Compass Rose developed by Oxfam will help you identify sustainability questions you might want to ask (This could be handed out afterwards if the trainer does not want to give too much help).

If participants need help invite them to ask you a question about the image that might help them to decide on what is sustainable/unsustainable.

Once completed, ask each group to summarise their conclusions. Whilst they are doing this, record the key words or phrases that arise. These are written down in three columns mentally categorising them as economic, social / cultural and ecological / environmental. Later, invite participants to suggest headings for the three columns.

Use the discussion to lead into a brief description of how others have described sustainable development (see slides) and agree that it is different from sustainability. The concept of sustainable development can be difficult to grasp and all current definitions can be challenged. Some people find diagrams a better way of conceptualising sustainable development.

It is important to at least achieve a consensus on the meaning of sustainable development for the purposes of this training session, but not a hard and fast definition.

Option 2 - Sustainable food stuffs

This is similar to the photograph exercise but using a number of food labels / logos.

Materials required

Logos, printed, cut out and mounted on card: one set of logos for each group. There are eight logos and there should be one blank card for participants to draw any other logo that they agree is important.

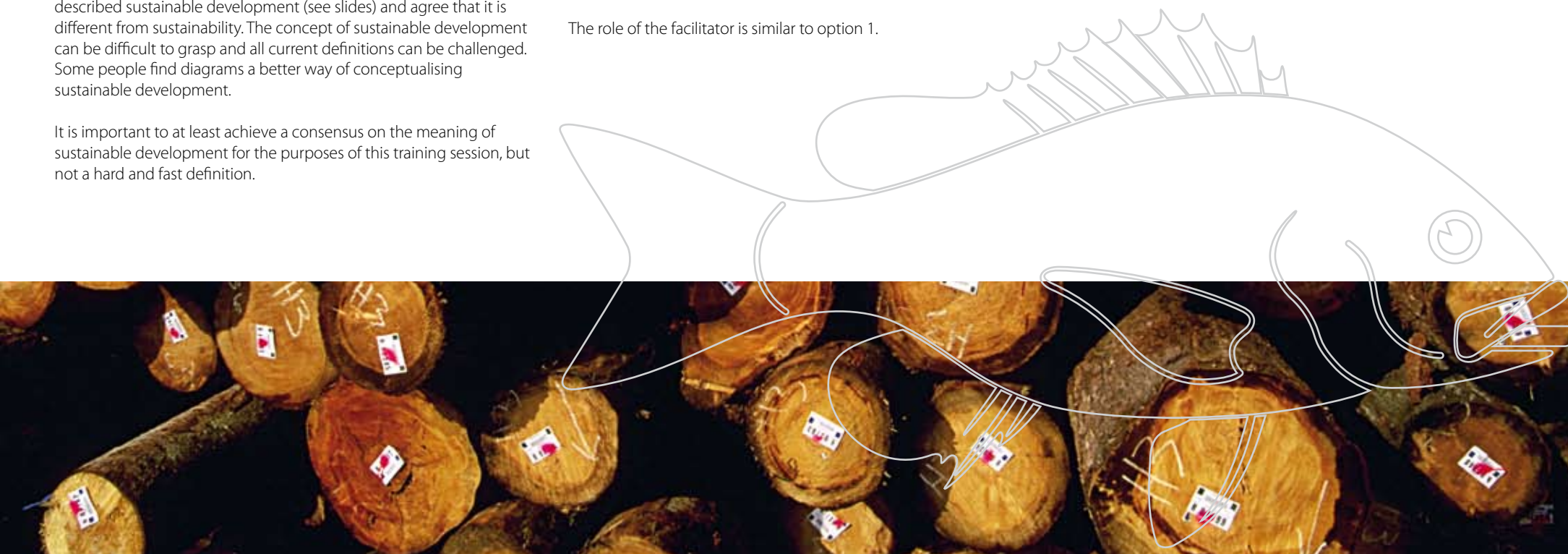
Method

The stimulus for the discussion comes from participants deciding the ranking of the logos according to their sustainability. The most important one is the top row. Underneath it, the next two most important, in the third row the next three, then the next two and the least important on the bottom row. One participant should be prepared to report back for the group on why the particular ranking was chosen.





The role of the facilitator is similar to option 1.

Link to next session




“The activity has helped us agree on some characteristics or principles of sustainable development. In the next session I will ask you to consider what are some of the global drivers for sustainable development.”






Drivers for Change

Description	Notes on delivery	Content
<p>Aim To recognise the significance of selected global and local issues for society, the environment, and the economy.</p> <p>Objectives By the end of the session, participants will be able to:</p> <ul style="list-style-type: none"> ■ Explain why there is concern at current development trends. ■ Identify and review drivers for a shift towards sustainable development. <p>Summary Participants review the information from a selection of the slides that highlight current concerns and debates over sustainable development. They are intended to show global trends that are impacting on all countries.</p>	<p>Material required</p> <ul style="list-style-type: none"> ■ Slides with examples of global drivers ■ (optional) Newspaper stories or TV news items <p>Timing 30 minutes</p> <p>Method Show the slides that provide some projections for the future environment in which professionals will be working and ask “what are the likely consequences of these predictions in the three areas of sustainable development: environment, society and economy?”</p> <p>Link to next session <i>“During this session you have identified the type of environment to which you will have to adapt. In the next session we will look at some case studies that show how some enterprises are responding to the sustainability challenge.”</i></p>	<p>Headlines from newspapers or videos of news / documentary programmes can be used instead of the materials provided to make this section more topical.</p> <p>The slides cover loss of biodiversity, climate change and peak oil production (See Additional Materials for further information).</p> 
		



Case Study Review and the Case for Sustainable Development

Description	Notes on delivery	Content
<p>Aims</p> <ul style="list-style-type: none"> ■ To review examples of businesses who are trying to apply sustainable development principles. ■ To identify how sustainable development can benefit businesses and other types of organisations. <p>Objectives</p> <p>By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Analyse how sustainable development principles are being applied in a selection of situations. ■ Identify good sustainable practices. ■ Make a case for adopting sustainable development principles. <p>Summary</p> <p>Each group studies a different case study and then provides feedback to the other groups.</p> <p>In plenary, the participants identify some common success factors and consider how they might present a case for sustainable development in their professional activity.</p>  	<p>Materials required</p> <ul style="list-style-type: none"> ■ Copies of the case studies ■ Slides showing the case for sustainable development <p>Timing</p> <p>50 minutes</p> <p>Method</p> <p>Allow the participants about 20 minutes to read the case studies and prepare their feedback for the plenary based on the following questions:</p> <ul style="list-style-type: none"> ■ What is the company in the case study doing for sustainability? ■ Why do you think they are doing it? ■ What are the most significant success factors? <p>In plenary the participants present their conclusions and then together draw out and list common success factors that might be applied to their own activities. These points can be recorded on a flipchart.</p> <p>The activity should generate significant discussion that can be managed to highlight the case for sustainable development.</p> <p>The slides are used to illustrate the economic, social and environmental cases for sustainable development. Try to link comments made by the participants to the labels on the slide.</p> <p>Link to next session</p> <p><i>“The time has come to consider how what has been learned so far can help you or your profession become more sustainable and what actions need to be taken now and in the future.”</i></p>	<p>Case studies are found in on the CD. Other case studies can be found in the downloadable materials on the PP4SD website www.pp4sd.org.uk.</p> <p>The Case</p> <p>Many businesses have developed Corporate Social Responsibility policies and programmes, and sustainable development is often seen as part of this. Don't always expect to find explicit references to sustainability or sustainable development in company documents. (Further information supporting the business case for sustainable development is available in Additional Materials).</p> <p>What is a sustainable business?</p> <p>A sustainable business is one that contributes to an equitable and ecologically sustainable economy.</p> <p>Sustainable businesses offer products and services that fulfil society's needs while contributing to the well being of all Earth's inhabitants. (from www.sustainablebusiness.com)</p> 

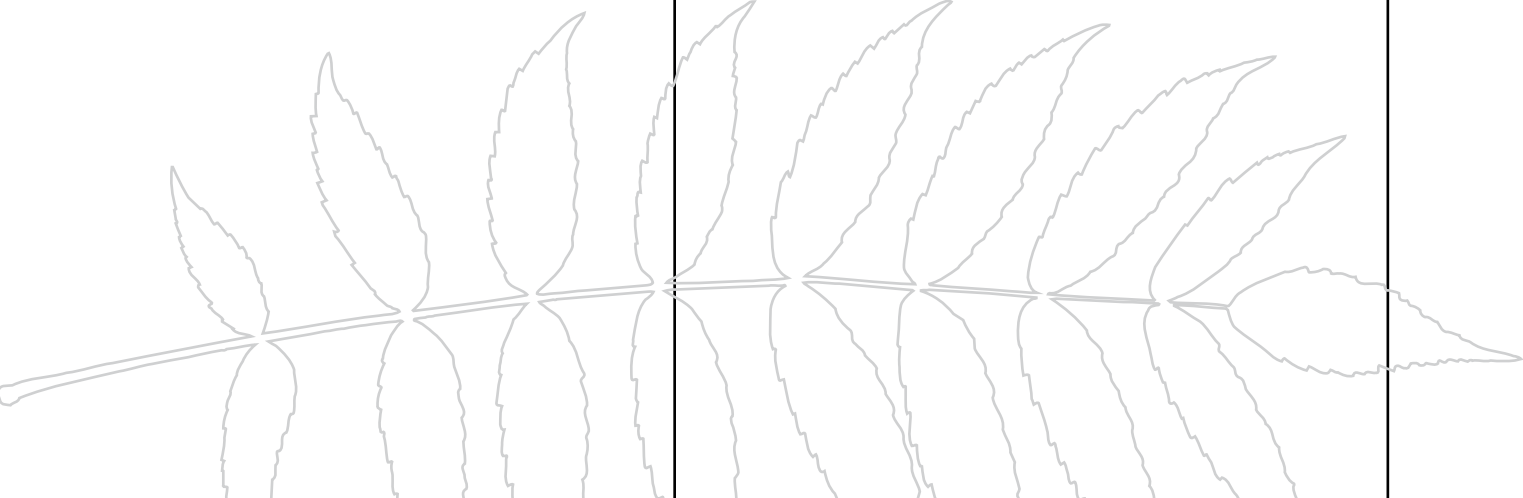


Challenges

Description	Notes on delivery	Content
<p>Aim To identify challenges to their profession from changes and pressures within their sector.</p> <p>Objectives By the end of the session, participants will be able to:</p> <ul style="list-style-type: none"> ■ Identify and review their drivers within the sector for a shift towards sustainable development. ■ Identify challenges. ■ Recognise the opportunities and benefits of pursuing sustainability. <p>Summary Participants look back over the last 10 years and consider how their profession has changed and why. What were the drivers? Where are the pressures coming from? They then look forward to the next 10 years and consider what the challenges might be and why.</p> <p>They identify opportunities and benefits to be gained from the growing interest in sustainability and identify strategic changes their sector should be making.</p>	<p>Material required</p> <ul style="list-style-type: none"> ■ Slides with examples of some possible challenges ■ (optional) Newspaper stories or TV news items <p>Timing 25 minutes</p> <p>Method Ask participants to describe briefly the changes to the professional environment in their sector over the past 10 years and how they responded, followed by what were the causes of those changes. This will show that responding to change is something with which they are already familiar.</p> <p>Show the slides that provide some examples of possible challenges and ask them to suggest others. (These will be used in the action planning later in the workshop)</p> <p>Finally, identify any opportunities from the changes.</p>	<p>To make this section topical, headlines from newspapers or videos of news / documentary programmes can be used instead of the materials provided.</p> 
	<p>Link to next session</p> <p><i>“During this session you have identified some challenges your sector faces. Next you will explore tools you can use to respond in ways that promote sustainability, and your business bottom line.”</i></p>	


Joined-Up Thinking - Looking at Systems

Description	Notes on delivery	Content
<p>Aim To explore the value of a systems approach when developing professional strategies that incorporate sustainable development principles.</p> <p>Objectives By the end of the session, participants will be able to:</p> <ul style="list-style-type: none"> ■ Define a system. ■ Understand the term 'systems thinking'. ■ Apply a systems model (the Five Capitals model) to a specific activity or issue. <p>Summary This is a short introduction to systems thinking, called here joined up thinking. It looks at the Earth as a system and shows how inappropriate actions can undermine the health of the systems that support human and other life.</p> 	<p>Materials required</p> <ul style="list-style-type: none"> ■ Slides of systems thinking ■ Handout on the Five Capitals model <p>Timing 25 minutes</p> <p>Method For the introduction, use the slides to:</p> <ul style="list-style-type: none"> ■ Highlight some 'nonsenses' of when there is a lack of joined up thinking. Participants are likely to have several anecdotal stories to tell, but you may need to get them started with one of your own. ■ Introduce the concept of a system. ■ Apply the concept to the Earth as a system. ■ Present the conditions for the Earth system to be sustainable. This will reinforce the conclusions of the introductory session. <p>Link to next session <i>"Lack of joined up thinking can undermine what we set out to achieve. It makes sense to try and analyse our business activities so that we do not miss unwanted and often damaging consequences. In the next session you will use a technique to analyse a business activity".</i></p> 	<p>The Additional Materials provide further information on systems thinking, the Earth system conditions for sustainability and the Five Capitals model.</p> <p>Introduction An example of lack of joined up thinking taken from Private Eye:</p> <p>September 2006: Gordon Brown... "Let me say something which I know is controversial but I know needs to be said: If we are to uphold these values that matter most, we need not only respect for all traditions but also a common language... It is right that people who come to and are in this country to stay learn English."</p> <p>January 2007: Department for Education cuts funding for English for speakers of other languages courses.</p> <p>Another In a recent paper* Pimentel and Patzek claim that their analysis shows that biodiesel production actually requires 27% more fossil energy than is present in the biodiesel.</p> <p><small>*Pimentel, D. and T.W. Patzek, "Ethanol Production Using Corn, Switchgrass, and Wood; Biodiesel Production Using Soybean and Sunflower," <i>Natural Resources Research</i>, 14(1): 65-75, 2005</small></p>




Applying the Systems Approach - Joined-Up Business - the Five Capitals Model

Description	Notes on delivery	Content
<p>Aim</p> <ul style="list-style-type: none"> ■ To be familiar with the Five Capitals model of analysing business and other activities. <p>Objectives</p> <p>By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ List the five capitals. ■ Explain their relevance to their professional area. <p>Summary</p> <p>A short presentation on the Five Capitals approach.</p>	<p>Materials needed</p> <ul style="list-style-type: none"> ■ Slides of the Five Capitals ■ Handout on the Five Capitals model <p>Timing</p> <p>20 minutes</p> <p>Method</p> <p>Describe the Five Capitals model as a means of understanding the impacts and potential impacts of development decisions.</p>	<p>Further information on the Five Capitals can be found at</p> <p>www.projectsigma.co.uk</p> <p>and</p> <p>www.forumforthefuture.org.uk/our-approach/tools-and-methodologies/TNS.</p> <p>The Five Capitals model is a way to apply sustainability criteria to a business or other situation. There are other models that can be used to assess the sustainability of business activities, including the Framework developed by PP4SD with leading professional associations.</p> <p>www.pp4sd.org.uk</p>
		



Joined-Up Thinking and Planning Activity - Option 1: Woodland Management

Description	Notes on delivery	Further information
<p>Aim To apply systems thinking techniques to a hypothetical cross-professional situation.</p> <p>Objectives By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Apply the Five Capitals model to thinking and planning about professional decision making. <p>Summary</p> <ul style="list-style-type: none"> ■ Participants work in groups. ■ The trainer introduces a theoretical scenario in which the group wishes to develop a 100 ha woodland as a commercial but sustainable business enterprise. ■ Each group is asked to consider how the woodland could be developed and to construct a large diagram to show how each of the activities to be undertaken have impacts on the Five Capitals. 	<p>Materials needed</p> <ul style="list-style-type: none"> ■ Handout of the scenario (In the Resources file on the CD) <p>Timing 50 minutes</p> <p>Method Hand out the printed copy of the scenario and explain the activity. Show the slide of a mind map from another activity to serve as an example.</p> <p>Ask each group to construct their 'mind map' on a flip chart sheet making it sufficiently legible to be used in a presentation to potential funders.</p> <p>Each group presents their 'mind map' to the other groups who represent the potential funders.</p> <p>In plenary draw out which capitals tend to benefit and which to suffer from normal economic development.</p> <p>Note Participants often fall back into their normal patterns of thinking and planning when doing this exercise. They will often only think of the potential benefits of their scheme and fail to explore potential problems. Monitor their progress and stop the exercise if this is the case. Help them identify that they have fallen into old habits and remind them to look at the 'whole' picture.</p> <p>Link to next session <i>"You have applied joined up thinking to a particular situation. In the next session, you will explore the significance of applying sustainable development principles to the future of your profession and professional activities."</i></p>	<p><i>See How to do a mind map in Additional Materials.</i></p> <p>There is never only one answer The following 'story' can be used to illustrate that we all view the world differently and come up with different solutions to a single problem based on our views, experiences, expertise and prejudices. Encourage participants to think 'outside the box'.</p> <p><i>A group of professionals were given a barometer and asked to find the height of a church tower.</i></p> <p><i>The physicist took the difference in air pressures at the top and bottom of the tower to calculate the height. The engineer dropped the barometer and timed its descent to calculate height. The architect lowered the barometer on a piece of string till it touched the ground and measured the string. The surveyor ignored the barometer. He/she measured the shadow cast by the tower and used the angle of the sun to calculate the tower's height. The accountant went to the sexton and offered the barometer as a tax-deductible expense if the sexton told him the height of the tower!</i></p> <p>The scenario You are part of a consortium that has the same knowledge and skills as the members of your group. You have bought a 100 ha woodland that has been badly neglected and you wish to develop it as a commercial but sustainable forestry business. There are few young trees and there is a lot of undergrowth making access difficult. There are a few rough paths used by local people mainly for dog walking in summer. The wood is close to a popular coastal holiday location and in an area of outstanding natural beauty.</p> <p>A bank will lend you 50% of the money needed providing you produce a business plan to show the woodland can be managed profitably. You intend raise 25% as a grant from a government conservation agency, provided you can show your business plan meets required nature conservation standards. The remaining 25% will come from a local government grant as long as the development benefits the community.</p> <p>You are at the stage of brainstorming your options. You do this by constructing a 'mind-map' of your options and the potential impacts on the Five Capitals.</p> <p>After 45 minutes you will be asked to present your initial thoughts with justifications to representatives of the bank and funding agencies.</p>



Joined-Up Thinking and Planning Activity - Option 2: My Profession

Description	Notes on delivery	Content
<p>Aim To apply systems thinking techniques to a known profession.</p> <p>Objectives By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Apply the Five Capitals model to thinking about and planning activities in their own professional area. <p>Summary A professional activity of one of the members of the group is chosen for analysis using the Five Capitals model. The participants create a 'mind map' of the enterprise and identify how the Five Capitals are increasing and where they are decreasing.</p> 	<p>Materials needed</p> <ul style="list-style-type: none"> ■ Handout on the Five Capitals model ■ Slide with example of 'mind map' <p>Timing 50 minutes</p> <p>Method Using the example provided as a slide, explain how each group can prepare a 'mind map' of a professional activity and analyse it using the Five Capitals model.</p> <p>The group selects one of the professional areas undertaken by a group member and creates a mind map on a flip chart sheet putting a professional activity at the centre. A brief description of the activity is given by the presenter who writes down inputs for the activity to the left and the products / services provided by the activity to the right.</p> <p>The group then discusses and notes down in the appropriate places the impacts on the Five Capitals at the procurement, management and provision stages of the activity.</p> <p>Each group presents its findings and then collectively the groups identify if there is any systematic increase or decrease in each of the Capitals.</p> <p>Finally ask how economic activity in general impacts on the Five Capitals.</p> <p>Link to next session <i>"You have applied joined up thinking to a particular situation. In the next session, you will explore the significance of applying sustainable development principles to the future of your profession and professional activities."</i></p>	<p>See How to do a mind map in Additional Materials.</p>  





Your Profession/Professional Activities in Five Years' Time

Description	Notes on delivery	Content
<p>Aim To develop a vision for a sustainable profession / professional in five years' time.</p> <p>Objectives By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Use the outcomes from Drivers for Change and Joined up thinking and planning to prepare a vision of their sustainable profession / professional. ■ Carry forward practical ideas to the Action Planning activity. <p>Summary Participants create a vision of what they want their sustainable profession to be like in Five years time. This vision will be used in the Action planning session to guide the planning of actions needed to achieve this vision.</p> 	<p>Materials required Slide with instructions for the activity</p> <p>Timing 30 minutes</p> <p>Method For employees of a professional body, the focus of this session will be their profession. For those working in other areas, the focus will be their professional activities.</p> <p>Participants can work alone on this activity, or they might like to work with one other person to share ideas, in which case, each person should have 15 minutes.</p> <p>Ask participants to consider what has been learned during the previous sessions and consider how they might apply the sustainability learning to planning the future for their profession / professional activities. Thinking 5 years ahead is a reasonable period to make a real difference. In the next session they will consider how to achieve the vision.</p> <p>To help them get started they might like to consider where their profession or professional activities fit into the 3-stage journey to sustainability.</p> <p>Ask for volunteers to share their vision.</p> <p>Link to next session</p> <p><i>“Now you have a vision of where you want your profession to be in the future, identify what are the priority actions that can help you achieve this vision.”</i></p>	<p>Progress towards sustainability Businesses and organisations can be placed on a three-stage journey from environmental compliance, through environmental risk management, to long-term sustainable development strategies.</p> <p>In the initial phase of the journey, the need to comply with environmental regulations drives improvements in environmental performance. Businesses and organisations adopt a more proactive approach in the next phase. Environmental risk management is introduced, to reduce environmental liabilities and to minimise the costs of regulatory compliance. A substantial number of businesses recognise that the implementation of sustainable business strategies can lead to new opportunities and improved results See Additional Materials for help with the concept of 'Backcasting'. (from www.bsdglobal.com/)</p> 

Action Planning

Description	Notes on delivery	Content
<p>Aim To identify actions that will help their professional activities become more sustainable and more secure over the next five years.</p> <p>Objectives By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Identify critical success factors for moving their professional activities towards the vision. ■ Identify specific actions that will make a difference in the short term. ■ Identify specific actions that will make a difference in the long term. <p>Summary Participants consider in which areas of activity actions are most likely to be effective. They then identify the conditions that need to be established to increase the possibility of achieving the vision. Finally, they identify the actions that will help them move towards the vision in the short and long term.</p> 	<p>Materials required</p> <ul style="list-style-type: none"> ■ Slides ■ Action planning table <p>Timing 30 minutes</p> <p>Method Show the slides and explain the difference between the three spheres - concern, influence and control - and the implications for action planning.</p> <p>Ask participants to identify up to eight critical success factors for them to achieve their vision and allocate them to one of the three spheres.</p> <p>Finally, participants decide on what actions they can take in the short, medium and long term to integrate sustainable development principles deeper into their professional activities.</p> <p>Ask participants to share their action plans and to identify any support that they think they might need.</p> <p>Also you can offer to pass on messages to the project organisers to help change some of the constraints over which they have no control. For example, you could ask: "To help you do the things you have identified:</p> <ul style="list-style-type: none"> ■ What should others do more of? ■ What should others do differently?" <p>Ask them to identify who the 'others' are.</p> <p>Link to final session</p> <p><i>"I hope the workshop has been interesting, stimulating and useful. We are always trying to improve the programme and would be grateful for your comments."</i></p>	<p>Effective action The slide shows three areas. The sphere of concern might be very wide, but individual actions in this sphere are unlikely to bring about the changes you are planning for. The sphere of influence is where you have some influence but you have to compete with other influences. The sphere of control is where you have direct control over what happens. It might not change the world, but it is where you can make a difference and may be where energies are best spent.</p> <p>Critical Success Factors Critical success factors are elements that are vital for a strategy to be successful. If critical success factors lie only within your sphere of concern, then your final success might be limited.</p> 

Questions and Evaluation

Description	Notes on delivery	Content
<p>Aim To identify the strengths and weaknesses of the training.</p> <p>Objectives By the end of the session participants will be able to:</p> <ul style="list-style-type: none"> ■ Comment on the impact of the training. ■ Inform the trainer of the strengths and weaknesses of the workshop. <p>Summary Participants are invited to comment on how they have been affected by the workshop and the strengths and weaknesses of the workshop.</p> <p>The trainers say how these comments will be dealt with in the future.</p>	<p>Materials required Evaluation form</p> <p>Timing 20 minutes</p> <p>Method Hand out the evaluation forms and explain that the evaluation will help to improve the workshop for future participants.</p> <p>Recap on the content of the programme so participants get a holistic view of the training.</p> <p>To help participants reflect on the workshop, ask the following two questions that return them to their perceptions at the start of the workshop.</p> <ul style="list-style-type: none"> ■ Is this topic more or less important than you thought at the start? ■ Has the workshop changed the perception of sustainable development that you offered during the first activity? <p>While it is valuable to get some immediate feedback before participants leave, considered comments after a day or two are also very valuable. If people want to send in further comments supply them with a stamped addressed envelope or your email address at the top of the sheet.</p>	<p>An evaluation form is available in the Resources file on the CD.</p> <p>You may wish to use an evaluation form that is more appropriate for you.</p> 
		

Thinking and Acting Sustainably: Profile of a 21st Century Professional **Additional Materials**

Professional Practice for Sustainable Development

Professional Practice for Sustainable Development, or PP4SD as it is usually called, originated out of a seminar held by the Council for Environmental Education and the Environment Agency in 1998. The purpose of the day was to find out if there was support for training for professionals, which would enable them to be more confident and competent in integrating sustainable development principles into their working practice.

There was unanimous support for the idea and a working group comprising CEE, the Environment Agency, the Institution of Environmental Sciences (IES) and the Natural Step developed a proposal for inter-professional learning. The proposal was submitted to the Environmental Action Fund for grant aid and was successful. The IES has hosted and supported the management of PP4SD since it began.

When the project began in 1999, the first task was to agree expectations, outcomes and outputs for the first three years. The idea of producing a Foundation Course in sustainable development emerged as the path the group wished to follow.

The concept of systems thinking would underpin the training. Developing the Foundation Course was a real inter-professional learning process. The process started with the group producing a Framework that would be used to guide activities. The process also generated two documents, one on the business case for CPD in sustainable development and a second on guidance in developing cross professional learning opportunities and tools. These are both available on the Downloads Page of the PP4SD website, www.pp4sd.org.uk

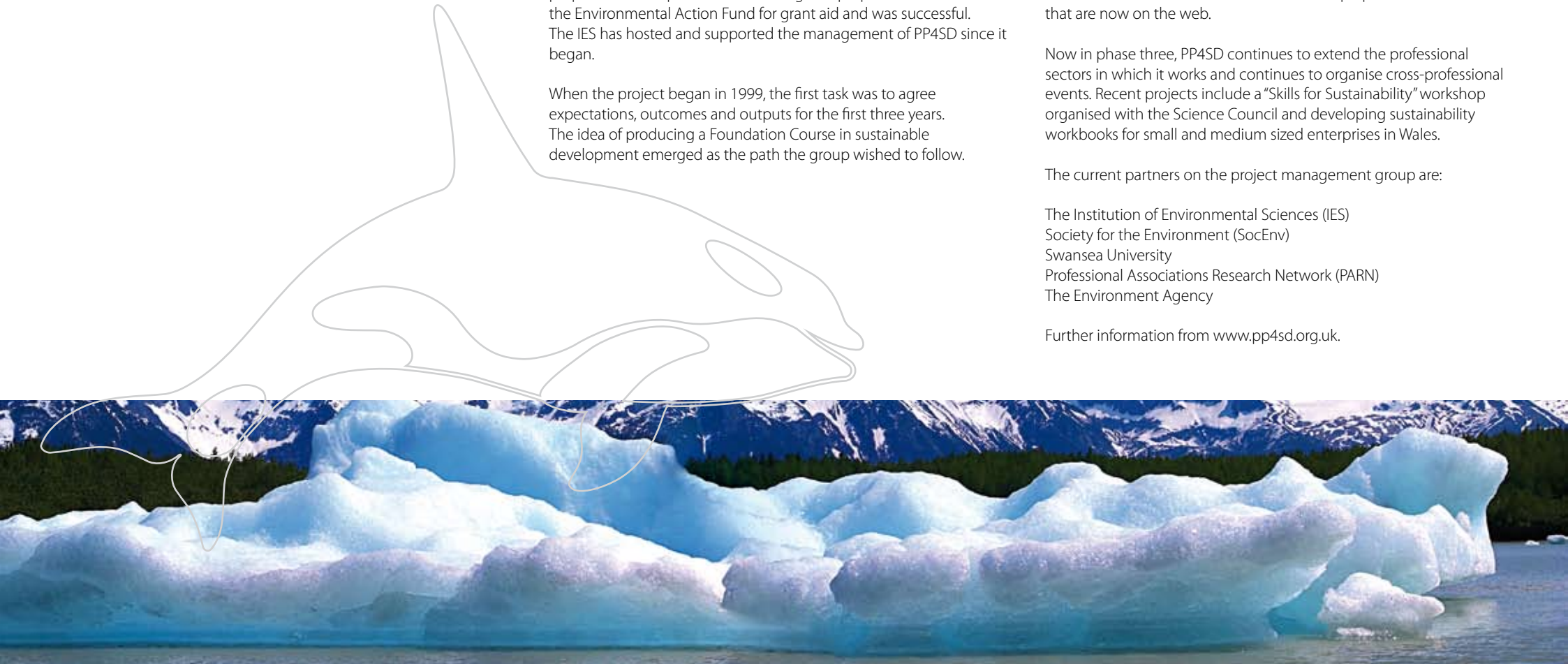
For phase two, the original group changed and expanded, but the goal remained the same: the integration of sustainable development principles into professional training. The project worked with the financial sector and the land based sector to prepare CPD materials that are now on the web.

Now in phase three, PP4SD continues to extend the professional sectors in which it works and continues to organise cross-professional events. Recent projects include a "Skills for Sustainability" workshop organised with the Science Council and developing sustainability workbooks for small and medium sized enterprises in Wales.

The current partners on the project management group are:

The Institution of Environmental Sciences (IES)
Society for the Environment (SocEnv)
Swansea University
Professional Associations Research Network (PARN)
The Environment Agency

Further information from www.pp4sd.org.uk.



What is Sustainable Development all about?

Most of us have an intuitive understanding of what is meant by sustainable development. Trying to put that into words in the form of a definition is much more difficult. Most people accept the definition stated in Our Common Future¹, development that “meets the needs of the present without compromising the ability of future generations to meet their own needs”. The passage continues “the concept does imply limits, not absolute limits but ones imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities”. Because it is difficult to define does not make sustainable development any less important. Consider ‘democracy’. That is another big idea that is similarly hard to define, but it is still recognised as a goal that is worth achieving universally.

You will come across two terms related to the idea, ‘sustainable development’ and ‘sustainability’. Sustainability is the goal to be achieved, sustainable development is what is done to get there. Then there are different terms applied to education about the topic including ‘education for sustainability’, ‘education for sustainable development’ and ‘sustainable development education’. These all refer to what schools do to prepare students for a world in which working towards sustainability will be increasingly important.

Other discussions provide helpful insights into what constitutes sustainable development. They all recognise that for development to be sustainable in the long term it must take account of its impact on the environment, people and the economy.

The slides include some diagrammatic ways of trying to describe the relationship between the three aspects of sustainable development.

Securing the Future

The British Government produced this diagrammatic set of principles in its document Securing the Future². Once principles are agreed, then indicators are set up to allow progress to be monitored. The Government has also published a set of indicators and publicises the progress being made³.

Securing the Future placed the concept of environmental limits at its heart. For the first time since the landmark Our Common Future (1987), sustainable development is no longer about balancing the conflicting demands of the environment, economy and society. Instead, the new strategy makes clear that the economy, science and governance are the means by which we achieve our broader sustainable development goals – living within the planet’s environmental limits while also creating a just and fair society.

The Natural Step

The Natural Step⁴ has developed a short set of principles to guide all development. These principles are conditions that must be met in order to have a sustainable society. The organisation maintains:

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

- 1 Concentrations of substances extracted from the Earth’s crust.
- 2 Concentrations of substances produced by society.
- 3 Degradation by physical means.

AND in that society

- 4 Human needs are met world-wide.

PP4SD has agreed the following as a framework for sustainable development.

In a sustainable society:

- 1 Any materials extracted from the earth should not exceed the environment’s capacity to disperse, absorb, recycle or otherwise neutralise their harmful effects to humans and the environment.
- 2 Synthetic substances in their manufacture and use should not exceed the environment’s capacity to disperse, absorb, recycle or otherwise neutralise their harmful effects to humans or the environment.
- 3 The biological diversity and productivity of ecosystems should not be endangered.
- 4 A healthy economy should be maintained, which accurately represents the value of natural, human, social and manufactured capital.
- 5 Individual human skills, knowledge and health should be developed and deployed to optimum effect.
- 6 Social progress and justice should recognise the needs of everyone.
- 7 There must be equity for future generations.
- 8 Structures and institutions should promote stewardship of natural resources and the development of people.

Conclusion

These principles illustrate sustainable development has moral elements as well as physical ones. These need to be raised in any teaching about sustainable development.

There is no agreed definition of sustainable development and that there may be no need for one. Sustainable development can be viewed as a process of change that is heavily reliant upon local contexts, needs and interests. Sustainable development is then seen as an ‘emerging concept’, first because it is relatively new and evolves as we learn to grasp its wide implications for all aspects of our lives, and second because its meaning emerges and evolves according to local contexts.

¹ The World Commission on Environment and Development. Our Common Future. Oxford University Press 1987

² Securing the future: delivering the UK sustainable development strategy The Stationary Office March 2005

³ www.defra.gov.uk/sustainable/government

⁴ Since 1988, The Natural Step has worked to accelerate global sustainability by guiding companies, communities and governments onto an ecologically, socially and economically sustainable path.



Global Challenges and the Case for Sustainable Development

Global challenges

Climate change⁵

The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988 to assess information on climate change and its impact. Its Third Assessment Report predicts global temperature rises by the end of the century of between 1.4°C and 5.8°C. Temperature rises are expected to affect countries throughout the World and have a knock on effect with precipitation and sea level rises. Scientists have argued about whether temperature rises are due to human activities or due to natural changes in our environment. The IPCC announced in 2001 “most of the warming observed over the last 50 years is likely to be attributable to human activities”.

Projections for climate change globally:

By the second half of the 21st century, wintertime precipitation in the northern mid to high latitudes and Antarctica will rise.

By the same time, Australasia, Central America and southern Africa is likely to see decreases in winter precipitation.

In the tropics, it's thought some land areas will see more rainfall and others will see less.

It is thought the West Antarctic ice sheet is unlikely to collapse this century. If it does, sea level rises would be enormous.

Global average temperatures are predicted to rise by between 1.4°C and 5.8°C by 2100.

Maximum and minimum temperatures are expected to rise.

More hot days over land areas and fewer cold days and frost and more intense precipitation events are likely.

Biodiversity⁶

From the dawn of time, extinction has usually progressed at what scientists call a natural or background rate. Today the tempo is far faster. In 2003 the World Conservation Union's Red List said more than 12,000 species (out of 40,000 assessed) faced some extinction risk, including: one bird in eight; thirteen percent of the world's flowering plants; and a quarter of all mammals.

Many species keep us alive, purifying water, fixing nitrogen, recycling nutrients and waste, and pollinating crops. Plants and bacteria carry out photosynthesis, which produces the oxygen we breathe. Trees absorb carbon dioxide, the main greenhouse gas given off by human activities. Some years ago, when the global annual gross product was about \$18 trillion, US researchers calculated the value of the goods and services provided by the Earth to the world economy was \$33 trillion.

Peak oil

Peak oil is the point or timeframe at which the maximum global petroleum production rate is reached. After this timeframe, the rate of production will enter terminal decline. Peaking is at hand, not years away... “If I'm right, the unforeseen consequences are devastating” says Matthew Simmons, former US government adviser.

At a rate of 3% increase in demand per year and annual finds of 10 billion barrels, a French Ministry report states 2013 as “the time of maximum production or ‘peak oil!’”

Population

The world's population is projected to grow from 6.86bn today to 9.26bn in 2020. This growth of 2.56bn is equivalent to the total population of the Earth in 1950.

The business case

Businesses are responsible for a major part of economic activity and for employing people from all professions. Without business on board, sustainable development is unlikely. Most businesses now recognise their responsibility. The following section shows that there is a good business case for integrating sustainable development principles into business strategies.

Sustainable development in various guises

The key concepts of sustainability are found in a number of areas of business management. One of the commonest places to find these principles is in the Corporate Social Responsibility programme. It is important not to get so hung up on the names that managers fail to recognise the opportunities provided by other programmes. The following is taken from the BSDGlobal website:

Corporate social responsibility (CSR) promotes a vision of business accountability to a wide range of stakeholders, besides shareholders and investors. Key areas of concern are environmental protection and the wellbeing of employees, the community and civil society in general, both now and in the future. Bringing these factors together under this heading seems very much what sustainable development is all about. The article continues:

“The concept of CSR is underpinned by the idea that corporations can no longer act as isolated economic entities operating in detachment from broader society. Traditional views about competitiveness, survival and profitability are being swept away”.



Some of the drivers pushing business towards CSR include:

1 The shrinking role of government

In the past, governments have relied on legislation and regulation to deliver social and environmental objectives in the business sector. Shrinking government resources, coupled with a distrust of regulations, has led to the exploration of voluntary and non regulatory initiatives instead.

2 Demands for greater disclosure

There is a growing demand for corporate disclosure from stakeholders, including customers, suppliers, employees, communities, investors, and activist organisations.

3 Increased customer interest

There is evidence that the ethical conduct of companies exerts a growing influence on the purchasing decisions of customers. In a recent survey by Environics International, more than one in five consumers reported having either rewarded or punished companies based on their perceived social performance.

4 Growing investor pressure

Investors are changing the way they assess companies' performance, and are making decisions based on criteria that include ethical concerns. The Social Investment Forum reports that in the US in 1999, there was more than \$2 trillion worth of assets invested in portfolios that used screens linked to the environment and social responsibility. A separate survey by Environics International revealed that more than a quarter of share-owning Americans took into account ethical considerations when buying and selling stocks.

5 Competitive labour markets

Employees are increasingly looking beyond paycheques and benefits, and seeking out employers whose philosophies and operating practices match their own principles. In order to hire and retain skilled employees, companies are being forced to improve working conditions.

6 Supplier relations

As stakeholders are becoming increasingly interested in business affairs, many companies are taking steps to ensure that their partners conduct themselves in a socially responsible manner. Some are introducing codes of conduct for their suppliers, to ensure that other companies' policies or practices do not tarnish their reputation.

Benefits of CSR

Some of the positive outcomes that can arise when businesses adopt a policy of social responsibility include:

1 Company benefits:

- Improved financial performance;
- Lower operating costs;
- Enhanced brand image and reputation;
- Increased sales and customer loyalty;
- Greater productivity and quality;
- More ability to attract and retain employees;
- Reduced regulatory oversight;
- Access to capital;
- Workforce diversity; and
- Product safety and decreased liability.

2 Benefits to the community and the general public:

- Charitable contributions;
- Employee volunteer programmes;
- Corporate involvement in community education, employment and homelessness programmes; and
- Product safety and quality.

3 Environmental benefits:

- Greater material recyclability;
- Better product durability and functionality;
- Greater use of renewable resources; and
- Integration of environmental management tools into business plans, including life-cycle assessment and costing, environmental management standards, and eco-labelling.

The Sigma Project

The UK Sigma Project⁸ has also explored the business benefits of implementing sustainable development and it echoes much of what is said above. Their website lists the following business benefits:

- Improved operational efficiency;
- Enhanced brand value and reputation;
- Customer attraction and retention;
- Enhanced human and intellectual capital;
- Improved management of risk;
- Preservation of licence to operate;
- Promoting and increasing innovation;
- Improved access to capital;
- Building and sustaining shareholder value;
- Generating increased revenues; and
- Identification of new opportunities.

Sustainable businesses are often well-run businesses and will deliver traditional business benefits. However, adopting sustainable development principles to business practice often goes further. Sustainable development is used to help businesses become architects of a better future. Sustainable development is therefore becoming established as a business ethic as well. This opens the way to progress in sustainable development in ways that may not be, at least in the short term, economically beneficial to the company.

The journey to sustainability

Commercial and other organisations can be said to be at one of the stages on a three-stage journey from environmental compliance, through environmental risk management, to long-term sustainable development strategies.

In the initial phase of the journey, the need to comply with environmental regulations drives improvements in environmental performance. Businesses adopt a more proactive approach in the next phase. Environmental risk management is introduced, to reduce environmental liabilities and to minimise the costs of regulatory compliance. A substantial number of companies recognise that the implementation of sustainable business strategies can lead to new opportunities and improved results - the business and sustainable development phase

References and contacts

BSDglobal.com is maintained by the International Institute for Sustainable Development, in alliance with Global Responsibility International AB (an independent subsidiary of Skandia, a Swedish financial services and insurance group).

Guidelines on the business case for sustainable development from the Sigma Project can be downloaded from www.projectsigma.co.uk.

The World Business Council for Sustainable Development provides information on the business case for sustainable development. The Globescan Survey of Sustainability experts stated, *"By far the best website for information on sustainable development"*. See www.wbcsd.org/

⁵ www.bbcc.co.uk/climate/evidence/global_change.shtml

⁶ <http://news.bbc.co.uk/1/hi/sci/tech/3667300.stm>

⁷ <http://news.bbc.co.uk/1/hi/business/4077802.stm>

⁸ SIGMA is a partnership of three organisations: British Standards Institution, AccountAbility and Forum for the Future.

Joining up the thinking and planning

At the core of sustainability is the quest for finding lifestyles that are sustainable. While debate about what we mean by sustainability continues, there is substantial evidence that most current lifestyles are creating problems for many societies, individuals and ecosystems. We recognise that decisions need to be made about a whole host of our wants and needs and that these are all interconnected. Addressing one issue at a time might solve one issue but can create a whole host of other problems.

Failure to consider all the consequences of an action is responsible for many of the unsustainable activities we recognise today. For example, allowing air traffic to expand at the rate it is by providing for the predicted demand with new runways undermines other efforts to curb emissions of greenhouse gases. Simple cause and effect answers are no longer adequate to find solutions to sustainable development issues. All things we do have consequences on the many physical, biological and social systems that have evolved. We need methods of being able to think about issues in a much wider context than we have been accustomed to. This is what is known as systems thinking.

Systems thinking⁹

The essence of systems thinking and practice is in 'seeing' the world in a particular way, because how you 'see' things affects the way you approach a situation or undertake specific tasks. And how you 'see' things is influenced heavily by the culture of the society in which you live and work and by your education and training.

When thinking in terms of systems, we have to move away from trying to:

- identify a single cause for an observed effect.
- find a single action to resolve a particular problem.

We are generally very happy to accept simple answers to those issues that concern us. So in an attempt to reduce my carbon footprint and living in England, I might choose to buy a pack of butter from a local farm. However, it is quite likely that its carbon footprint is greater than one produced in New Zealand and transported halfway around the world! Different climatic conditions and farming methods require a much greater use of feed, fertilisers and energy in England than New Zealand. I need to look at the wider picture. Politicians, the media, environmental pressure groups and developers recognise the power of offering simple solutions, especially in response to a crisis or lobby. Identity cards are being introduced to help prevent terrorism; closed circuit television is installed to prevent crime; new roads are built to reduce traffic congestion; catalytic converters are required to be fitted on all fossil fuel powered vehicles to reduce air pollution and so on. These are all single factor solutions that have addressed a symptom rather than the multiple causes of the issue.

Systems thinking can help resolve complex situations involving people and things, where it is important to focus on the relationships between people and things as well as the structure of a particular situation. By setting the sustainability agenda in an 'earth as a system' context, it is much easier to engage with what needs to be done, rather than merely focusing on measuring, managing and mitigating environmental impacts downstream.

The Five Capitals model described below is one way of helping people to think about issues from different points of view and find solutions that are truly sustainable.

⁹ Based on an article by Professor Stephen Martin for Professional Practice for Sustainable Development. The article can be downloaded from www.pp4sd.org.uk



The Five Capitals model¹⁰

Capital is traditionally understood as accumulated wealth in the form of investments, factories and equipment. In reality, our economy and every company need five types of capital to function properly:

Natural capital (also referred to as environmental or ecological capital) is any stock or flow of energy and matter that yields valuable goods and services. It includes resources, some of which are renewable (timber, grain, fish and water), whilst others are not (fossil fuels); sinks which absorb, neutralise or recycle wastes; and processes, such as climate regulation. Natural capital is the basis not only of production but also of life itself.

Human capital consists of our health, knowledge, skills and motivation, all of which are required for productive work. Enhancing human capital - for instance, through investing in education and training - is vital for a flourishing economy. Poverty is both morally indefensible and socially inefficient in that it prevents millions of people from fulfilling their potential and becoming engaged in the creation of wealth.

Social capital is the value added to any activity or economic process by human relationships and co-operation. Social capital takes the form of structures or institutions which enable individuals to maintain and develop their human capital in partnership with others and includes families, communities, businesses, trade unions, schools, and voluntary organisations.

Manufactured capital comprises material goods - tools, machines, buildings and other forms of infrastructure - which contribute to the production process, but are not used up in it.



Financial capital plays an important role in our economy by reflecting the productive power of the other types of capital, and enables them to be owned and traded. However, unlike the other types, it has no intrinsic value; whether in share, bonds or banknotes, its value is purely representative of natural, human, social or manufactured capital.

Our wealth depends on maintaining an adequate stock of each of these types of capital. If we consume more than we invest, then our opportunities to generate wealth in the future will inevitably be reduced. Sustainability can only be achieved if the stocks of capital are kept intact or increased over time.

At the heart of the current environmental crisis is the way in which present patterns of consumption and production are unsustainably depleting natural capital. The Earth's ability to support the projected levels of human population in the next century at any level, let alone at the standard of living we in the industrialised world enjoy, is seriously brought into question. As Paul Hawken and Amory Lovins argue in their book "Natural Capitalism" (1999):

"What might be called 'industrial capitalism' does not fully conform to its own accounting principles. It liquidates its capital and calls it income. It neglects to assign any value to the largest stocks of capital it employs – the natural resources and living systems, as well as the social and cultural systems that are the basis of human capital."

Many people now advocate a model of sustainable capitalism, based around maintaining and where possible increasing our stocks of these different capital assets, so that we succeed in living off the income without depleting the capital. They are the capital stocks from which we have to derive all our goods and services, and produce improvements in human welfare and quality of life. If consumption is at the expense of investments, then such consumption is not sustainable and will inevitably be reduced in the future.

However, it is worth bearing in mind that all such categorisations are more than a little arbitrary. In reality, there are only two sources of wealth in the world today. The wealth that flows from our use of the earth's resources and ecosystems, all powered by incoming solar radiation (our natural capital); and the wealth that flows from the use of our hands, brains and spirits (our human capital). All else – money, machines, institutions, etc – is derivative of these two primary sources of wealth.

¹⁰ From The Natural Step www.naturalstep.org.nz





Practical tools for applying joined-up thinking to sustainability

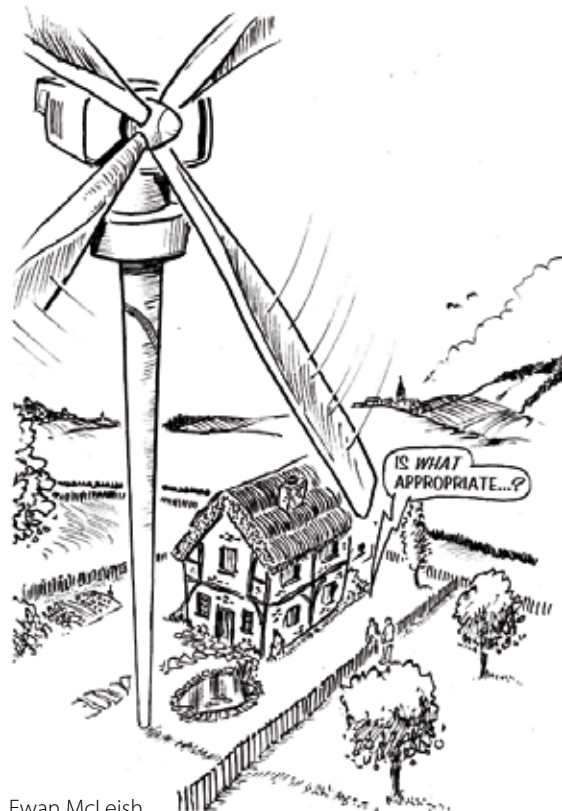
1 - Photos and illustrations

"A picture is worth a thousand words"

Introduction

Pictures and diagrams can help communicate some of the complex interrelationships that need to be explored when thinking about sustainability and the actions recommended for its achievement. This short paper suggests how photographs, illustrations and diagramming can help trainers use these materials effectively.

The MSP Resource Portal¹¹ provides practical information on how to facilitate participatory learning processes with various stakeholders. It provides theoretical foundations, methods and tools to create learning processes, facilitation tips, examples, literature and links to help build capacity for sustainable development.



Ewan McLeish

Photographs/Illustrations

The Introductory Activity is designed to get participants talking about their perceptions of sustainability and sustainable development. This is difficult and discussion is likely to be unfocused and unproductive unless some kind of visual stimulus material is provided. The authors of the manual have recommended using a photograph of a human activity such as farming, transport, electricity generation, construction or shopping to stimulate discussion initially about the sustainability of the activity and then about sustainability and sustainable development in general. The discussion that develops enables each participant to express their own perceptions and through negotiation identify some common principles that they agree to use during the workshop.

An alternative to a photograph is a cartoon. By using humour to illustrate a serious point, the impact can be greater and the discussion more open ended as participants consider it is less formal and the perceived boundaries for a discussion therefore wider. However, you need to use them carefully. Some people think they trivialise important issues.

Rich pictures

Drawing rich pictures is another technique that can be used to share perceptions of sustainability and stimulate thinking systemically about a topic or issue. They are referred to as rich pictures because they capture the rich, multidimensional issues that are part of a system and which matter to the participants. Instead of putting ideas into words, each participant draws a picture of how he/she perceives sustainability. Participants can be encouraged to show links between elements in their pictures and to use a few keywords to communicate the key elements, links and issues depicted. The Open University has a web page with a description of the technique and guidelines for preparing rich pictures.¹²

¹¹ <http://portals.wi.wur.nl/MSP/>

¹² openlearn.open.ac.uk/mod/resource/view.php?id=257790

2 - Diagrams

Introduction

This workshop manual emphasises the value of using systems thinking techniques for identifying and addressing complex sustainability issues. We refer to it as joined-up thinking. The ability to construct diagrams is a valuable skill because they can help organise one's own thinking and communicate those ideas to others more effectively than words alone.

There are several types of diagrams that can be used depending on the purpose of the exercise. Diagrams can be used to identify, record and analyse:

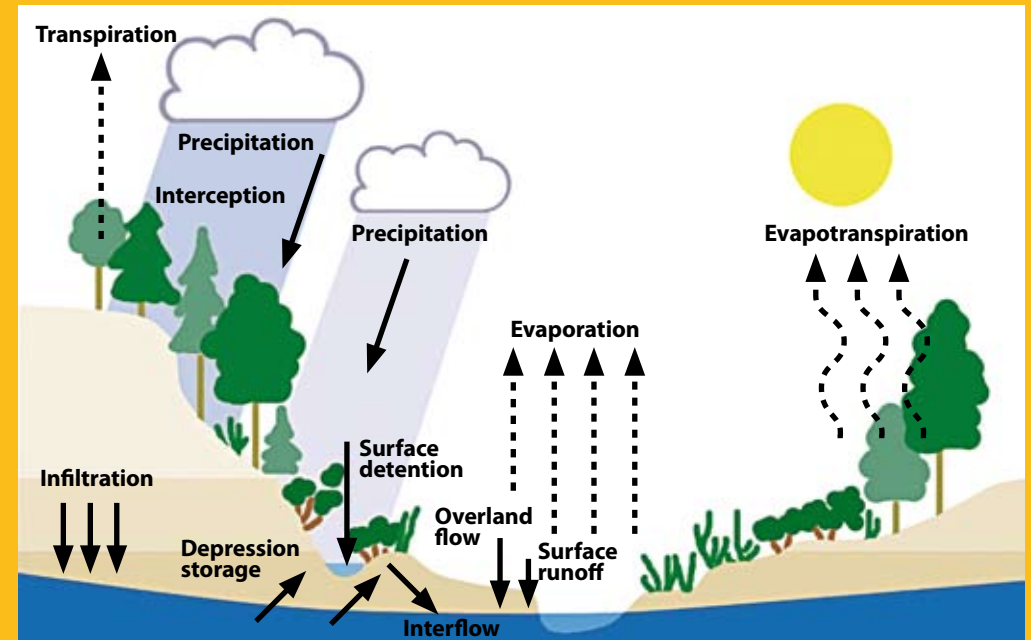
- The elements within a system.
- The relationships between elements in a system.
- Relationships between systems.
- Causes and effects.
- The impacts of proposed actions, including recognising positive and negative feedback loops.

When diagrams are being developed by groups, use a large sheet of paper so everyone can see it and be involved. A sheet from a flip chart is a good place to record ideas. The initial diagram is likely to be very messy as ideas develop and new items need to be added. Before presenting to other groups, a second version may need to be produced. Alternatively, ideas can be written on post-it notes and stuck onto a large sheet of paper. These can easily be rearranged as the discussion develops.

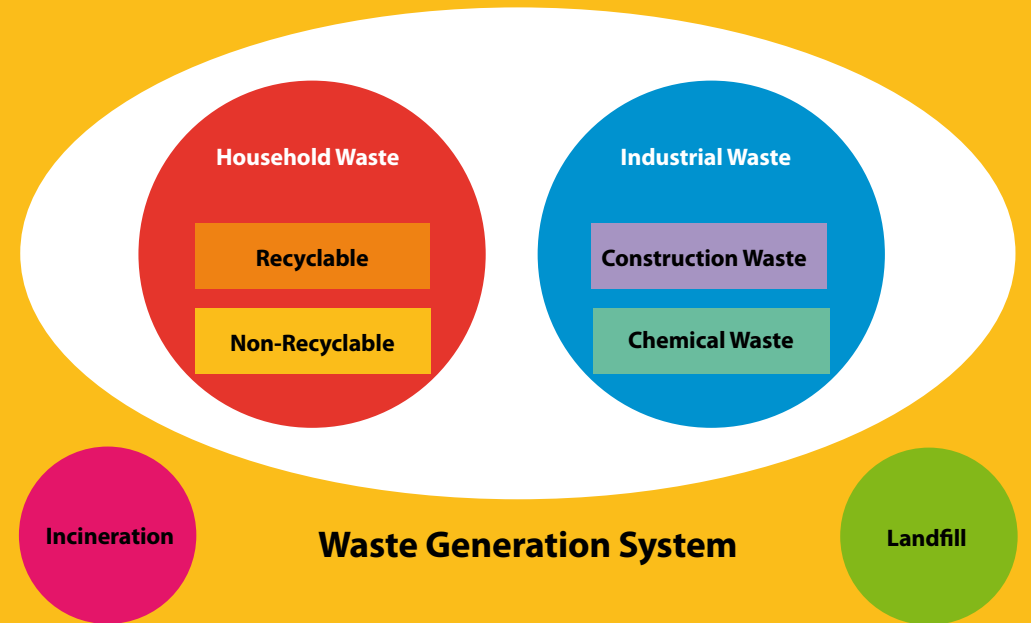
A Systems Map

A systems map shows the structure of a system, i.e. its components and how they are organised. They are usually drawn in an early stage of tackling an issue or problem when you are trying to find a structure for your thoughts. First you set the boundary for the system you are considering and then within that identify the components of the system, or sub-systems. The water cycle diagram shows the elements of a cyclical system, but systems can also be linear, for example a waste disposal system where waste is disposed of without being reused or recycled. Within the waste generation system a number of sub-systems can also be identified. Outside the waste generation system other important related elements can be identified, although they are not under consideration at the moment.

Typical diagram of water cycle



A Systems Map



Mind maps or spray diagrams

Mind mapping involves writing down a central idea and thinking up new and related ideas that radiate out from the centre. By focusing on key ideas written down in your own words, and then looking for branches out and connections between the ideas, you are mapping knowledge in a manner which will help you understand and remember new information. The benefit of this type of diagram is that you do not have to identify what kind of connection exists, just that there is a connection in your thoughts.

Using the topic of waste again, this could go into the centre of the diagram and the diagram might develop to look like this. Shapes can be drawn around key nodes to help identify them. They can become very untidy so before using them to communicate ideas to other groups, they may need redrawing. Again, post-it notes can prove helpful.

Hints for constructing mind maps

Look for relationships

Use lines, colours, arrows, branches or some other way of showing connections between the ideas generated on your mind map.

Draw quickly on unlined paper without pausing, judging or editing
All of these things promote linear thinking and the idea of mind mapping is to think creatively and in a non-linear manner. There will be time for modifying the information later but at this stage it is important to get every possibility into the mind map.

Write down key ideas

Using capital letters can help you focus on key points. You can write explanatory notes in lower case.

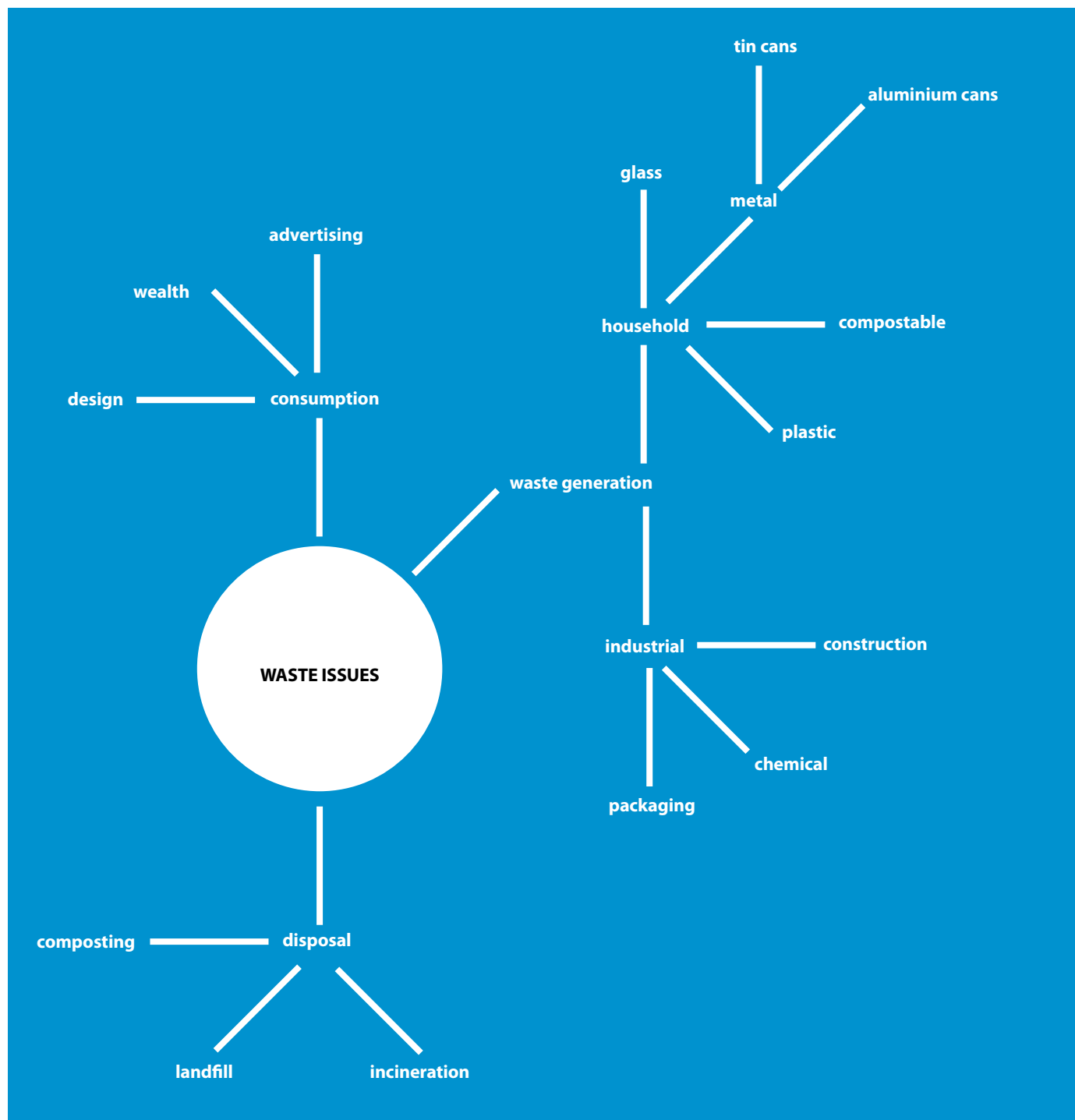
Put the main idea in the centre

It is useful to do a mind map in “landscape” style with the main idea or topic in the middle of the page. This gives the maximum space for other ideas to radiate out from the centre.

Leave lots of space

After the initial drawing of the mind map you may wish to highlight things, add information or add questions.

Acknowledgement: These hints were adapted by James Cook University from the work of Tony Buzan and others who have promoted mind mapping as a learning and thinking tool.



Cause and effect diagrams

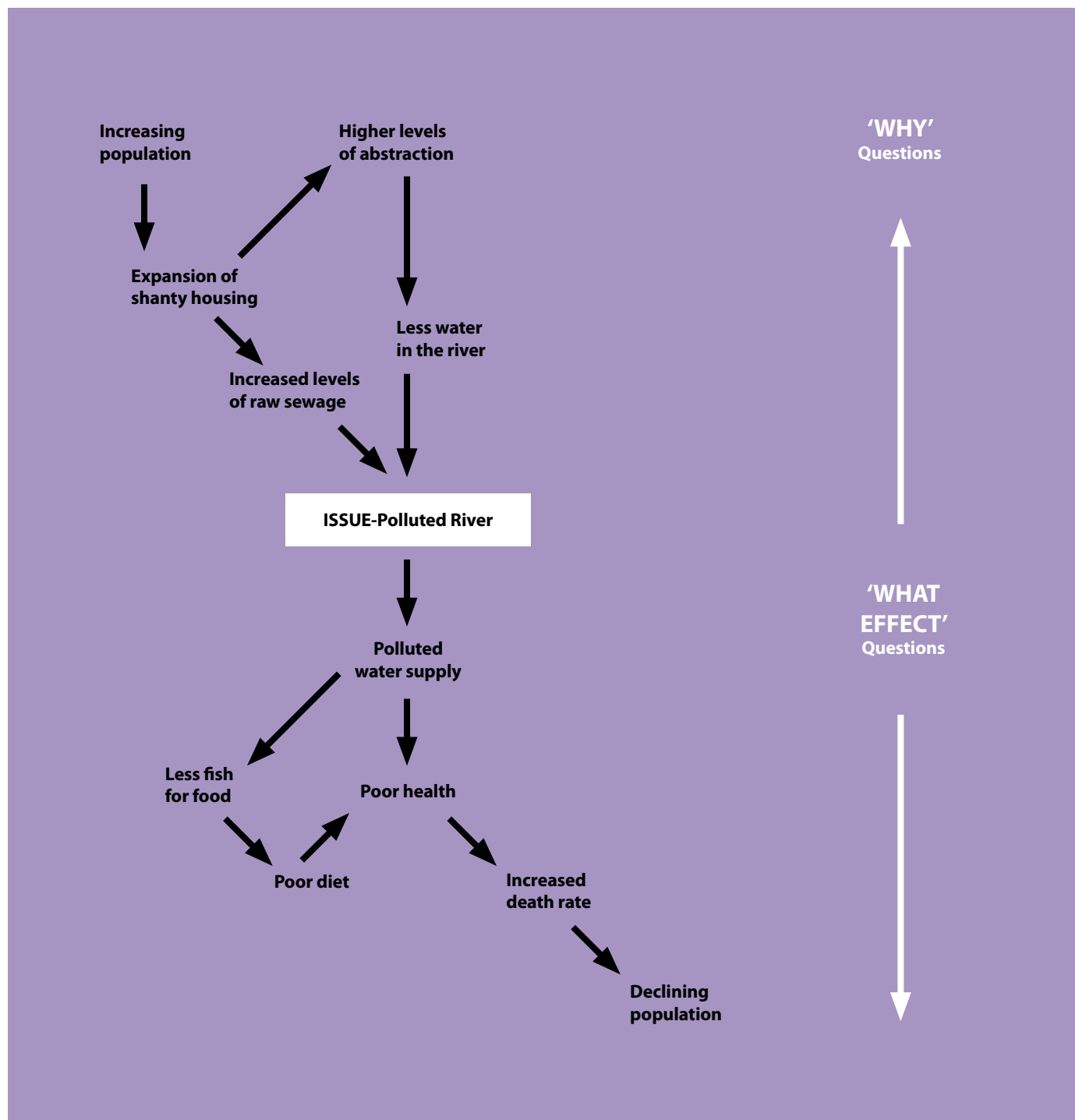
Cause and effect diagrams are very helpful in taking a group's analysis of an issue to a higher level. The components of an issue might have been identified, but there has been no attempt to reveal the nature of the relationships between the various variables or the causes of those relationships. With sustainability we are often trying to analyse why a particular situation has arisen or how a development might be planned that allows maximum benefit to be achieved without causing harm to the environment or people's lives. With cause and effect diagrams it is also possible to identify where different groups might intervene most effectively.

There are no simple solutions to sustainability issues. The issues are very complex and a mechanism is needed to identify and analyse the complexity of the relationships between ecological, economic and social factors. Any solutions proposed must also be scrutinised in the same detail to try and ensure that in solving one problem other serious problems are not created. The diagrams created can become very complex because the issues have multiple causes. Arrows show the direction of influence, but there may be many arrows linking an effect to several causes, and one cause to several effects. The arrows may also carry a notation, such as 'prevents', 'builds' or 'enables'.

From the simple example above it is also possible to identify a negative feedback loop. The pollution leads to poorer health, a higher death rate, declining population and hence a reduction in pollution (not that I am recommending that as a solution to the polluted river problem). Positive feedback loops can create runaway situations. For example, the Arctic ice cap is shrinking as a result of global warming. In turn this means there is less reflection of the Sun's rays from the ice back into space and so warming is reinforced.

Conclusion

This short description can only introduce the methodology of how to use pictures and diagrams in the workshop. You will need to experiment with the methods yourself and then consider how they can best be used to analyse the situations relevant to the participants. An important aspect will be how to integrate the 5 Capitals model of analysing situations with these methods.



3- Backcasting

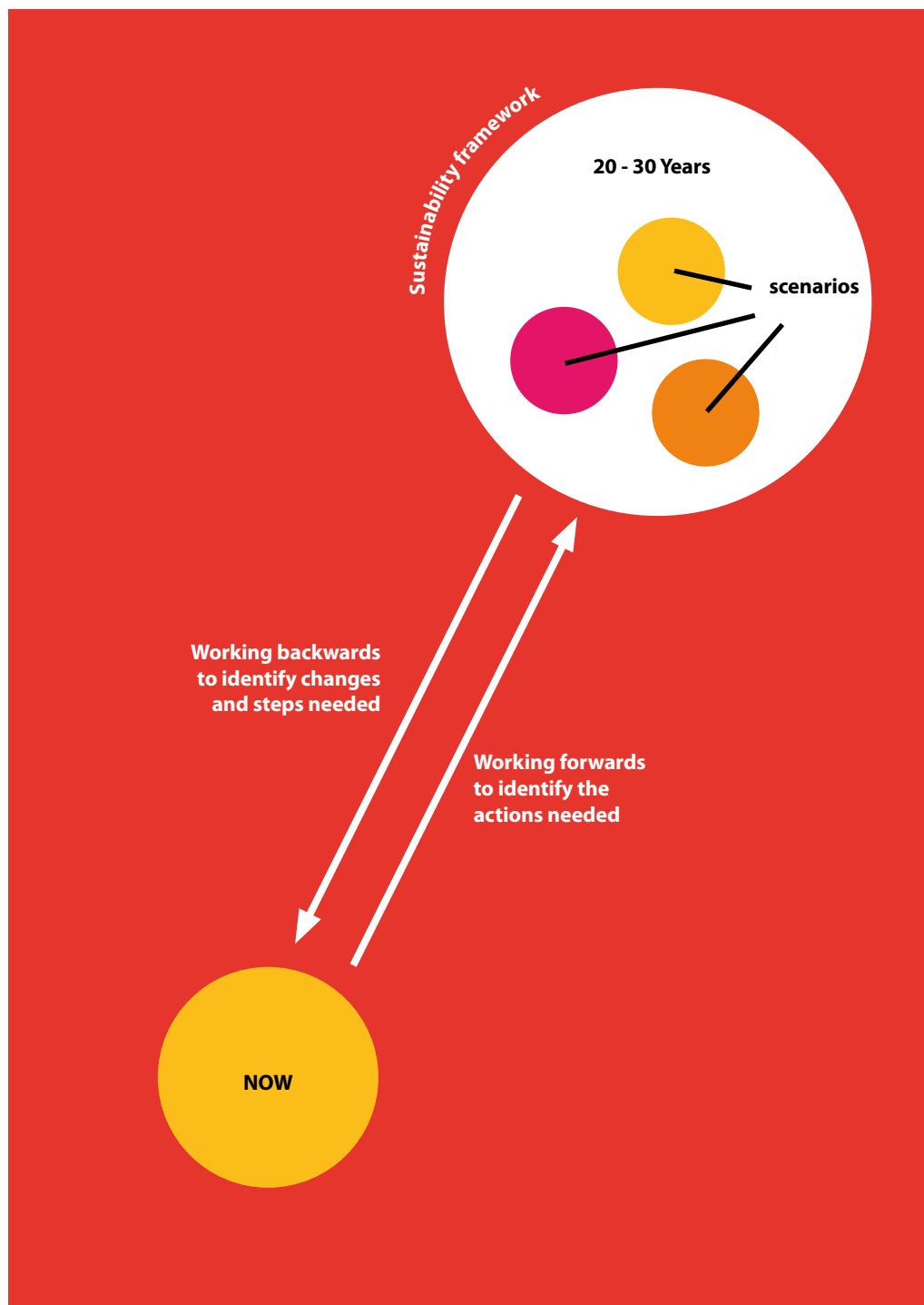
Backcasting “is a way of planning in which a successful outcome is imagined in the future, followed by the question: “what do we need to do today to reach that successful outcome?” This is more effective than relying too much on forecasting, which tends to have the effect of presenting a more limited range of options, hence stifling creativity, and more important, it projects the problems of today into the future”. The Natural Step¹³

The workshop also applies a number of techniques to help participants to think in a futurist perspective because one of the challenges of sustainable development is developing resilient and adaptive decision-making tools that can cope with risk and uncertainty. These techniques include simple scenarios that exemplify the two different approaches we can take to the future and, importantly, how these approaches influence the way we act.

The usual way of approaching the future is through forecasting by starting from where we are and projecting trends over relatively short time intervals, e.g. one to three years. Planning based on such trends tends to lead to short-term and incremental changes. A major limitation of forecasting is that many present trends are clearly unsustainable.

The alternative approach is ‘backcasting’ which starts by taking a 20 to 30 year perspective. The idea is to think imaginatively about the business or organisation to which you belong and seek to explore a range of future scenarios that will make it more closely fit a sustainability framework, e.g. The Natural Step framework or the one presented earlier in these notes. From each alternative future created, you then work your way backwards from the future towards the present in stages, asking such questions as: What barriers did we overcome? Who helped us? Who did we need to persuade?

The differences between forecasting and backcasting are critical to how we act in response to the issues of sustainability. Forecasting at best offers a short-term future, but if these trends fail us, then prediction fails us. History teaches us that sooner or later trends fail because change creates deeper, more fundamental issues. In contrast, backcasting starts from your anticipated destination (most sensible climbers start planning from the summit that they wish to conquer and work backwards!) and seek to plot a course of action towards it.





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