

Adaptation Planning Process

Key steps for implementing a strategic planning process for institutional adaptation in a water utility

Guidance Manual

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Glossary

Adaptation Planning Process: A process to stimulate water utility teams to systematically develop plans for activities and assets to become more adaptive to a range of different possible futures, while also complying with their organisational values.

Action: A defined activity within a defined time scale.

Action plan: A plan that outlines actions that need to be undertaken to deliver an identified response within a defined time scale.

Area of responsibility: A specific activity area that one team is taking responsibility for in an organisation e.g. surface water management (SWM) or water resources.

Challenge: A defined issue that is currently experienced or believed to become an issue in the future. In the Scenario Workshop a challenge becomes a category which embraces drivers and consequences.

Consequence: The specific ways in which a driver exerts influence on the system e.g. climate change (driver) may alter the state of a system through increased rainfall intensity (consequence).

Constraint: An individual or an organisation which limit actions undertaken within an area of responsibility.

Driver: A broad category describing mechanisms that may influence the state of the system: e.g. climate change, urbanisation, changing regulation.

Driver-Consequence-Impact chain: The D-C-I chains are sets of drivers, their consequences and from these emerge impacts that can change a system and thus influence an area of responsibility.

Effectiveness: An attribute of a response which measures its ability to address the impact of future consequences within one possible future.

Facilitator: Project team member that facilitate the workshop phases.

Impact: The alteration to the state of a system arising from applied consequences.

Influence: An external pressure (social, economic, environmental – sustainability pillars) that may affect one's action.

Long term: Defined as a time period 20-50 years from the present.

Medium term: Defined as a time period 5-20 years from the present.

Moderator: Project team member that moderates a small group session in the workshops.

Narrative: A short description of a future scenario or of an identified response.

Response: An action that is designed to reduce an undesired impact of an identified consequence or which exploits an opportunity created by an identified consequence.

Roadmapping: A process to develop short, medium and long term action plans to deliver an identified response.

Robustness: An attribute of a response which measures its ability to address the impact of future consequences for a range of possible futures.

Scenario: Internally consistent description of a future phenomenon, sequence of events, or situation (e.g. a plausible future), based on certain assumptions and factors (variables).

S-curve: An aid to represent the level of implementation of a response on a time scale. It illustrates the internal perception of a) where an organisation is now in implementing the response and b) when it is believed that the organisation has implemented the response.

Short term: Defined as a time period 0-5 years from the present.

Socio-economic capacity: comprises both the social capacity of society and also the members of that society, including organisations and the economic capacity of the nation as a whole and its constituent parts.

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Introduction and context

Climate and other long term changes present unprecedented challenges to today's providers of water and sewerage services. The uncertainty that climate change brings to future planning means that water utilities need to be flexible and adaptive so that as knowledge develops, decisions can be reconsidered and investments adjusted to ensure services can continue. Such capacity is needed in every water utility and also in the assets that they maintain and use to deliver services (e.g. Ofwat, 2012). Becoming flexible and adaptive as an organisation can turn a 'problem' - such as what do we do about climate change? - into an opportunity - how can we be more effective as an organisation and use this as an opportunity to expand our business? (e.g. Acclimatise & COWI, 2012). It also supports the delivery of outcomes that are likely to be more resilient than they have been in the past.

Although each water utility is different, for many, becoming flexible and adaptive will require changes in organisational structures and behaviour throughout the organisation (Bettini et al., 2013). One reason why 'sustainability' is not yet being effectively delivered within and by organisations is that this scale of internal reform is rare. Becoming adaptive and flexible is a part-way step to sustainability; and helps develop resilience within an organisation and in the outcomes delivered, a key element of sustainability (Brinsmead & Hooker, 2005). There are a number of ways for an organisation to become more flexible, adaptive and resilient, one approach is detailed in this manual.

The Guidance Manual presents the Adaptation Planning Process (APP) methodology. The APP methodology is a key output from Work Area 6 of the PREPARED project, a European Commission Framework 7 project. The Adaptation Planning Process was developed by researchers from the Pennine Water Group (PWG)¹ in collaboration with staff from the water utility Dŵr Cymru Welsh Water (DCWW).

¹ <http://www.sheffield.ac.uk/penninewatergroup>

The Adaptation Planning Process (APP)

The Adaptation Planning process (APP) aims to stimulate teams from water utilities to develop **strategic action plans** (see Appendix A for an example) about how their activities and assets can become more adaptive to future challenges, while also complying with their organisational aspirations in a systematic way. The APP supports institutional adaptation which does not primarily involve the development of new technologies but instead new ways of working together within an organisation and with key stakeholders to collaboratively address the challenge of uncertainty in predicting the future so as to identify a coherent but adaptive route forward. Becoming more adaptive does not necessarily involve a complete change in structures, practices and activities but rather implies that the core of the organisation stays the same while some of its activities and practices are modified. Institutions are able to adapt effectively to changes when staff and stakeholders form a coherent and united team, and when communications across and up and down the organisation's structure are strong, enabling changes to constraints and uncertainties to be identified and acted upon in a systematic manner. The APP seeks to provide a structure to stimulate the conversations needed to bring such action.

The APP consists of three phases/workshops:

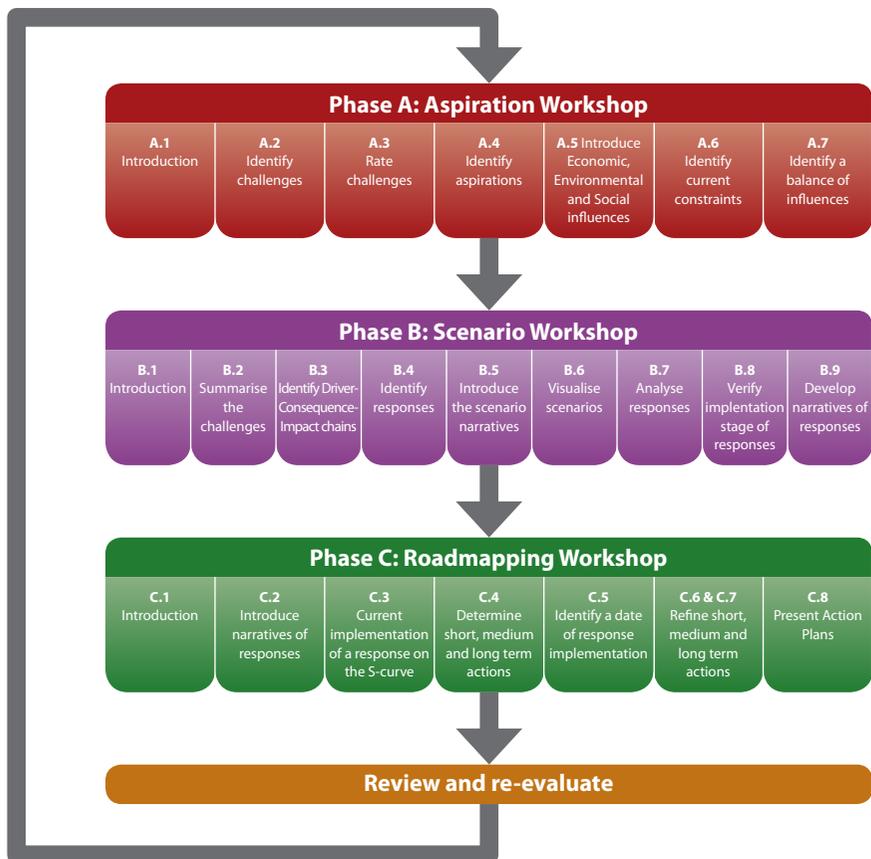
- A. **Aspiration Workshop:** identifies current aspirations of how an organisation wishes to shape their activities in the future in the context of existing challenges.
- B. **Scenario Workshop:** identifies potential future impacts of the agreed challenges, identifies responses to these impacts and evaluates their robustness against a number of plausible futures (scenarios).
- C. **Roadmapping Workshop:** plans a route forward to deliver the robust responses through the development of a **strategic action plan**. The action plan distinguishes short, medium and long term actions describing a route to the delivery of robust responses to current and future challenges identified throughout the process.

Like all policy making processes, the APP is designed to be iterative. Once the workshops are carried out and a period of implementation has occurred (e.g. after 5 years) the workshop process may be run again to review aspirations and progress and hence to re-form the action plan. Those implementing the action plan may also report back to participants during implementation.

The Adaptation Planning Process step by step explanation

This section provides a step by step explanation to the APP. The description of each of the APP workshops/phases includes: **Purpose of the workshop; Outcomes of the workshop;** Requirements from previous workshops; Workshop Process; **Linkage to the next workshop;** and an **Approach box**. Whereas the ‘workshop process’ can vary depending on facilitation methods and organisational structure, the **‘Purpose’, ‘Outcomes’, ‘Linkage to the next workshop’** and **‘Approach Box’** (highlighted in bold) should provide a starting point for the facilitators to adapt the steps to achieve expected outputs of the APP phases. The aim is to create a workshop process with outputs that can be integrated into existing business planning procedures of an organisation.

Figure 1 – Adaptation Planning Process: Overview structure



Phase A: Aspiration Workshop

Purpose

The main purpose of the workshop is to identify current aspirations for how the participants seek to shape their activities to address current and future challenges and opportunities. An additional aim is to highlight and illustrate the potential tension between environmental, economic and social influences on identified aspirations and on how to move forward.

The workshop aims to:

- A. identify key challenges that the organisation is facing
- B. examine how these challenges would ideally be addressed
- C. identify what constrains the successful application of aspired goals
- D. illustrate the tensions between environmental, economic and social pressures influencing aspired goals (Approach Box 1)
- E. identify the ideal balance for a route forward

Outcomes

Identified challenges that participants face in their activities. Identified wider aspirations of how to address these. Tabulate with analysed constraints and an agreed ideal balance of social, economic and environmental influences.

Approach Box 1 – Influences: economic, environmental and social

The methodology in this workshop draws on the concept of sustainability. The three concurrent goals: economic, environmental and social are known as the three pillars of sustainability. Greater sustainability can only be achieved by the development of all three pillars whilst also finding appropriate synergies between them. This involves the challenge of simultaneously achieving economic prosperity, environmental quality and social equity (Fischer et al. 2012; Hosseini et al. 2012). In the Aspiration Workshop we draw on this typology and consider economic, environmental and social influences that ideally should shape an organisation's actions towards an adaptive future.

Workshop Process

STEP A.1: Start with an introduction to the APP, to the workshop aims, expected outcomes, and agenda.

STEP A.2. Identify challenges that the participants face in their current activities. Stimulate brainstorming among participants to address the question: *What are the challenges that you are currently facing?*

STEP A.3: Encourage participants to individually rate the importance of the challenges. Select priority challenges for further analysis.

STEP A.4: Identify broad aspirations as to how the selected challenges should ideally be addressed. Focus the discussions around the following question: (CURRENT ASPIRATIONS) *What is required to address these challenges?*

STEP A.5: Introduce the participants to the three pillars of sustainability (economic, environmental and social) which should ideally influence an organisation's activities (see Approach Box 1).

STEP A.6: (CURRENT CONSTRAINTS): In the context of these three categories of influence (economic, environmental and social) encourage participants to identify who and what (organisation or individual) can provide new opportunities or is constraining them in addressing previously identified challenges successfully. Stimulate thinking to differentiate between internal and external opportunities and constraints. Use the template (Table 1) as an aid to fill out identified constraints.

STEP A.7: Identify the balance of influences and highlight where the tensions and synergies between them are. Stimulate conversation and subsequently rate the influences (+, ++, +++) according to the weight of what is constraining them. Illustrate first the external and later the internal balance of influences through for example a pie chart.

Linkage

Take the prioritised challenges from STEP A.3 into the ‘Scenario Workshop’. The challenges will form a base for the identification of drivers, their consequences and impacts (so called Driver-Consequence-Impact chain) in STEP B.2. Take the summary of identified aspirations from STEP A.4 and use it as a starting point for the identification of responses to address these challenges in STEP B.4.

Table 1 – Current constraints template with examples (STEP A.6)

Influence type	Social	Economic	Environmental
Internal	Communication between teams	Budget for improvement of assets infrastructure	Generation of green energy for use within the utility
External	Lack of public participation	Economic regulation e.g. PR14 in the UK	Environmental regulation e.g. EU directives

Phase B: Scenario Workshop

Purpose

Drawing on identified challenges and aspirations gathered in Phase A: the Aspiration Workshop, the purpose of the Scenario Workshop is to specify what the impacts are which arise from these challenges and how they can be responded to. The identified wider aspirations will serve as a starting point to develop practical and realistic responses to future challenges. The responses which will be effective and robust in the context of future scenarios in an agreed timescale will be identified.

The workshop aims to:

- A. identify drivers, consequences and impacts underpinned by the challenges identified in the Aspiration Workshop
- B. identify and evaluate responses in terms of effectiveness and robustness in responding to varying future challenges
- C. develop narratives of the responses for the next workshop

Outcomes

Identified robust responses, and the narratives to describe these (Figure 3).

Requirements

Identified challenges and aspirations from Phase A. An agreed timescale for future scenarios. Relevant climate change and contextual socio-economic data for future scenarios. Short narratives of scenarios developed using such data.

Approach Box 2 – Scenario approach

The methodology described in this workshop is based on a scenario planning approach with the aim to stimulate long term adaptation in the water sector. Scenario planning is a method originally developed to deal with uncertainties about the future. Scenario planning is not about predicting the future using descriptive futures research, but envisaging plausible and logically consistent versions of the future. Visions of the future may be termed 'scenarios' and can be used to represent how things might become at some time in the future (Ashley et al. 2012). Scenario based techniques have been used previously to deal with issues such as flooding in the water and sanitation sector and can be applied to test the robustness of responses (Evans et al. 2004).

Workshop Process

STEP B.1: Introduce the participants to the workshop aims, expected outcomes, agenda and the scenario approach.

STEP B.2: Provide participants with a summary of the greatest challenges from Phase A (STEP A.3). Depending on the typology of the challenges categorise them into drivers and their consequences.

STEP B.3: Encourage the participants to identify what drivers, consequences and impacts derive from these challenges. Create so called Driver-Consequence-Impact chains. For the driver Climate Change use relevant location specific climate change data with climate change variables and subsequently derive consequences and impacts.

STEP B.4: Once the Driver-Consequence-Impact chains are identified, invite the participants to define responses to the impacts. Encourage them to consider how the impacts can be addressed and responded to and how this can also provide opportunities. Use as an aid the aspirations (STEP A.4) identified in the Aspiration Workshop and encourage participants to think how these aspirations will change to be practical and realistic to address the impacts.

STEP B.5: Introduce the participants to the scenario axes (Figure 2). Subsequently present the future scenario narratives and data from which the narratives were derived.

STEP B.6: Encourage the participants to draw a picture of how the climatic and socio-economic environment will change in the agreed timescale (e.g. 2040s). Take into consideration factors such as climatic change, political structures, economic development and social change.

STEP B.7: In the context of the future scenarios A, B, C and D (Figure 2) analyse the effectiveness and robustness of these identified responses in an agreed timescale. You may use rating (+, ++, +++) to illustrate effectiveness of the responses in each scenario.

STEP B.8: Discuss in plenary whether the assessed responses for future scenarios are currently being implemented by the organisation and if all opportunities are being taken.

STEP B.9: Invite the participants to develop short narratives of the highest ranked and prioritised responses (Figure 3).

Linkage

Take the prioritised highest ranked responses and their narratives to the next Phase C, the 'Roadmapping Workshop'. It is recommended to take forward three responses but the number of responses can vary dependent on the needs of the organisation undertaking the APP. The highest ranked responses will provide the starting point for the development of short, medium and long term actions in STEP C.2.

Figure 2 – Future Scenario approach: axes

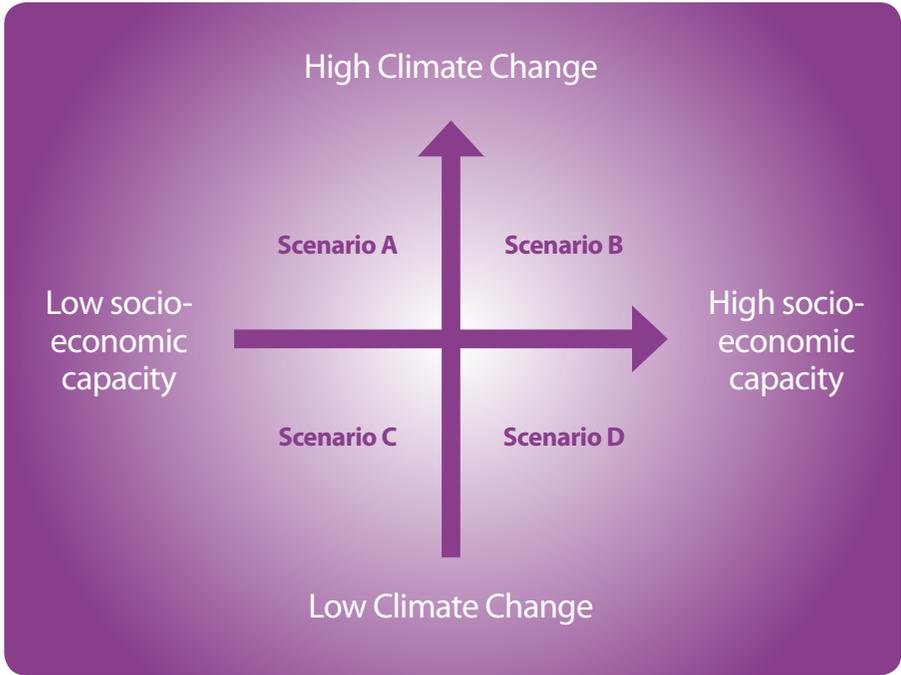
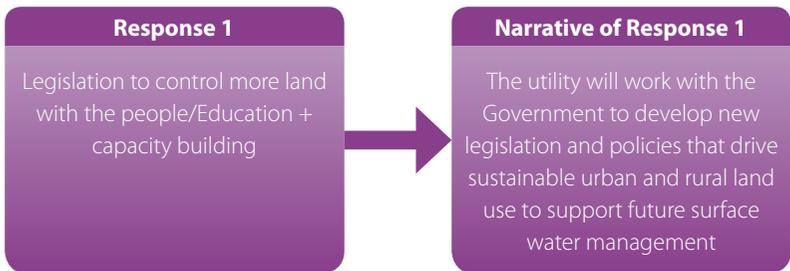


Figure 3 – Example process of editing a narrative of a response



Phase C: Roadmapping Workshop

Purpose

Drawing on the identified robust prioritised responses to the future challenges gathered in Phase B: the Scenario Workshop, the purpose of the Roadmapping Workshop is to plan a route forward from the current state to deliver the identified robust responses and to exploit any opportunities identified. In small sessions all participants will contribute to the creation and refinement of the strategic Action Plans. The Action Plans concentrate on the actions needed to be undertaken to achieve the identified robust responses.

The workshop aims to:

- A. identify the current position of the organisation in implementing the robust responses
- B. elaborate and refine short, medium and long term actions to deliver the robust responses
- C. identify participants' understanding of when the organisation will have fully implemented the robust responses

Outcomes

Action plans with short, medium and long term actions respectively which describe how to deliver robust responses identified in the Scenario Workshop. The time scale for actions to be embedded is understood in relation to the 'S-curve', which shows how innovations typically diffuse (See Figure 4).

Requirements

Prioritised robust responses and the narratives of the responses from the Scenario Workshop (Figure 3).

Approach Box 3 – Roadmapping approach

The methodology which underpins the Roadmapping Workshop is based on the Roadmapping approach. Technology Roadmapping has been widely used in industry to support strategic and long-range planning. The typical outputs of Roadmapping exercises provide structural and often graphical representations of the relationship between evolving and developing markets, products and technologies over time. This usually includes time-based charts, comprising a number of layers (Phaal et al. 2004: 5-14). For the purposes of the PREPARED project we have adapted this approach to the needs of our partners. We understand a Roadmap to be the description of a set of actions that enable an organisation to deliver strategic plans over short, medium and long-term timescales.

Workshop Process

STEP C.1: Introduce the participants to the workshop aims, expected outcomes, agenda and the Roadmapping approach.

FIRST SESSION: *Create groups and assign one response and moderator to each. From now on the following description illustrates facilitation of an example including three action plans within one group with one allocated response and moderator. In practice all three groups simultaneously undertake the same steps.*

STEP C.2: The moderator introduces the participants to one narrative for a response from the Scenario Workshop (Figure 3).

STEP C.3: The moderator facilitates discussion to identify where on the S-curve (Figure 4) the organisation currently is positioned in terms of implementing the response.

STEP C.4: The moderator encourages the participants to determine which short, medium and long term actions are needed to implement the response.

STEP C.5: The moderator stimulates discussion to identify the time period for when the organisation will have implemented the response and reached the top of the S-curve (Figure 4).

SECOND SESSION: *Participants move to the next response while moderators remain at the same place awaiting the next group.*

STEP C.6: The second session aims at reviewing and refining actions elaborated in STEPS C.2, C.3 and C.4. The moderator presents outcomes of the first session and stimulates new participants to refine the actions and the S-curve elaborated by the previous group. The moderator repeats STEPS C.2, C.3 and C.4.

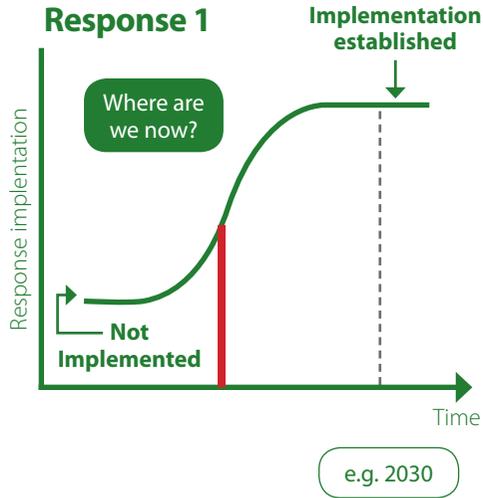
THIRD SESSION: *Participants move for the last time to the next response while moderators remain at the same place awaiting the next small group.*

STEP C.7: The moderator repeats the procedure as in step C.4.

STEP C.8: The moderators encourage participants to cluster actions into themes to create three Action Plans for each group and present them later in a plenary.

AFTER PHASE C: Cluster all action plans to one merged Action Plan (Appendix A). Review, evaluate the process and report back to the participants on outcomes of the Aspiration, Scenario and Roadmapping Workshops. In the final report, include sections on the objectives of each workshop, key learning and any deviations from the process.

Figure 4 – Example presentation of the S-curve used to identify where an organisation is in terms of implementing the response and when an organisation will expect to have implemented the response



- Perception of where the organisation is now in implementing the response
- ⋮ Perception of when an organisation is believed to have implemented the response

References

- Acclimatise & COWI (2012) **Guidelines for Project Managers: Making vulnerable investments climate resilient. Report for the European Commission – Final September.** [http://climate-adapt.eea.europa.eu/c/document_library/get_file?uuid=81fdc9d1-c840-409e-8060-82862cf65017&groupId=18] Accessed: 29-10-2013.
- Ashley, R., Tait, S. (2012) **Use of Scenarios in PREPARED.** [<http://www.prepared-fp7.eu/prepared-publications>] Accessed: 05-09-2013.
- Bettini, Y.; Brown, R.; de Haan, F. J. (2013) **Water scarcity and institutional change: lessons in adaptive governance from the drought experience of Perth, Western Australia.** *Water Science And Technology* Volume. 67 (10), pp 2160-2168. DOI: 10.2166/wst.2013.127.
- Brinsmead T., Hooker C (2005) **Sustainabilities: A systematic framework and comparative analysis.** University of Newcastle, Australia. Volume 53 of Research report (Cooperative Research Centre for Coal in Sustainable Development (Australia)). QCAT Technology Transfer Centre.
- Evans E., Ashley R.M., Hall J., Penning-Rowsell E., Saul A., Sayers P., Thorne C., Watkinson A. (2004) **Foresight Future Flooding: Scientific Summary: Vol. 1 Future Risks and their Drivers.** Office of Science and Technology, London.
- Fischer, J., Manning, A. D., Steffen, W., Rose, D. B., Daniell, K., Felton, A., Garnett, S., Gilna, B., Heinsohn, R., Lindenmayer, D. B., MacDonald, B., Mills, F., Newell, F., Reid, J., Robin, L., Sherren, K., Wade, A. (2012) **Mind the sustainability gap.** *Trends in Ecology and Evolution*, 22 (12), pp 621-624.
- Hosseini, H.M., Kaneko, S. (2012) *Causality between pillars of sustainable development: Global stylized facts or regional phenomena?* **Ecological Indicators**, (14), pp 197-201.
- Ofwat (2012) **Resilience: Outcome focused regulation. Principles for resilience planning.** May. Mott MacDonald. Birmingham, Cambridge. [http://www.ofwat.gov.uk/sustainability/climatechange/adapt/rpt_com120503mottmacresil.pdf] Accessed: 29-10-2013.
- Phaal, R., Farrukh, Clare J.P., Probert, D. R. (2004) **Technology Roadmapping – A Planning Frameworks for Evolution and Revolution.** *Technological Forecasting & Social Change*. 71, pp 5-26.

Appendix

Appendix A: Example of an Action Plan derived from a workshop held by DCWW.

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
A. Baseline	1, 2 and 3	<p>A1. Establish DCWW current position towards SWM in relation to what DCWW wants in the future for customers, the environment and the company in context of SWM</p> <p>a. What DCWW wants in the future for customers, the environment and the company in context of SWM</p> <p>b. Responsibilities and accountability of major external stakeholders (Environment Agency, Highways Agencies, Local Authorities)</p> <p>c. Responsibilities, goals and accountabilities of internal partners – e.g. Goals for Operations that link with Strategy</p>	A2. Maintain and review the baseline in collaboration with major stakeholders	A3. Maintain and review the baseline in collaboration with major stakeholders
B. Joined up and internal working	1 and 2	<p>B1. Promote joined up and proactive working through:</p> <p>a. Create a SWM working group</p> <p>b. Increase internal communication so departments know others' priorities</p> <p>c. Create space/money to be proactive and move outside your immediate role (if you have a good idea)</p> <p>d. Co-ordinate internally so a joined up face for DCWW can be presented to partners</p> <p>e. Identify a core group within DCWW that will drive incentives for local colleagues</p> <p>B2. Allow effects of organisational change to bed in</p> <p>B3. Try to accelerate change in decision-making in DCWW. Make it embedded and irreversible in the long term and as independent as possible of any changes in higher-level strategy</p>		

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
C. Funding and investment	2	<p>C1. Quantify the whole life costs and outcomes of SWM investments, for both DCWW and for society (through an ecosystems services approach)</p> <p>C2. Embed the quantification of costs and outcomes in the business</p> <p>C5. Work with OFWAT and Welsh Government to explore how regulatory regimes can be altered to incentivise investments which achieve the best possible societal outcomes</p> <ol style="list-style-type: none"> Draw on the quantifications carried out above to build strong arguments Examine how DCWW can be incentivised to make capital investments in third party assets at moments of opportunity even if it was not part of the AMP, (e.g. when there is large scale investment in infrastructure) <p>C6. Examine whether / how DCWW can justify paying for benefits which are not direct DCWW responsibility</p> <p>C8. If the regulatory regime permits then make opportunistic investments in SWM assets (owned by DCWW and others) for the greater benefit of the community</p> <p>C9. Consider how DCWW can use capital or revenue to fund other agencies (e.g. Local Authorities) to take action that will benefit DCWW's SWM goals</p>	<p>C3. Quantifying the costs and benefits of SWM investments to become business as usual</p> <p>C7. In future AMP periods define DCWW's outcomes to emphasise long term delivery of public benefit, hence allowing opportunistic investment and spending on third party assets</p>	<p>C4. Evaluate the benefits and costs of actions undertaken</p>

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
D. Legislation and policy in Wales	1 and 2	<p>D1. Encourage full implementation of Flood and Water Management Act to allow introduction of SUDS Approval Bodies</p> <p>D2. Incentivise Local Authorities to use their powers to make the most of existing legislation (for example, to address the problem with highways)</p> <p>D3. Influence and implement Welsh 'Water Vision'</p> <p>D4. Influence Welsh Government to replace Water Industry Act with new and better primary legislation</p> <p>D6. Collect data to show the need for new legislation – Surface Water Management (SWM) pilot projects, lessons learnt and historical schemes from trials</p> <p>D7. Assemble evidence to make case for replacing Water Industry Act with new and better primary legislation</p> <p>D8. Enforce and align current legislation and standards for land use and how these relate to SWM</p> <ul style="list-style-type: none"> a. Evaluate existing land use and planned legislation and if necessary identify key areas for change b. Evaluate how change in legislation will impact on existing long term strategies for land use. If necessary re-align policies <p>D9. Identify incentives for change</p>	D10. Define new legislative arrangements some of which will affect SWM for the medium term	<p>D5. Monitoring of legislation</p> <p>D11. Continually review legislation related to on-going circumstances</p> <p>D12. Create a national organisation funded by the public which will control all aspects of SWM for sustainable land use</p>

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
E. Data collection for engagement priority	3	<p>E1. Identify geographic areas for potential engagement for SWM</p> <p>E2. Engage on a countrywide basis</p> <p>E3. Identify potential areas of flood risk to be engaged on more focused basis</p> <p>E4. Identify, maintain and utilise evidence to provide solutions based on:</p> <ul style="list-style-type: none"> a. Identified best practices b. Established case studies c. Local knowledge 	<p>E5. Review the geographic areas for engagement</p> <p>E6. Review and refine potential areas of flood risk</p> <p>E9. Identify new, continue to maintain and utilise best practices, case studies and local knowledge to feed into solutions</p>	<p>E7. Review and refine the geographic areas for engagement</p> <p>E8. Review and refine potential areas of flood risk</p> <p>E10. Identify new, continue to maintain and utilise best practices, case studies, and local knowledge</p>

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
F. Partnerships & external engagement	1, 2 and 3	<p>F1. Strengthen collaborative working with current partners (Environment Agency, Local Authorities, communities etc.) to address together the set of problems that relate to SWM, including those outside DCWW responsibility</p> <ol style="list-style-type: none"> Identify responsibilities and accountability in existing partnerships – i.e. be clear who is the lead in partnerships Co-ordinate internally so a joined up face for DCWW can be presented to partners (as B1e) <p>F2. Establish new collaborations:</p> <ol style="list-style-type: none"> Define stakeholders related to land use planning and sustainable urban land use Understand how others are funded in order to work appropriately with them Co-ordinate internally so a joined up face for DCWW can be presented to partners (as B1e) Define DCWW needs and communicate them to stakeholders Take action with stakeholders based on examples from pilot project for engagement from AMP 6 Engage with the public to determine support to promote sustainable urban and rural land use policy Develop incentivized solutions so that people start to take actions for small amounts of money to target flood risk and SWM challenges: e.g. fund community groups, introduce incentives that will be legislated 	<p>F3. Maintain and develop collaborations through:</p> <ol style="list-style-type: none"> EITHER new SWM authorities responsible for all of these aspects OR create SWM groups (on all local levels) to steer the actions of stakeholders and agencies <p>F4. Embed collaborative working through:</p> <ol style="list-style-type: none"> Ensure local maintenance is becoming business as usual Maintain the incentivised solutions to be business as usual 	<p>F5. Feedback cycle to maximise developed benefits and identify new gaps</p> <p>F6. Communicate to communities about the benefits of actions undertaken to sustain their engagement and buy in</p> <p>F7. Maintain and review engagement to ensure maintenance of local solutions, becoming business as usual</p> <p>F8. Maintain and review the incentivised solutions to be business as usual</p>

Theme	Responses	Short term actions (next 5 years) (all short term actions should be continued on the medium and long term basis).	Medium term actions (5-20 years)	Long term actions (20-50 years)
G. Education	3	<p>G1. Provide education on sustainable SWM to the communities in flood risk areas by means of multimedia, TV programs etc. to:</p> <ul style="list-style-type: none"> a. Raise ownership and accountability of the SWM problems around communities and educate on solutions b. Establish community understanding of SWM and solutions that DCWW can provide in collaboration with communities c. Utilise case studies to show 'local' solutions for decentralised SWM (e.g. sustainable solutions in people houses) that address all demographics (e.g. private and rented housing) 	<p>G2. Measure progress on education</p> <p>G3. Continue with education on sustainable SWM to public</p>	<p>G4. Evaluate measure progress</p> <p>G5. Continue with education on sustainable SWM to public</p>

