

NATIONAL TECHNICAL ADVISORY GROUP ON FLOODING ISSUES

SUSTAINABLE FLOOD MANAGEMENT SUB-GROUP
DRAFT MEASUREMENT INDICATORS – KEY PERFORMANCE INDICATORS
(KPIs) FOR SUSTAINABLE FLOOD MANAGEMENT

Purpose

1. This paper provides Members with a basis to start to discuss and define measurement indicators and measurement methods for the sustainable flood management (SFM) objectives. Annex A attached contains a paper produced by Prof. Charles Ainger which is a first draft to initiate discussion and agreement about work that needs to be undertaken.

Objectives

2. Prof. Ainger proposes that the main high level objectives, discussed in paper NTAG2004(19) should be broken down into four measurable categories, as follows:

Social

S.1 *impact*: meet maximum possible social needs

S.2 *justice* – provide comparable ‘outcomes’ for all parties

Environmental

E.1 *impact*: have minimum net environmental impact

E.2 *justice*: have respect for all species and biodiversity, not just humans

Economic

Ec.1 *impact*: affordable whole life cost

Ec.2 *justice*: ‘the polluter (whoever causes (worse) flooding) pays’

Future generations

F.1 *impact*: - accept and allow for future uncertainty (‘the precautionary principle’)

F.2 *justice*: retain comparable opportunities for future generations to meet their own future, changing, needs.

3. Annex A gives details of how each of these lower level objectives might be measured.

Conclusions

4. **Members are invited to consider and discuss the proposals in Annex A to this paper.**

NTAG Secretariat
April 2004

Measurement indicators – Key Performance Indicators (KPIs)

1. The fact that the SE expects to have to ‘ration’ and therefore prioritise SFM investment funding could provide a powerful driver for sustainable option selection, and scheme recommendation, by local authorities and others. In effect it sets up a ‘market’ for funding applications, whose competitive rules can be set by the SE, through the way that the KPIs are measured, and the way they are applied.
2. So these KPIs could act as scheme prioritisation measures as well as ‘progress’ measures. With the possible implications for prioritisation for funding in mind, it will be very important, when agreeing their definition and measurement, to consider what behaviour these are likely to drive
3. One idea would be to publish national best figures, averages and range, for all the indicators used in the prioritisation criteria. This would set the hurdle to beat for all schemes.

| | |
|-----------|---|
| Objective | Social.1 <i>impact</i> : Meet maximum possible social needs |
| Indicator | <p>National Outcome: Remaining unmet ‘need’.</p> <p>4. Plan or Scheme Output: Total ‘need’ met by the scheme. [<i>‘benefit’, in Cost Benefit Analysis</i>]</p> <p>‘Need’ = Net Sum of (people at risk x personal social impact/person) + Sum of (property at risk x damage potential/property) + Sum of (people at risk x lost travel time/person) + Sum of (jobs at risk x lost production/job)</p> <p><i>Note: temporary ‘proxy’ indicator may be area, or ‘households’, unprotected.</i></p> <p>Comment. Strictly, some of these ‘needs’ might be classed as ‘economic’, not ‘social’. However, it is convenient to cover the whole of the personal ‘need’ estimation in one objective and KPI.</p> |

| | |
|-----------|--|
| Objective | Social.2 <i>justice</i> : Provide comparable ‘outcomes’ for all parties |
| Indicator | <p>National Outcome: Cumulative ratio of max. to min. payment per person, summed across all schemes, and across all LA areas [<i>which themselves will have different average costs/person covered</i>].</p> <p>5. Plan or Scheme Output: Ratio of max. to min. payment per person, for the scheme.</p> <p>Comment: Everyone should have equal access to be served by a scheme, and each should then pay the same for the same level of resilience.</p> <p><i>[needs more thought about how to define and measure this]</i></p> |

| | |
|-----------|---|
| Objective | Environmental.1 <i>impact</i>: Have minimum net environmental impact |
| Indicator | <p>National Outcome:</p> <p>EITHER: Ratio of cumulative actual <i>area</i> of all schemes to cumulative ‘<i>environmental footprint</i>’ of all schemes. [<i>Could also publish ‘total national net environmental footprint (+ or -) across all schemes, in hectares.</i>]</p> <p>OR: Net national cumulative ‘externalities’ shadow cost of environmental benefit less environmental damage</p> |

| | |
|--|---|
| | <p>Plan or Scheme Output: EITHER: Ratio of actual <i>area</i> of scheme to '<i>environmental footprint</i>' of scheme. OR: Net Scheme 'externalities' shadow cost of environmental benefit less environmental damage. Comment: Given some controversy about both estimation methods, doing both may be worthwhile.</p> |
|--|---|

| | |
|-----------|--|
| Objective | Environmental.2 justice: Have respect for all species and bio-diversity, not just humans. |
| Indicator | <p>National Outcome: Ratio of cumulative <i>bio-diversity index achieved</i> by all schemes to cumulative <i>bio-diversity index base-case</i> across all schemes. Plan or Scheme Output: Ratio of <i>bio-diversity index achieved</i> by the scheme to its <i>bio-diversity index base-case</i>.</p> |

| | |
|-----------|---|
| Objective | Economic. 1 impact: Affordable whole life cost |
| Indicator | <p>National Input: Cumulative Whole Life Cost of all schemes Plan or Scheme Input: Whole Life Cost: capital costs, operation & maintenance, replacement, residential response funding, compensation etc)</p> |

| | |
|-----------|---|
| Objective | Economic. 2 justice: 'The polluter (whoever causes (worse) flooding) pays' |
| Indicator | <p>National Input: Cumulative % of total flood scheme costs borne by the causer of the flooding Plan or Scheme Input: % of total flood scheme cost borne by the causer of the flooding Comment: This will raise questions about 'causers'; and a need to define a baseline starting point – the 'natural catchment'?</p> |

| | |
|-----------|---|
| Objective | Future.1 impact: - accept and allow for future uncertainty ('the precautionary principle') |
| Indicator | <p>National Outcome: Cumulative average % 'uncertainty' provision made in design of all schemes implemented. Plan or Scheme Output: % 'uncertainty' provision made in scheme design. Comment: This could include provision for future urban development, and for 'climate change'.</p> |

| | |
|-----------|--|
| Objective | Future.2 justice: retain comparable opportunities for future generations to meet their own future, changing, needs |
| Indicator | <p>National Outcome: Av. cumulative 'interest rates' used in summing future elements of Social, Environmental, and Economic benefits and costs across all schemes implemented. Plan or Scheme Output: 'Interest rates' used in summing future elements of Social, Environmental, and Economic benefits and costs for the scheme. Comment: These rates show how we 'value the future'. There will be arguments that Social and Environmental 'interest rates' should be negative – ie, these will be worth more in the future?</p> |

Principles

6. Several sets of possible ‘principles’ were discussed at 20/2/04 SFM sub-group meeting: from COSLA, ICE-LLR, WWF, RSBP, etc. Considerable agreement and overlap was evident. From the slides I used, I offer these as further contributions:

7. Transparency

- stakeholder dialogue
- common sources of information, methodology and expertise, with access for all

8. Democracy (giving people power over their own lives)

- acceptance of shared responsibilities; with education and awareness
- subsidiarity - decision-making at as local a level as possible

9. Effectiveness

- simple functioning - systems optimised for self-correcting behaviour
- centralised strategies and frameworks where appropriate
- holistic analysis - and prevention rather than cure - (‘upstream’ flood reduction better than downstream protection) [*KPI: Ratio of ‘flooding prevented/avoided’ to ‘flooding protected/compensated’.*]

Also, from the slides titled ‘CIWEM Coastal and Rivers Section’:

- encourage multifunctional schemes that achieve multiple benefits in reducing flood risk whilst seeking opportunities for biodiversity enhancement and economic regeneration
- include social and environmental benefits in benefit/cost appraisal
- encourage beneficial (sustainable) land management practices
- strategic approach at catchment level e.g. through CFMPs (and SMPs for coastal flood risk management)
- integrated approach looking at all sources of flooding
- work with nature and allow natural processes where possible
- (realignment/abandonment) - social acceptability?
- promote sustainable methods of construction
- acknowledge biodiversity enhancement potential of floodplain storage augmentation
- based on whole life costing
- measures that are adaptable to potential climate change impacts
- recognise Foresight Initiative outcomes - long term view
- recognise the need for effective consultation and involvement of stakeholders in decision making process.
- measures that help to sustain the floodplain community by encouraging appropriate floodplain development whilst meeting the needs of the community.

Suggested Action

10. I suggest that we should next try to combine the best of each. As we assemble them, we should also consider how they fit with the final agreed list of Objectives, and contribute to the agreed KPIs and behaviour we wish to see. Each of the principles will themselves have KPIs, to check how well we are following them; at scheme level, most of these may be simple questions with a yes/no answer; at National level, they may be ‘% of schemes which comply with the principle’.

11. We also might try grouping these under the ‘four As’ that SE has already used – to show continuity with previous language.

CMA, 28.3.04