

## FLOODING ISSUES ADVISORY COMMITTEE

### ALLEVIATION SUB-COMMITTEE PROGRESS REPORT FEBRUARY 2006 FIAC MEETING

#### **Purpose**

1. The purpose of this paper is to provide the Flooding Issues Advisory Committee (FIAC) with a progress report from the Alleviation Sub-Committee.

#### **Background**

2. The Sub-Committee has met twice, on 25 August 2005 and 19 January 2006. The current membership is detailed in Annex A, and Judith Tracey (JT), of the Executive, chairs the meetings.

#### **Feedback from the last meeting on 19 January 2006**

##### *FIAC Sub-Committee priorities and workplan*

3. Members discussed and agreed the priorities for FIAC detailed in paper FIAC2005(11) and also the amended Sub-Committee workplan.

##### *Technical guidance*

4. Members discussed draft chapters 1, 2 and 3 (*Introduction and overview, Statutory process and Strategic considerations* respectively). Members agreed that:

- chapters 1, 2 and 3 should be shorter, less discursive, and with less about English and European practices and issues;
- it is important to give detail of the 1961 Act but references to other pieces of legislation should be brief and more about how other legislation interacts with the duties under the 1961 Act and what the associated problems/conflicts might be. A reference to the Civil Contingencies Act 2004 should be included; and
- while it was important to encourage practitioners to take a more sustainable approach it has to be within current legislation framework and we cannot include work in progress as guidance.

5. Members were asked to forward detailed comments to Jacobs Babbie, copied to Hazel Gallagher at the Executive. A final draft of each chapter is expected by 16 March 2006.

6. Members discussed outlines for chapters 4, 7 and 8. Members agreed that chapter 4: *Design standards* should contain the design standards and technical appraisal guidance and that the DEFRA guidance would be a good place to start.

7. Guidance on how flood prevention interacts with SEAs, Controlled Activity Regulations, biodiversity statutory requirements and sustainable development should be included in chapter 7: *Environmental appraisal/impacts*.

8. Members stressed the importance of including findings from the Social Impacts study, currently being conducted by the University of Dundee, in chapter 8: *Social appraisal*.
9. Jacobs Babbie will produce an outline of each chapter for Members to review at the next Sub-Committee meeting.

*Prioritisation of flood prevention schemes*

10. John Riddell, Charles Ainger and Ronnie Falconer produced a detailed discussion paper on how flood prevention schemes might be prioritised in future. Paper FIAC2006(1) is attached at Annex B below. Members discussed whether the Executive needs to prioritise when local authorities are slow to bring forward schemes. However Members agreed that if the Executive could be more flexible about how the money is spent then there will be more demand from local authorities and a prioritisation scheme could influence the behaviour of practitioners. Members recognised that a prioritisation system needs reliable data on which to base decisions. JT said that the Executive is investigating whether money is available for some modelling work in areas at most risk of flooding.

11. Members agreed that the paper should be taken to the FIAC meeting in February for further discussion.

*Future legislative changes*

12. JT gave an update on future changes to the Flood Prevention (Scotland) Act 1961. She explained that legislative change would be a lengthy process but FIAC will give us the evidence to show what needs to be amended. Members agreed that this topic should be covered in detail at the next meeting

**Next steps**

13. A further meeting has been arranged for 25 May 2006 to discuss draft outlines for Guidance chapters 4, 7 and 8 and legislative change.

**Conclusion**

**14. Members are invited to note the above.**

**FIAC Secretariat  
January 2006**

**ALLEVIATION SUB-COMMITTEE**

**Membership**

1. **Judith Tracey, Air, Climate and Engineering Division, SE - Chair**
2. John Henderson, ACAO
3. Nick Evans, Planning 4, DD
4. Peter Jones, Welsh Assembly
5. Alvin Barber, City of Edinburgh Council
6. Stan Irvine, Air, Climate and Engineering Division, SE
7. Prof. Charles Ainger, MWH UK Ltd
8. Jim Hutchison, DEFRA
9. Dr. John Riddell, Independent Consultant
10. Dr. Roy Richardson, SEPA
11. Tom Harvie-Clark, Environment Economist, SE
12. David Cotterrell, Environment Agency

**Annex B - FIAC2006 (1)**

**FLOODING ISSUES ADVISORY COMMITTEE  
ALLEVIATION SUB-COMMITTEE**

**PRIORITISATION OF FLOOD ALLEVIATION SCHEMES**

**Purpose**

1. This Discussion Paper has been produced in response to a request by the Scottish Executive for FIAC, through its Alleviation Sub-Committee, to consider how the Executive might prioritise expenditure on future flood alleviation schemes brought forward by local authorities under the Flood Prevention (Scotland) Act 1961. The report has been prepared by Charles Ainger, Ronnie Falconer and John Riddell as members of the Alleviation Sub-Committee.

**Background**

2. FIAC has been set up to give advice to the Executive at a strategic level on implementing the National Flooding Framework and to continue the work of the National Technical Advisory Group on Flooding Issues (NTAG). The work of FIAC will help the Executive take forward the four “As” on which the National Flooding Framework is based - Awareness, Alleviation, Avoidance and Assistance.

**Conclusions**

3. **Members are invited to note the issues raised and to consider and discuss the issues presented, including the subsequent proposals in principle and the desirability of including a deliverability rating in the prioritisation system.**

**FLOODING ISSUES ADVISORY COMMITTEE  
ALLEVIATION SUB-COMMITTEE**

**PRIORITISATION OF FLOOD ALLEVIATION SCHEMES**

**Introduction**

1. The Flood Prevention (Scotland) Act 1961 is the legislation which allows the Scottish Executive to provide financial support to local authorities for the undertaking of works to reduce flood risk within their areas. While a review of this legislation has commenced it is unlikely that it will be amended or replaced for some years. Thus local authorities seeking grant aid (currently 80%) from the Executive will be required to promote schemes through the 1961 Act and, as such, will require compliance with the Executive's current rules and guidelines relating to the operation of the Act.

2. To be eligible for grant under current rules a scheme must (a) provide protection against flooding over its design life with an annual probability of occurrence no greater than 1%, and (b) achieve a ratio of benefit to cost greater than unity. The first criterion means that schemes require to be designed to a 100 year plus climate change standard, usually now translated as a 200 year present day standard. Grant is currently not paid on schemes which do not achieve this minimum standard, but schemes designed to a higher standard are eligible subject to increased benefit to cost criteria.

3. Since the introduction of the 1961 Act it is understood that no scheme brought forward by a local authority and meeting the minimum design criteria has been delayed because of limitations on the total sum available for grant. This is likely to reflect the relatively low cost of historic schemes and the rate at which these have been promoted by local authorities. Today, with greater concern about flooding, the number of schemes being promoted is increasing, while a significant proportion of these are indicating costs much greater than historic schemes, even with inflation. Despite a large funding allocation by the Executive over the next three years it is thus possible that the cost of approved schemes could exceed the available budget, resulting in either a need for schemes to be prioritised or an increase in available funding. This situation already exists in England.

4. Given the existence for the immediate future of the 1961 Act and the minimum design criteria it is suggested that any system to be used to prioritise schemes must properly reflect the legislation and the criteria. Although both the legislation and the criteria could be considered in the light of new thinking on flood management to be outdated, the reality is that they are the current 'rules of the game'. As such it might be seen to be both unfair to scheme promoters and unjustifiable to give weighting to factors which neither the legislation nor the guidance require to be considered. It might also be seen to be unfair to change the design criteria (which are not part of legislation, and the legal status of which is unclear) without a period of notice likely to be comparable in time scale with changes in the legislation.

5. The Water Environment and Water Services (Scotland) Act 2003 when fully implemented will require flood alleviation schemes to manage flood risk in a sustainable way. It is also increasingly likely that a condition of planning consent for works to be undertaken as part of a scheme will be that a scheme results in some form of environmental mitigation or enhancement. Thus while not directly explicit in the current guidance,

sustainability and environmental enhancement are in practice likely to be key features of future schemes.

6. It is suggested that fairness, acceptability and transparency in relation to scheme prioritisation will be of much greater importance in Scotland than perhaps is the case in England. Scotland is a small country with its own parliament. There is thus likely to be much greater opportunity for complaint, media interest, and political division when approval of Scheme A may result in postponement of Scheme B. Thus any mechanism used to prioritise Scheme A over Scheme B must be robustly defensible through referral to the agreed mechanism. Objectivity rather than subjectivity is likely to be the priority. To achieve full transparency in objectivity it is also probable that the degree of sophistication of the system is likely to be less than might otherwise be considered to be possible or desirable.

7. It is recognised that Scottish Executive guidance to local authorities may change such as to place greater emphasis on sustainable means of flow reduction rather than water level containment by defences. It is thus essential that the guidance provided to local authorities by the Executive fully reflects the prioritisation mechanism adopted.

8. While the prime objective of developing a mechanism to prioritise the allocation of available finance is to enable the Executive to prioritise, it should be recognised that any system developed may provide the opportunity to influence the design of schemes. Thus such aspects as the form of scheme, non-direct flooding gain and cost minimisation could be steered by the prioritisation mechanism. At the present time, for example, there is no direct incentive for scheme promoters to minimise the cost of a scheme.

9. In summary, it is suggested that any prioritisation mechanism should:

- Recognise the current minimum design standard and benefit cost ratio criteria
- Recognise the requirements of the WEWS Act
- Be transparent and robustly defensible in a national but small political arena
- Be relatively straightforward and thus primarily objective in its application

10. In addition, consideration could be given as to how the prioritisation mechanism can be used to influence scheme design and cost, subject to due notice of the guidance criteria being given to scheme promoters.

### **The DEFRA Prioritisation System**

11. A method of prioritising available financial resources for flood alleviation schemes currently exists in England where the demand for funds has for some years exceeded the allocation available. The authors have reviewed the DEFRA method of prioritising capital grant for flood and coastal defence and have held discussions with DEFRA on the operation of the process.

12. DEFRA describes its system as a ‘pragmatic approach to the prioritisation of government funding’ in order to ensure that ‘projects with the greatest benefits per unit cost are carried out first’. Schemes must demonstrate ‘best value for money’. DEFRA emphasises that the system ‘is designed to prioritise worthwhile capital expenditure, not to suppress it’.

13. As understood by the authors, the DEFRA method of prioritisation is based on a scoring system that involves the allocation of points to different aspects of a proposed

scheme. The total score is then compared with a minimum or threshold score set by DEFRA that can vary from year to year. The score of a proposed scheme is updated annually as the scheme is developed through its various design and consultation phases. Thus the priority that a particular scheme might have could change from year to year depending upon both how its score might change as the scheme is developed, and how other current schemes score.

14. The scoring system developed by DEFRA involves the allocation of points to three elements as follows:

- The scheme's ratio of economic benefit to cost, 46% of total score
- The number of residential properties protected and a measure of the vulnerability of people living in these, 27% of total score
- Environmental factors such as listed buildings and sites of special scientific interest protected, 27% of total score.

15. DEFRA notes that in practice the maximum score for most schemes will probably not exceed 73% of the total points available while the 2005/6 threshold score is just 43% of the total points available.

16. Having considered the DEFRA method and having taken account of comments received, it is the authors' view that a method similar to that used by DEFRA is likely to prove suitable for use in Scotland. Given the existing Scottish legislation and scheme design criteria it is suggested that a scoring system based on a relatively small number of clearly defined criteria would seem to offer substantial advantages. An 'arithmetic' system is likely to be easily usable, easily reproducible and auditable, and thus easily defensible.

17. Chapter 5 *Economic Appraisal* of the Scottish Executive's Flood Prevention Scheme Guidance for Local Authorities describes the process to be followed in deriving the benefit to cost ratio for a 1961 Act scheme. In relation to benefit the methodology includes direct and indirect economic loss, adjustments for socio-economic equity and non-monetary impacts on households, and an allowance for recreational, environmental and heritage issues.

18. It would thus appear that the three factors used to make up the priority score in the DEFRA system are all included in the single benefit to cost ratio put forward by a Scottish local authority in support of a 1961 Act scheme. This means that if a similar scoring system is to be used by the Executive for scheme prioritisation the additional work required of local authorities to develop a score is not likely to be great.

19. A summary of the current DEFRA points system is contained in Annex 1 while full details can be found in Annex B of the DEFRA guidance document *Flood Management – Capital Grant Allocations for Flood and Coastal Defence*.

### **Proposed Method**

20. It is suggested that a points system aimed at identifying and prioritising schemes that achieve the greatest overall benefit per unit of cost to the taxpayer be adopted in Scotland. It is considered that a scoring system is relatively easy to follow, it is transparent, and it can be developed to include acceptable objective indicators. Thus provided all schemes are scorable on the same basis a development of the DEFRA procedure would seem to be workable in Scotland.

21. It is suggested that the system proposed for Scotland should be based primarily on the three main elements or components of the DEFRA scoring system, i.e. (i) benefit/cost ratio, (ii) social indicator, and (iii) environment, with the environment element being expanded to allow for sustainability. In discussion, however, it was also considered that a possible fourth component could be included to reflect factors which could be relevant to the prioritisation process. Each of these four components is now examined in more detail.

22. At this stage the authors have not developed full proposals as to how each of the four components might be weighted relative to each other, or how marks might be made up within each component. While some suggestions are made, it is recognised that other members of FIAC and indeed the Executive should have input to this more detailed process should the outline proposals be accepted in principle.

23. In addition to a methodology that could lead to the development of a score or mark, the authors suggest that the prioritisation process might also take account of the deliverability of a proposed scheme. It would clearly be unsatisfactory if funding was earmarked for a scheme which through objections or non-allocation of funds by the promoting authority might not be quickly delivered, and in doing so denied funding to a more deliverable but lower marked scheme. This issue is also addressed.

24. **Benefit/Cost Ratio** The DEFRA system gives a score of 0 for a benefit/cost ratio less than 1, and a mark that then increases with increasing B/C ratio on a linear scale. The maximum B/C ratio is 10.5. This is a high value, and its purpose is to recognise that a high value can be achieved not only by maximising benefits but also by minimising costs. A strong incentive to reduce costs does not currently exist with schemes in Scotland, and it is suggested that with careful thought a scoring system could be developed that would encourage the minimisation of costs to both the local authority and the taxpayer.

25. In using a B/C ratio it will be necessary to provide new guidance to local authorities on how to calculate the value. It is likely that transparency of scoring will be assisted for the B/C ratio component, and with others, by the development of a pro-forma submission sheet as the Chapter 5 process as now to be followed in Scotland is not obviously transparent and is not one that can easily be followed or checked. For the purposes of assisting with prioritisation local authorities will require to sub-divide the present overall benefit to cost ratio calculation with direct economic benefit now being clearly separated from other benefits. The addition of an optimism bias factor in scheme costs will require to be considered in relation to its inclusion in the B/C ratio scoring system.

26. **People or Social Score** As with the DEFRA system it is proposed that this score is based on three components. The first would relate to the number of residential properties protected per £1,000 of project cost and would have two sub-components. The first sub-component comprises a base mark calculated as a multiplier of the number of affected residential properties divided by cost to give the full allocated mark range. This ensures that schemes protecting a small number of homes are not disadvantaged relative to ones protecting a much larger number. Added to this base mark are marks for the second sub-component. This reflects such aspects as the likely speed of water level rise during a flood, the force of flood water (e.g. Boscastle), and the availability of a flood warning. In effect the additional marks are a measure of risk to life. Risk to life is not easily quantifiable in economic terms and thus there would seem to be merit in recognising such risk through the scoring system when prioritising scheme funding.

27. The second element in the people or social score component is an adjustment either upwards or downwards for vulnerability as defined by some form of deprivation index relevant to the residential areas protected. Thus more socially and economically deprived areas where residents are less likely to have insurance and be less capable of self-help gain marks while more affluent areas lose marks. A measure of deprivation would need to be agreed.

28. As it is possible that any ‘social’ mark will be the most politically contentious part of a scored prioritisation system in Scotland it is suggested that some careful thought will need to be given as to its real objective, and what value and weighting might be given to the available marks. It is possible that while the addition of points may be seen as generally acceptable, taking points off may not.

29. Environment and Sustainability Score In the DEFRA system the score reflects the environmental nature of the land to be protected and whether heritage and ancient monument sites are protected. So far as can be determined there is no points input for sustainability *per se*, but points can be gained for environmental enhancement.

30. It is proposed that the marks available in Scotland for this component reflect not only the existing environmental/heritage value of the land protected but also selected aspects of the sustainability of a scheme. Unlike the DEFRA system it is suggested that environmental enhancement or gain be included in an additional fourth component (see later).

31. The following sustainability indicators are considered to be of particular relevance to a flood alleviation scheme in contributing to the environment and sustainability score. They relate directly to the scheme and not to possible additional benefits:

- Lifetime performance. This would reflect a measure of the on-going costs of operating and maintaining the scheme. Thus schemes with, for example, ‘moving parts’ such as manually operated flood gates and storage release valves would not receive so many third component points as ones which do not involve real time operational input.
- Resilience. A reflection of the ability of a scheme to perform during a more severe event than the design event. This is intended to encourage scheme promoters to consider such aspects as preferential first failure sites, floodwater depth, floodwater drainage, and risk to life. With the possibility of increasing exceedence of scheme design events, it is considered essential that the possible consequences of ‘failure’ are now addressed by promoters.
- Uncertainty. What potential does the scheme have to respond to future demands for increased standards of defence, or changed assessment of the design event?

32. Methods of assessment for each of the environmental and sustainability sub-components will require to be developed.

### **Additional Points Input**

33. It is suggested that in addition to the three prime score components just described a proportion of total points could be available to reflect those additional characteristics of a scheme that might alter its overall cost effectiveness. In doing so scheme promoters would be encouraged to consider aspects that do not currently form part of a 1961 Act scheme assessment procedure. The authors have had some considerable discussion on such possible characteristics. While not all aspects are agreed, it is considered advantageous to put aspects forward for further discussion rather than to eliminate them at this stage of the discussion.

- Regeneration potential. Current 1961 Act guidance does not allow local authorities to include the potential for a flood alleviation scheme to ‘unlock’ derelict or developable land in the B/C calculation as only benefit based on existing development or land use is included. Thus the development potential of at risk land is not taken account of. As it would be difficult to identify the value of any future development it is suggested that if a measure of development potential was to be included in the scoring system it should only be as a mark based on that potential, with no account being taken of any estimate of the monetary value of the benefit or the cost of protection in the main B/C ratio and score component.
- Non-Flood Related Benefits. Non-flooding benefits that might gain marks could include amenity, recreational and environmental enhancement features provided as an integral part of a scheme. Examples would be footpaths along defences, wetlands within floodwater storage areas, and recreational use of low return period storage land. As with regeneration potential, while marks could be gained for inclusion of such features they would not form part of the B/C ratio component, and indeed may not be eligible for funding as part of a 1961 Act scheme under current criteria.

### **Proposed Scoring System**

34. It is suggested (and at this time only a suggestion as there are varied views) that a scheme prioritisation scoring system be developed on the following basis:

- Economic aspects based on benefit/cost ratio – 40 to 45% of total points
- Social aspects based on vulnerability of homes – 20 to 25% of total points
- Environment and sustainability aspects – 20 to 25% of total points
- Other aspects, as agreed – 10 to 15% of total points

**The FIAC Alleviation Sub-Committee is invited to consider the foregoing proposals in principle.**

### **Deliverability**

35. As raised in 4.4 it is considered that it could be beneficial to both scheme promoters and the Executive to take account of deliverability when prioritising schemes for a share of available funding. However, it is considered that deliverability should not directly affect the score of a scheme but rather should be included as a separate rating.

36. It is proposed that schemes might be given a rating for deliverability based on consideration of the following:

- **Objections.** It is suggested that careful consideration be given to the potential for schemes being delayed due to objections made either through the 1961 Act procedures or to planning consent. The introduction of the WEWS Act requirements and the increasing role of SEPA in regulating works that affect watercourses will also need to be taken into account in assessing potential delays. While current guidance encourages full and early consultation, objections that either simply take time to resolve or more seriously lead to a public local inquiry can extend scheme timetables by months, and sometimes years. Thus every encouragement should be given to promoters through the prioritisation process to avoid and resolve objections.
- **Funding.** It is not unknown for local authorities to gain approval for a scheme and then delay implementation because of changed funding priorities within the authority. With the increasing scale and cost of schemes, a council's internal prioritisation of its 20% cost contribution may result in an approved scheme being deferred. Again with the increasing cost of schemes the allocation of significant funds to a delayed scheme could result in other schemes being held back, with the potential for legitimate political complaint.
- **Past History.** A less clear issue is whether the deliverability assessment should be influenced by the past history or performance of a scheme promoter. This could result in a local authority which had delayed implementation of an approved scheme, or which had been involved in a scheme whose costs significantly exceeded the approved costs, being marked down when a later scheme is being assessed. Local authorities with a good history of 'on time, on budget' deliverability could be marked up, but account would have to be taken of 'first time' promoters.

37. If FIAC is of the view that deliverability should be included in the prioritisation of future flood alleviation schemes it is suggested that schemes be scored on a simple A, B and C basis. Thus for objections an A rating would indicate no objections foreseen, a B rating would indicate objections, but ones likely to be resolved, and a C rating would indicate the likelihood of unresolved objections leading to a possible inquiry and/or appeal against refusal of planning consent. Similarly with funding, ratings would result from the degree of legal commitment by the promoting authority to expenditure.

38. The combination of a score or mark based on the arithmetic process outlined in Section 6 with a deliverability rating would result in proposed schemes being listed in numerical order by score with each also having a deliverability rating. Thus a scheme X rated as say 55A would be one with a score of 55% of possible points and near certainty of being delivered, while scheme Y rated as say 75C would be one which in terms of priority should go funded before X, but is very likely to be delayed.

39. If FIAC agrees that deliverability should affect scheme prioritisation it is suggested that some thought requires to be given as to how the measure of deliverability can be integrated in a fully accountable way into what will be a very objective scoring system.

The FIAC Alleviation Sub-Committee is invited to consider the desirability of including a deliverability rating in the prioritisation system.

## Proposed Implementation

40. While the remit of the authors is to put forward proposals for prioritising flood alleviation schemes relative to available funding, some thought has also been given as to how such a system might be implemented by the Scottish Executive. The following issues are thus raised not as recommendations but only to identify where further discussion may need to take place.

41. Scheme Register. All schemes being promoted under the 1961 Act and seeking funding from the Executive will need to be registered in some formal way and it is suggested that this should be done through inclusion on a publicly available Register of Schemes. The Register would list all schemes under consideration together with the priority score and if agreed the deliverability rating. Brief details of the scheme including the promoting authority, the scheme's location, purpose and features, and the indicative cost would be included. Thus local authorities and other interested parties can see what is being proposed and how each scheme is rated relative to others (hence the need for a transparent system of scoring!). A possible commencement date for the Register could be the financial year beginning in April 2007.

42. It will also be necessary to achieve transparency for details of the score make-up and calculation to be provided at both initial registration and at any subsequent updating. This might best be done by the development of a standard 'pro-forma' which can be audited by the Executive and any other interested parties.

43. Time of Registration. The time at which a scheme would be included on the Register needs careful consideration. Most schemes have a long gestation period from the time (usually after a damaging flood) when a local authority decides to initiate activity to the time when an order is confirmed by Scottish Ministers. In this period there are a wide range of engineering, environmental and economic studies, informal and formal consultations, and decision stages. To place a scheme on the Register at too early a stage will result in considerable uncertainty in the scoring calculation; leaving inclusion to a very late stage would not be helpful to the Executive and is likely to generate ill-feeling from other promoters who may find their schemes displaced downwards at the last moment.

44. The Second Schedule to the 1961 Act indicates that the public advertisement of a local authority's intention to promote a scheme is the formal starting point of a scheme, with the three month objection period then following. However, if no objections are received a scheme could be commenced very quickly thereafter. As this short timescale might allow little opportunity for prioritisation a much earlier stage would thus seem to be necessary for inclusion in the Register.

45. Schemes could be registered at any time in the financial year, but scores and deliverability would be annually, or possibly twice annually, updated for all registered schemes at the same time.

46. Like the scoring system, any agreed deliverability measure would be updated as a scheme progressed. There would of course be a temptation for promoters to 'A' rate for as long as possible. As the assessment of deliverability is likely to be more subjective than the score calculation it could be that the assessment should be carried out by the Executive (or by an independent group acting on behalf of the Executive) based on information provided by

the promoting authority. In any case, it will be necessary to reduce subjectivity to a minimum so that a challenge to a rating can be properly defended.

47. **Threshold Score.** With the DEFRA system a threshold score is set annually, usually in October, based on the known schemes and the allocation of resources. To be approved schemes must achieve a score greater than the threshold score. The purpose of the threshold score is not fully clear, and it may be that its use will not be necessary in Scotland so long as the current scheme guidance criteria relating to minimum design return period and B/C ratio still apply. Provided a scheme does meet the current criteria then it would be seen to be unreasonable to exclude it from the prioritisation process irrespective of its score.

48. **Funding Allocation.** Consideration will require to be given to the time in the scheme promotion process that a formal but conditional commitment to funding is given by the Executive to a promoting authority based on the scheme's score and deliverability rating, and in what financial year funding will be available.

### **Way Forward**

49. Should FIAC endorse the proposals for a priority scoring system as outlined, it will be necessary to undertake further development of the system, and in particular to develop numerical values for the different components of the score. It is suggested that this be assisted by the application of different scoring models to existing schemes as approved by Scottish Ministers, and possibly by trial application to schemes which are currently in the approval process.

### **Summary and Recommendations**

50. It is likely that the number and scale of flood alleviation schemes being promoted by Scottish local authorities under the Flood Prevention (Scotland) Act 1961 may result in a demand for funding from the Scottish Executive greater than the funds allocated to this area of government. Should this occur it will be necessary to prioritise schemes.

51. It is considered essential that any system of prioritisation to be used in Scotland recognises the importance of transparency and be sufficiently objective as to be defensible against challenge by interested parties. It should also be straightforward to use and to audit.

52. Given existing legislation and guidance it is considered essential that any prioritisation mechanism recognise that existing legislation and guidance, although it is likely that the opportunity will exist to influence the nature of schemes through the prioritisation methodology.

53. It is recommended that a system be developed based on a points score, with points being allocated to four components in the following suggested weightings.

- Economic aspects based on benefit/cost ratio – 40 to 45% of total points
- Social aspects based on vulnerability of homes – 20 to 25% of total points
- Environmental and sustainability aspects – 20 to 25% of total points
- Other aspects, as agreed – 10 to 15% of total points

NB the weightings at this time are only suggestions

54. It is suggested that in addition to the points score a scheme be rated by its deliverability.

55. Should the Alleviation Sub-Committee and FIAC agree in principle with the proposals put forward it is recommended that more detailed work be undertaken on the scoring system, including trialling proposed scoring systems against schemes already constructed or under consideration.

56. It is recommended that in parallel to detailed development of the scoring system that consideration be given as to how the system might be implemented by the Executive.

**Charles Ainger, Ronnie Falconer, John Riddell**  
**6<sup>th</sup> January 2006**

## Summary of DEFRA Scoring System

57. The current DEFRA scoring system provides for a maximum of 44 points to be gained by a proposed flood alleviation scheme. Of this total up to 20 points are available for the benefit/cost ratio or economics of the scheme, up to 12 points for the people or social score, and up to of 12 points for the environment score. Points are gained as follows.

58. Economics. This score is based on the benefit/cost ratio with only those benefits and costs that can be assigned a monetary value being included. The potential 20 points are allocated on a linear scale with a B/C ratio less than 1 scoring 0 and a B/C ratio of 10.5 or more scoring 20 points.

59. People or Social. This score recognises that not all of the consequences of flooding are reflected in the economic assessment. For ease of calculation the focus is on those non-economic aspects at people's homes. Because of the difficulty of determining the number of people, the prime component, known as the base people score, is taken as the number of residential properties benefiting from the proposed scheme per £1,000 of scheme cost. A maximum of 8 points are available and to ensure that the full range of values is likely to be used the score is calculated as  $75 \times \text{number of residential properties} / \text{cost in } \pounds 1,000\text{s}$ . The 75 represents a percentage adjustment to reflect occupancy. In counting homes only those likely to be at direct risk are included, i.e. upper level flats are not counted. While caravans with permanent residents are included, holiday homes are not.

60. The base people score is adjusted for the severity of the flood risk. Thus 2 points are available when protection is being provided to what is termed a very high risk area, 1 point to a high risk area, and no adjustment for remaining areas. A very high risk area would be one where the force and depth of the floodwater and the suddenness of the flooding are likely to pose a risk to life, while a high risk area is one where flooding would have a practical warning time of less than two hours.

61. The base people score is further adjusted by up to 2 points to reflect the degree of vulnerability of the population within the area to be protected. This is measured by an index known as the 'scale of economic deprivation' which is available in England for every local authority ward. The scaling gives 2 points to the most deprived wards and 1 point to those slightly less deprived but still very vulnerable. In the same way 2 points and 1 point are taken off the base people score for the least deprived wards. The deprivation index of the majority of wards would result in no adjustment.

62. Environment. The environment score is included to afford greater priority to projects expected to provide additional benefits to the natural environment. There are two components, these relating to the natural environment and to heritage and scheduled monument sites. For the natural environment a total of 12 points is available depending upon the area of the land protected and its designation, and on any habitat gain achieved in terms of the National Biodiversity Action Plan. A score of 0 points is awarded if the scheme results in a net loss of habitat.

63. Where the scheme will result in the protection of a Grade I or Grade II heritage site or listed monument 2 additional points are available, with 1 point for a Grade III.

64. Although a potential of 14 points is available for the environment component the total is capped at 12 points.

65. Total. Points from the three components are totalled and rounded off to one decimal place. Very few projects are expected to score highly in all three components and the effective range of scores will be significantly less than the theoretical maximum.