

FLOODING ISSUES ADVISORY COMMITTEE

FUTURE FLOOD WARNING DISSEMINATION: SEPA'S ROLE

Purpose

1. This paper is to provide the Awareness and Assistance Sub-Committee of the Flooding Issues Advisory Committee (FIAC) with background information on the flood warning dissemination and to present a vision of dissemination in Scotland.

Background

2. The social and economic costs of flooding in Scotland are substantial. Estimates include losses of £100m and £30M arising from the Strathclyde flood of 1994 and the Tay/Earn flood of 1993 respectively (Werrity et al., 2002). More recently, it was estimated that losses of between £7.2M and £31M arose from the floods of August 2004 (JBA Consultancy, 2005). It has been estimated that the average annual financial damage attributable to inland flooding is £20M (Werrity et al., 2002).

3. It is well established that flood warning can lead to considerable reductions in the cost of flooding and, more importantly, reduce the risk of fatalities (Penning-Rowsell *et al.* 1978; Emergency Management Australia, 1995; Bye, 1998). A recent study commissioned by SEPA for the River Clyde (Babtie Group, 2003) indicates that the damage to stock at individual properties can be reduced by about 30% if warnings are received 3 hours in advance of a flood. These losses are significantly reduced if the lead time can be increased to 6 hours or more.

4. Flood warning dissemination is essential for the success of any flood warning system (Emergency Management Australia, 1995; Bye and Horner, 1998). There is little value in investing in the technology of flood warning if those at risk do not receive warnings with sufficient time to act and those responsible for providing assistance during a flood are not given sufficient time to mobilise.

6. Warning dissemination can be active or passive. Active dissemination is the transmission of a warning directly to an individual or point of contact. Passive dissemination relies on an individual to actively ascertain the warning status. Floodline is an example of a passive system whereby warnings are placed on phone and intranet systems that can be accessed by the public.

7. In Scotland, SEPA has a discretionary power to maintain flood warning systems. Warnings have been actively disseminated through local agreements with the Police and passively through Floodline which went live in November 2001. The Bye Report (Bye and Horner, 1998) highlighted potential shortcomings of this approach in England and Wales and as a result the Environment Agency implemented an automated system and was directed to lead a procedural review of emergency planning arrangements to bring about better concerted response from all organisations.

10. Following the Easter 1998 flooding in England and Wales, the Environment Agency commissioned an independent assessment of performance during that event (Bye and Horner, 1998). This report, which is generally known as the "Bye Report" was submitted to the

Agency's Board in September 1998. A number of key principles for an effective and consistent flood warning dissemination system emerge from this report:

- 1) Those at risk from flooding must be identified
- 2) The lead time of warnings must be sufficient for an effective response
- 3) Warnings must be reliable
- 4) Expectations of the system must be realistic
- 5) Recipients of warnings must be prepared and understand what actions they should take
- 6) Warnings must be disseminated using a range of media that are consistent with recipients' preferences
- 7) Appropriate support must be provided to allow those receiving warnings to seek assistance during a flood event
- 8) Flood warning and emergency response activities must be by senior staff competent in flood warning and crisis management.

11. Where more than one organisation is responsible for the delivery of flood warnings and the provision of assistance there are 6 further principles:

- 9) Responsibilities must be clearly agreed and understood by all including the public
- 10) There needs to be clarity in command and control during the emergency response to flooding
- 11) Communications between all organisations must be reliable and effective
- 12) The public must see a seamless service
- 13) Mechanisms must be established for rapid decision making during a flood emergency
- 14) A controlled and coordinated approach must be taken to communicating with the public during flood emergencies.

SEPA believe that these principles should guide the development of a national framework in Scotland.

Vision

12. The vision for flood warning dissemination in Scotland needs to reflect the expectation of the Scottish Executive, key partners and SEPA and must be established through liaison. Any underlying assumptions must be tested and agreed before the vision can be finalised.

13. At this stage it is only possible to propose a draft vision based on preliminary discussions and the approach adopted by the Environment Agency in England and Wales:

“An automated system for the transfer of a flood warning message to those at risk, in a manner which is both timely and likely to gain the appropriate response.”

14. The vision comprises of four elements:

- i) An automated messaging system to disseminate flood warnings
- ii) A public awareness campaign to prepare the public, encourage those at risk to register with the service and provide a Customer Service.

- iii) A framework for partners and stakeholders to effectively plan, communicate and make decisions before, during and after a flood emergency.
- iv) The application of the system to areas at risk of fluvial and coastal flooding

Automated Messaging System

15. A system that will enable effective and consistent flood warning dissemination, be integrated with Floodline and use the existing flood warning codes. These codes currently include a statement on what actions are appropriate when issued. Active and targeted dissemination would give SEPA the opportunity to adapt these messages to specific local circumstances and to the target audience. Further information on current codes is available from Floodline (<http://sepa.org.uk/flooding/>).

16. The automated messaging system will:

- Deliver flood warning messages to all registered customers
- Require customers to acknowledge receipt of a message
- Allow new customers to opt in and register to receive flood warnings for any area served by a scheme
- Allow partners and (if appropriate) stakeholders to log onto the system and assess the status of flood warnings
- Allow messages to be targeted at groups of customers as defined by a flood emergency

17. In addition the automated messaging system will:

- Be integrated with the Floodline Service
- Deliver a consistent level of service to all registered customers
- Be compatible with the service operated in England and Wales

Public Awareness Campaign

18. The key elements of the public awareness campaign will be to:

- Ensure expectations of flood warnings are realistic
- Raise awareness of the service
- Encourage those at risk in areas served by the service to register
- Improve understanding of the roles and responsibilities of organisations
- Provide information on how to prepare for flooding
- Provide information on what actions should be taken upon receipt of a warning
- Provide information on how to access assistance during a flood

19. In addition, it is important that the experiences of those affected by flooding are captured in order to monitor the service performance and to develop the service to meet the changing needs of customers.

A Framework for Communication between Partners

20. The framework for emergency planning and response is well established in Scotland based upon a national co-ordinating committee and the 8 Police force areas. Flood emergencies are currently managed through this framework and it is not anticipated that the implementation of a national flood warning dissemination system would require separate arrangements to be established.

21. With the introduction of national flood warning dissemination it becomes essential that SEPA integrates its activities with those of other agencies to ensure a seamless approach to emergency planning and response.

Application to areas at risk of flooding

22. SEPA currently only issues “flood warnings” for areas served by a flood warning scheme. In some schemes warnings are issued for streets or localities while in others warnings are specifically targeted at properties. Areas outside of a scheme will receive a regional early alert of flooding termed “flood watch”.

23. In addition to the 42 existing schemes SEPA has received requests from Local Authorities for 4 additional schemes (Aberdeenshire, Angus, North Ayrshire and Stirlingshire). Recent flooding has also alerted SEPA to the potential benefit of coastal flood warning.

24. Ultimately the success of the system will depend on those at risk registering with the system. Public awareness and customer support are both essential to ensure a high rate of registration and that customer details are accurate.

25. Experience in England and Wales suggests that the resource required to maintain customer records is substantial and that while web-registration can help there is still a need to provide assistance to groups such as vulnerable people, ethnic minorities and those without web access. Public awareness campaigns targeted at areas of high flood risk with recent experience of flooding tend to yield a better response than a blanket approach.

Conclusions

26. Members are invited to consider and agree:

- The principles underlying an effective flood warning dissemination system
- SEPA’s vision for flood warning dissemination in Scotland

References

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FIAC Secretariat
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