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A Water Vision for Johnstone

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ABSTRACT

The Water Vision is based on ideas from The Netherlands which promote communication with the public on key water related issues in a local authority area. A Water Vision for Johnstone was developed in Renfrewshire, Scotland where serious flooding has occurred in the past and new, predominantly non-structural approaches to surface water management were demanded. The paper outlines the development of a 'Water Vision for Johnstone' which became a key outcome of the Interreg III B project 'Urban Water'.

The Water Toets (Assessments) are statutory procedures in the Netherlands which come into play from the concept stage of developments onwards to full implementation. They are undertaken jointly on behalf of the spatial planning authority and the water authorities to evaluate the impact of development on the water network. In contrast, the Water Vision is a less well-defined process to identify community needs and aspirations but in many areas the vision is essential to support the Water Toets. The Water Vision is initiated by planning officers from the municipalities asking very basic questions of their communities about what they required of the water network. It was felt that adopting such a proactive approach where virtually any question about water bodies and drainage infrastructure could be asked, would not be practicable in the UK and it was decided to assemble information about water issues in the area, the agencies involved and potential ways forward, before approaching the public.

Johnstone was selected as a test area as it was felt that this locality included many of the water related problems that can be found throughout Renfrewshire. Key water issues were identified and a range of possible solutions provided. Problems, solutions and organisations responsible for different aspects of the water network are described in the document, using images and plans to facilitate the public awareness. Normally the man in the street would not be expected to be as familiar with the nature of water-related problems as the general public in the Netherlands. The Water Vision is yet to go to public consultation as it is currently primarily a planning tool in which council processes are embedded. However, it is planned that workshops including all key stakeholders involved in water management will be held. Those bodies currently responsible for water management will then be encouraged to discuss the various options and opportunities available in a creative and integrated manner. By working together as a team in addressing water related issues it will be possible to develop a vision for the future that better assists the public in moving forward together.

KEYWORDS
Water Vision, Flood Planning, Sustainable Water Management, Partnership Approach

INTRODUCTION
The Water Vision for Johnstone provides a focus for all who might be interested in the water in their local area, whether that interest is professional or casual. The Vision endeavours to strike an appropriate balance between protecting the water environment and allowing people to use that environment. It also assists in permitting development and encouraging regeneration of the water network and regeneration of the economic prospects of the area through the planning process. It addresses vulnerability and exposure to potential hazards from flood waters. It outlines various strategies, for example, for introducing biodiversity plans or expanding green corridors and watercourses in urban areas where both water quality and flooding are problems. The latter is one of the most pressing concerns locally, and the Water Vision has been drawn up to address flood concerns in particular.

Figure 1 Front cover of Water Vision for Johnstone attempts to link residents with their environment

Traditionally, drainage and flooding problems have been dealt with as isolated issues by the organisation responsible for the management of the particular water aspect such as watercourses, road drainage or sewers. This means that providing a remedy for a particular problem such as the flooding of streets caused by an urban stream bursting its

banks or sewers flooding after very heavy rainfall is usually solved by the organisation working on its own. Historically this has resulted in expensive solutions for one area that often create different water problems to a neighbouring community. The need for a Water Vision arose from the realisation that a partnership approach between organisations and local communities is required to provide more sustainable and cost effective solutions that improve quality of life and offer additional benefits for the whole community.

TRANSFERRING A DUTCH INSTRUMENT TO SCOTLAND

The development of a 'Water Vision for Johnstone' was a key outcome of the Intereg IIIb project URBANWATER and is evidence of the success of the interchange of ideas in trans-national projects. This document is based on ideas of public outreach from The Netherlands which have not been previously explored in the United Kingdom. Discussions between delegates from Renfrewshire and Nieuwegein in Holland at a conference in spring 2005 brought about the realisation that the Water Vision could have a role in communicating with the public on key water related issues in an area such as Renfrewshire where serious flooding regularly occurs.

When it was realised that a Water Vision document was an appropriate communication tool which could also be used in the UK, the process for both translating and adapting the document to local conditions was initiated. An electronic version of 'Watervisie Nieuwegein' (Tauw 2004) was translated using commercially available translation software from Dutch to English. The resultant translation still left the task of 'picking up' many words and thoughts which could not be translated due to the technical terminology relating to water used throughout 'Watervisie Nieuwegein'. A long period of reviewing and expanding this poorly translated document followed. This was a tedious task but it had the advantage that the research officer carrying out the work could be clear on the end product being sought for a Renfrewshire document since many issues in the UK are very different from those experienced in the Netherlands. The research officer was familiar with water related issues in the area which range from flooding, to water treatment requirements and watercourse degradation. This approach to completing the translation was considered better value than spending the same amount of money on a translator who would not input any technical meaning to the document.

Informed trans-national collaboration

Following the production of a basic document in English, the purpose for a Water Vision document in the UK became clearer since it could communicate the problems and deficiencies in an area to the planners who are tasked with coordinating land use changes.

Important differences in legislation between the UK and The Netherlands have led to different approaches. The Water Toets (Assessments) are statutory procedures in the Netherlands which come into play from the concept stage of developments onwards to full implementation (RIZA 2008). They are undertaken jointly on behalf of the spatial planning authority and the water authorities to evaluate the impact of development on the water network. Each assessment is a well defined four stage process with a series of checks and balances to ensue stakeholder agreement at all stages. A comprehensive

outline of Water and Environment in Decision Making has been given by van Dijk (2008).

Water Visions developed in the Netherlands were mainly initiated by planners and water managers asking very basic questions of their communities about what they required of the water network. It was felt that a similar approach would not be practicable in the UK where local consultations tend not to start with such fundamental questions. Consequently, it was decided to assemble information to emphasise weaknesses and show the strengths of water in the area, the agencies responsible, and include a large number of images that communicate problems and a range of potential solutions, before approaching the public.

Once a basic document, based on the Dutch example, was prepared for Johnstone, the first draft was circulated in hard copy format to delegates attending the URBANWATER Working Conference in Paisley in spring 2006. Feedback was received from several partners from the Netherlands and Germany. In Scotland the document was reviewed by the Scottish Environmental Protection Agency (SEPA) and Scottish Water who provided constructive feedback regarding their 'future visions' for an integrated approach to water management. A workshop was held for planning officers from Renfrewshire Council to review the first draft. This confirmed that a document of this type is needed to assist in integrating not just water concerns and realistic solutions, but also social, environmental and economic issues for all stakeholders at an easily accessible but also detailed level.

Why a Water Vision?

A series of very serious flood events in Renfrewshire led to the realisation that a large amount of damage and human stress had resulted from uncoordinated planning in the past. Analysis showed that, for an extreme event, 50 properties would be flooded from local rivers, whereas around 1000 were at risk from local runoff from small streams or surface water drains. The numbers of properties at risk in the urban areas depends on the return period, the storm duration, and the depth of water adjacent to the property. As a unitary authority, Renfrewshire would have to develop a corporate strategy, encapsulating the understanding of the issues as developed within the planning authority, and flood prevention function, which could be used corporately in the long term to rectify the problem. There was little real understanding of the issues, and even less knowledge of how the development processes could be used in the long term to rectify the problem.

THE WATER VISION: AN INSTRUMENT OF IMPLEMENTING THE WATER DIRECTIVES

In Scotland, implementation of the Water Framework (WFD) and Floods Directive is being taken forward by SEPA in conjunction with the Scottish Government. SEPA has issued a range of consultation and guidance documents together with regulatory tools to encourage the move towards reaching the aims of the Directive. Scottish Water have also published new guidance with technical standards (SW 2007) that aim to encourage sustainable drainage solutions for developments through a partnership approach

From examples such as the Water Visions in Holland, Water Sensitive Urban Design Programmes in Australia, Stormwater Control Initiatives in Sweden (Villarreal et al, 2004), it is becoming increasingly apparent that engagement with the public through the planning system is crucial to the success of any sustainable Urban Water Management strategy. Raising awareness of problems associated with local watercourses, and the range of solutions available to overcome these problems will result in greater local community involvement and acceptance of innovative and creative water management techniques. Full acceptance and adoption of proposed schemes is likely by a local community which, together with public and private co-participants, has had full engagement in deciding a solution.

The Johnstone Pilot Area

A Water Vision for Johnstone is the pilot vision for a local community in Renfrewshire. The thrust of the Vision, together with other tools, is to focus on measures for relief from flood hazard. A sustainable flood management plan would also take into account pollution matters as well.

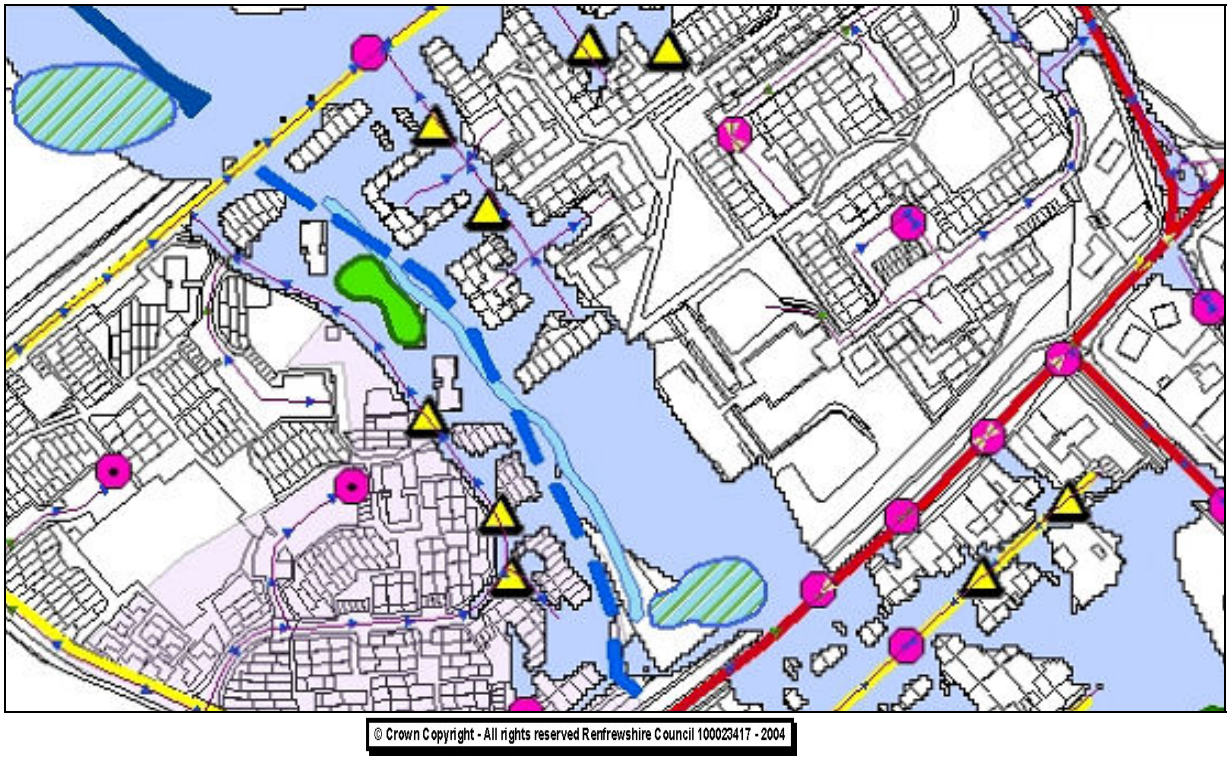

Figure 2 Extreme flood scenarios can be presented easily using GIS imagery

The primary goal of the Water Vision is to improve Johnstone's watercourses by putting together a co-ordinated vision that can be put into practice. Renfrewshire Council flood engineers and planners chose the area of Johnstone as a test area to simplify the process and to develop a range of procedural tools. This vision begins with raising awareness of the current issues which combine to cause downgrading of the watercourses in and around Johnstone. Figure 2 is an example of how the results of powerful modelling tools for future scenarios can be readily communicated.

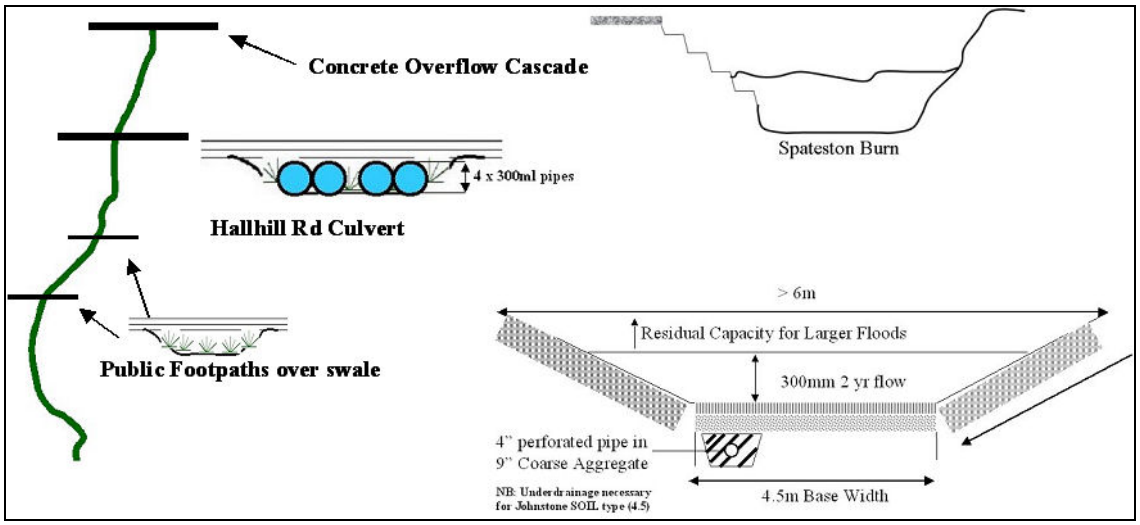

Figure 3 Potential solutions are given in sufficient detail to permit understanding

It was felt that Johnstone included many of the water related problems that can be found throughout the area. Key water issues were identified and a range of solutions for each was proposed. Problems, solutions and organisations responsible for the water network are described in the document using images and plans such as Figure 3. Their purpose is to aid the learning process of the public and other key stakeholder such as developers who are less familiar with the nature of water related problems. Whilst flooding is a major concern, the responsible bodies must comply with current environmental legislation (Scottish Government 2003, SEPA 2005). These take watercourse degradation due to surface water runoff and associated diffuse pollution into consideration. The Water Vision endeavours to clearly link these two issues together under the role of sustainable urban water management.

A typical message in the Water Vision is that…'the quality of any water body is determined not just by what happens within its banks but also by what happens on the land around it'. Other typical messages include issues such as spills of polluting material – e.g. oil, with an explanation given that although the incident may occur quite remotely from a watercourse, it may well find its way there with devastating environmental consequences, or how the construction of a housing development on a flood plain may increase flooding problems for areas downstream.

Coherent Strategic Responses for Planners

To date, Renfrewshire Council have created a draft document for Johnstone that mainly focuses on issues surrounding the Spateston Burn catchment within Johnstone. This has enabled the instigation of a partnership approach to water problems between key organisations in Johnstone that will help make a blueprint or prototype for using the same methodology in other areas. The planners have assumed ownership of the development of strategic responses but as matters develop, a more corporate approach will be required. Workshops were held with various departments within the Council involving staff who had not only direct water management responsibilities such as the planning department, and flood engineers but also including the local biodiversity team. Consultations have

also taken place with key external organisations such as SEPA and Scottish Water – organisations which were not necessarily aware that problems existed.

The Water Vision is now one of three documents for development plans which effectively form a sustainable flood management plan (SFM) core;

- The Water Vision for the relevant catchment,
- The flood hazard reduction zoning maps,
- The Drainage Assessment Guidelines (Renfrewshire Council 2006),

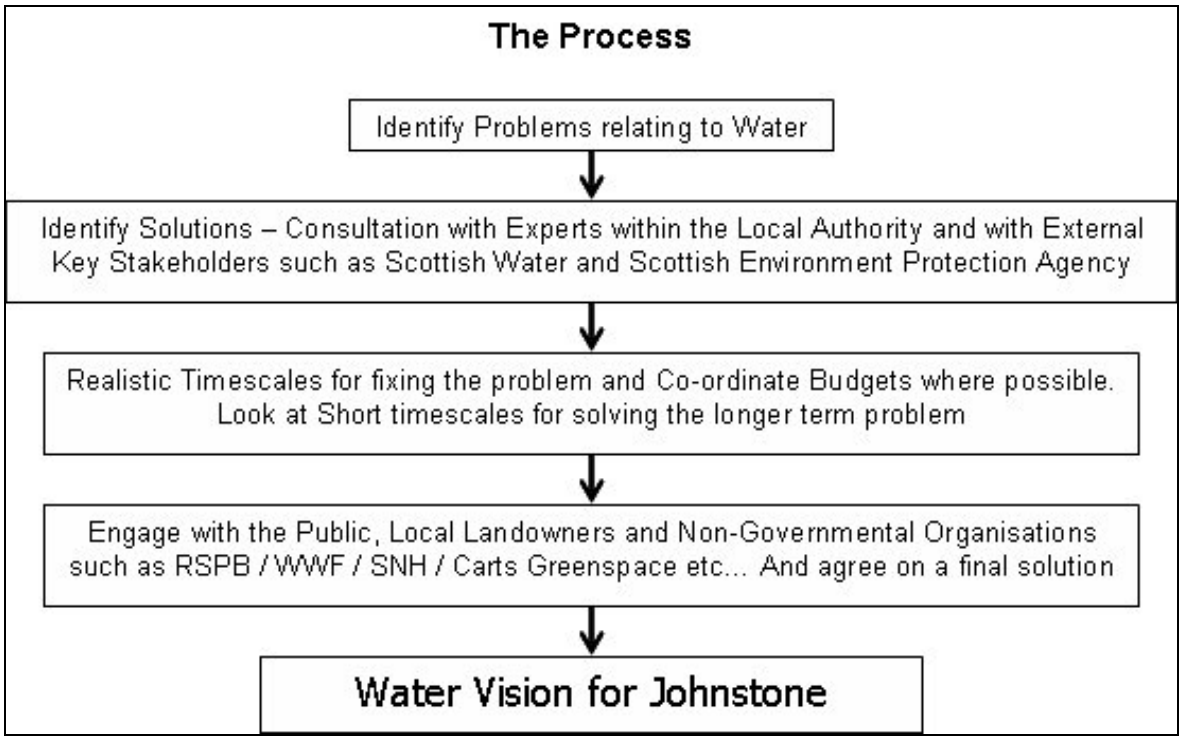

Figure 4 The Water Visioning Process

Figure 4 illustrates the Water Visioning Process which will require to be continually revisited and updated. There are cross-references to other documents and tools throughout the document. External documents include SEPA (2006[1]), SEPA (2006[2]), SW (2006), while the Drainage Assessment (Renfrewshire Council 2006) is a critical internal document since it sets out key design criteria and must be followed by developers. Agreements have not yet been formally reached by SEPA or Scottish Water. SEPA personnel who have reviewed the document agree that the philosophy is the best way forward.

The Water Vision provides a strategic overview for how the catchment flood hazard, pollution and environmental improvement can be addressed within any particular sub-catchment. It draws together the potential remedial water management actions of responsible bodies whether public or otherwise, and bring the public into the arena where there will be substantive amendments to the built environment.

The Water Vision also integrates technical issues and policy for future watercourse and sewerage improvements in the various sub-catchments across departments within Renfrewshire Council. The Drainage Assessment guidelines will require further integration into normal practice within the Council. The flood hazard reduction zoning maps will require to be overlaid onto existing programmes of capital receipts, proposed regeneration programmes and civil contingency plans in order to facilitate the drainage assessment process.

NEXT STEPS

One of the next steps in the visioning process is to hold workshops which include all key stakeholders who are involved in water management. The proposed improvements and their realism in dealing with water problems in the specific areas will be examined in detail at these workshops. Those responsible for water management decisions will then be in a position to discuss the problem, and examine the various improvement options and opportunities available as a partnership. This will enable the development of a vision for future sustainable drainage that better assists the public than at present.

Three main areas of improvement will be examined. The first will be to address the core issue, be it flooding from a river or from the sewer network. Once the core issue has been addressed, two further areas for examination, firstly the potential to improve or enhance the water quality in the river. This will be followed by a local community perspective whereby a more acceptable locality may be created that provides more attractive green spaces and riverside areas that can be used by children and adults alike for recreational purposes such as picnicking, dog-walking or cycling.

Available funding must also be identified since most local authorities have very little disposable funds. Some of the responsible organisations may have budgets for improvements to the water network, e.g. road drainage, river improvements or sewers. The possible solutions proposed will nearly always involve collaboration between the responsible organisations. In some cases the responsible owner of the water network may be a farmer or other large land owner. All concerned parties will be required to develop realistic and affordable solutions. For organisations such as Scottish Water this will allow financial planning for joint venture schemes such as those being proposed by Renfrewshire Council. Small water projects or ‘Water Plans’ can then be prepared that target water problems throughout Johnstone and timescales can be allocated.

In contrast to the Netherlands, the final step is to consult with the public. Communication with the public is a vital step to providing solutions that benefit all who live and work in the area. Once the public has provided feedback regarding the solutions available for achieving sustainable water management in their area, targets may be set with realistic timescales for rolling out solutions.

CONCLUSIONS

The paper has shown the development of a 'Water Vision' process for an urban development in Scotland which may be applied to any urban development in the UK. The water vision focuses on dealing with the problem and providing solutions, rather than simply identification of risks since it provides a positive vision of the future. Its primary role is to illustrate how the promotion of a partnership approach to water management extending beyond current practice may create captivating locations that are ecologically enhanced and benefit the local community.

The Water Vision endeavours to improve the transparency of and public engagement in decision making processes by providing information at a level that is understood by all stakeholders and not just specialists. The Water Vision is a live and evolving document and will eventually become integrated in the planning procedures of the Council. Evolution of the Vision is inevitable as the needs of planning officers in making decisions surrounding flooding, drainage and water quality matters become better understood.

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