



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

DEFINITION AND CHARACTERISATION OF GROUNDWATER BODIES

Dave Allen

Maclean Building
Crowmarsh Gifford
Wallingford, OX10 8BB
Tel 01491 838800

www.bgs.ac.uk

PROJECT OBJECTIVES

To develop procedures for the definition and characterisation of groundwater bodies on a case by case basis in order to help to achieve the objectives of the EU Water Framework Directive

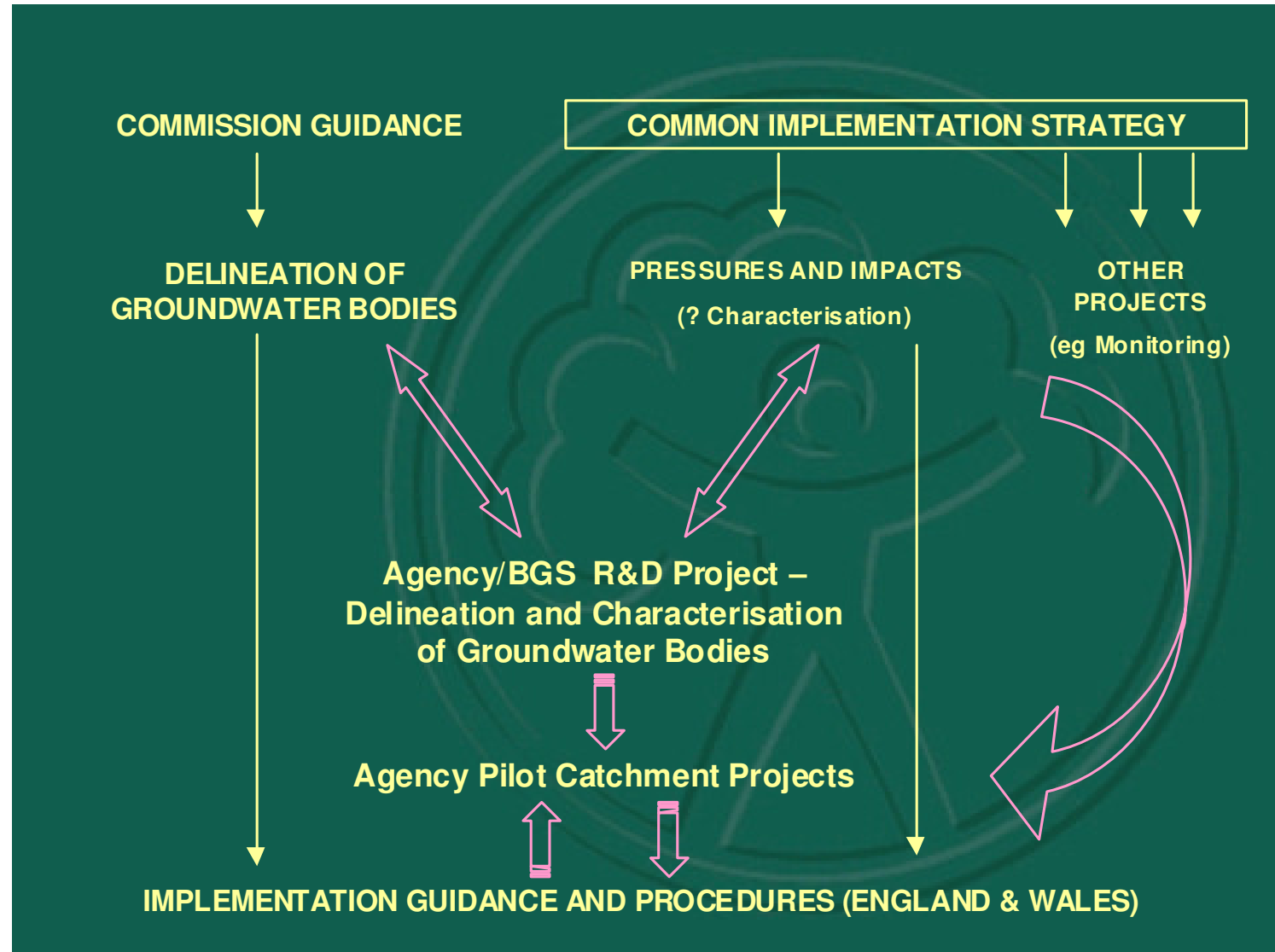


General

- Joint Environment Agency/BGS project
- Agency - Need to develop procedures for definition and characterisation
- BGS - Part of National Groundwater Survey remit
- Present Project is Phase I - Procedure development
- Work is in progress - draft outline methodology under development and may change



Relationship to other WFD work



DELINEATION - GENERAL

- Aquifers provide structures within which groundwater bodies exist.
- Aquifers are defined on basis of flow or abstraction - ('WFD aquifers')
- GW bodies are principal reporting units i.e. management units (size, pressures, status issues)
- GW bodies linked to surface systems
- GW bodies should be hydraulically coherent entities (flowlines should not cross)



WHAT IS CHARACTERISATION

- Initial and further characterisation.
- Initial - for all groundwater bodies.
To assess use of GW body and degree to which it is at risk of failing to meet Article 4 objectives.
- Further - for 'at risk' bodies and groups of bodies. To establish more precise assessment of significance of risk and identify Article 11 measures (Programme of measures within RBMP)



METHODOLOGY - GENERAL

- Iterative
- Precautionary - decisions should result in increased knowledge
- Data - use existing data only (until 2004)
- Close links with surface water body characterisation
- Assessors need appropriate expertise



AT RISK ASSESSMENT AND GW BODY STATUS

- Assessment required of degree to which gw body is at risk of failing to meet Article 4 objectives - Vital component of initial characterisation
- Fundamental requirement of Article 4 objectives - good gw status by 2015 (quantitative and chemical)
- How to assess likelihood of status failing to be good by 2015?



RISK OF FAILURE TO ACHIEVE GOOD STATUS - APPROACH

- Assess groundwater body status now
- Assess likely effects of pressures (pressures data required by initial characterisation)
- Decide whether pressures may change status by 2015
- Are pressures sufficient? - concept of 'potential impact'



POTENTIAL IMPACTS - POLLUTION

- 1) Pollutants - Annex VIII Indicative List
- 2) Anthropogenic activities likely to cause pollution
- 3) Pollution Pressure (problem!)
- 4) Vulnerability
- 5) Potential impact of pollution pressure
- 6) Monitoring data - validation



POTENTIAL IMPACT OF PRESSURES

	Low Vulnerability	High Vulnerability
Low Pressures	Low Potential Impact	Low Potential Impact
High Pressures	Low Potential Impact (check vulnerability)	High Potential Impact



'AT RISK'

	Low Potential Impact	High Potential Impact
Good Status	Not at risk (unless trends significant)	At Risk
Poor Status	At Risk	At Risk
No Status Data	At Risk	At Risk

