New beginnings — a geological survey in transition

From: Allen, P M. 2003. A geological survey in transition. British Geological Survey Occasional Publication No. 1. Keyworth:British Geological Survey.

Chapter 11 New beginnings

The appointment of the first BGS Programme Board in 1989 heralded a new beginning for the Survey. Its arrival coincided with the start of a period of financial stability, to which the Programme Board contributed by steering through, successfully, the bid for the second PES award (see Chapter 6), to start in April 1990. Perhaps more important than this, the Programme Board brought to the BGS the discipline of short and long-term planning within sensible budgetary limits for its Science-Budget-funded work and a relatively stable Core Programme.

The Programme Board, which came together for the first time in February 1989 met five more times that year. Although it had the responsibility for approving the Core Programme for 1989/90, year one of their programme was to be 1990/91. By then the outcomes of the Charging Review and the second PES bid would be known. The programme that they approved for 1989/90, therefore, was an interim one, which nonetheless did embody most of the essential ingredients of the programme that was to follow. The Programme Board decided to carry out some of its operations through working groups and quickly set up two: one for Strategy, the other for Output and Performance. The latter was concerned primarily with defining the Core Programme. By July, the Board had decided that this working group would better function through three task forces, which had complementary aims. These were the Core Programme, New Methods and Performance Measures task forces, all of which began to operate during 1989 with the aim of completing their tasks before the start of the 1990/91 financial year.

The Board Chairman was Mr Gwilym Roberts, a civil engineer, who was joint Chairman of the ACER Group and a member of NERC Council. The BGS Director and the Director of Earth Sciences were standing members. There were eight representatives from the geoscience community, selected so that they provided expertise and knowledge of as much of the BGS customer base as possible. Each stood in his or her own right. They were appointed for two years, initially, in order to begin an annual replacement programme of members in the third year. On the first Board were Dr Michael Ridd, a consultant in the oil industry; Dr Larry Thomas, ex-BGS and then a consultant specialising in coal; Dr William Barratt, Geological Manager for Tarmac Roadstone Ltd; Professor Michael Hamlin of the University of Dundee, a specialist in water engineering; Dr Robert Chaplow of Sir Alexander Gibb and Partners; Mr Ian Thomas, Director of the National Stone Centre; Professor Howel Francis, of the Department of Earth Sciences, University of Leeds and a former Assistant Director of BGS; and Mr Maurice Cahalan, previously of RTZ. In addition, assessors were provided by the Department of Education and Science, the Department of Trade and Industry, the Department of Energy, the Department of the Environment, the Ministry of Defence and the Department of Economic Development (Northern Ireland). The secretariat consisted of Dennis Hackett, who was the BGS Secretary, Edmund Nickless, from NERC HQ and Andy Howard, a BGS member of staff who it was planned should take over from Edmund Nickless eventually.

The terms of reference of the Programme Board made it advisory to Council. It was tasked to

oversee the Core and Research programmes only and had no right of access to information about any commissioned research other than the core commissions. However, it was expected to monitor the balance of core, commissioned and research work within BGS and advise Council accordingly. This was never easy for it to do and, in fact, it was never properly done. The key element of the terms of reference was the requirement to report to Council on the performance against defined objectives and targets within the Core Programme. This was how Council achieved the objective it set itself after the 1982–84 Visiting Group to establish a mechanism for monitoring the way the BGS spent its Science Budget.

The Programme Board approached its task methodically. It agreed revised terms of reference for the BGS and set aims and objectives for the Core Programme before turning its attention to its content. The terms of reference that then existed were the ones that had been presented to and established by Council in July 1985. Later, they were to be modified again following implementation of the recommendations embedded in the White Paper *Realising our Potential* (Cmnd 2250) published in 1993.

It was agreed by the Programme Board that the biggest slice of the budget for the Core Programme should be divided between the Onshore Surveys and the National Geosciences Information Service (NGIS), to reflect the priorities both in the Butler report and of the 1982–84 Visiting Group. The National Geosciences Information Service was the new name for a programme that included the National Geosciences Data Centre. Originally, it had been called the National Geoscience Information System, a name that carried with it the vision of the early 1980s for a BGS-wide database as a component of a computer-based information system. This name, however, was changed for political purposes to the National Geosciences Information Service and the vision was lost.

In addition to the Core and Responsive programmes there was also to be a separate R&D Programme, which was a derivative of the Science Programme that Butler recommended should carry out basic, underpinning research to support the whole of the BGS Core and Responsive programmes. For management purposes it was joined with the Training Programme.

When, first the Output and Performance Working Group and, later, the Core Programme Task Force began their work there already was a Core Programme in existence. Although the programme had formally existed for only one year and the term Core Programme had gained its current use via the 1985 Strategic Plan and the Butler report, it had been in common use among the Directorate for about a decade. In meeting papers from 1979 onwards, there is frequent mention of a Core Programme, used synonymously with the Science-Budget-funded Programme. At best, this was a loose federation of scientific activity, which was under constant threat from other pressures, such as staffing demands for the Commissioned Research Programme. It was never a managed entity. In early 1982, concern for the integrity of this programme reached a peak and Eric Brown, the BGS Secretary, was asked to explore mechanisms for protecting the Science Budget Programme from fluctuations in commissioned research activity. He came to the conclusion that two thirds of the Science Budget programme could be protected. It would be necessary to designate the other third as a ‘buffer’, which would absorb cuts in the CR programme, if required, or provide staff for it in periods of high CR demand. His proposal was for the ADs to designate their Science Budget projects as either ‘core’ or ‘buffer’ and submit to the Director a scientific justification with staffing requirements and costs for the ‘core’ projects. The Director would then combine them into a formally protected Science-Budget-funded, Core Programme, which would be ring-fenced, but which could also be positively managed. This idea was welcomed by the Directorate when it was discussed in March 1983, but nothing came of it.

It is a pity that the idea of defining a ‘buffer’ zone was never taken up. Neither the 1985 nor 1988

Strategic Plan teams, nor Butler, adopted it and it was not considered in the version of the Briden-Larminie paper that was used by the Programme Board to develop its Core Programme. The Core Programme, therefore, has always implicitly contained a 'buffer' within it and it has suffered as a consequence.

The first formally defined Core Programme to be implemented was for 1988/89, the year before the Programme Board came into being. Programme planning had begun in November 1987 following the conventional procedures in which the three Chief Scientists had ranked all the project bids from themselves and the Programmes Directors. Those projects that had been classed as essential and ongoing by them were incorporated into the Core Programme under the sub-programme headings that had been put forward in the Briden-Larminie paper to the Department of Education and Science (see Chapter 6).

A key decision taken that year was to redefine all the projects in the Onshore Mapping Programme to conform with the regional sub-units used in Plan 2000, a revised version of which had been submitted to the Butler Study Group who regarded it as critically important evidence. Adopting the Plan 2000 programme structure led to a significant adjustment to the way the Land Survey was organised. Other parts of the programme were less severely affected.

Because of the haste with which the Programme Board had to act, the Core Programme it approved for the year 1989/90 was effectively the one the BGS Directorate had already planned. They agreed to the six components presented in the Briden-Larminie paper, but replaced the National Geoscieces Data Centre with the NGIS programme. The planning budget they approved for the Core Programme and the R&D and Training Programme together, including the core commissions, was £8.5 million (cash costs, not full economic cost, which includes overheads). Of this, by far the largest slice, £3.5 million, went to the Onshore Surveys Programme. The NGIS Programme took £1.5 million.

In percentage terms the division of funding between Science Budget and core commisions in 1989.90 was:

	Science budget	Core Commisions
Onshore surveys	90	10
Offshore surveys	7	93
National geochemical surveys	22	78
Hydrogeologic surveys	90	10
National geophysical surveys and monitoring	88	12
NGIS	90	10

The Offshore Surveys Programme was still funded mostly by the Department of Energy as a major core commission. The National Geochemical Survey was also a major core commission, but was about to become the only Rothschild back transfer. In the other parts of the programme, the core commissions were mainly small commissioned projects that were classified as contributing to the Core Programme.

The job of the Core Programme Task Force was to advise the Board on the allocation of resources to a three-year programme commencing 1 April 1990, with the long-term aim of completing survey coverage of the UK in a 15-year programme. To do it, the Task Force set objectives for each element of the Core Programme and agreed long- and short-term output targets. Before any programme could be finalised, however, the recommendations of both of the other task forces had to be known.

The New Methods Task Force was to advise the Board on methods of maximising the quality and usefulness of outputs within the 15-year programme; while the Performance Measures Task Force was to develop measures of input, output and performance for the Core Programme.

The Programme Board showed most interest in the Geological Mapping Programme and it was into planning this that most effort went. Plan 2000 had to be the starting point, but that had been costed at £4.6 million a year in 1986. The Programme Board, constrained by the need to increase the Science Budget allocation to the NGIS Programme, was unable to allocate any more than £3.5 million to the whole of the Onshore Surveys Programme. The 15-year plan, therefore, had to be a much-reduced version of Plan 2000.

Plan 2000 had been based on a thorough evaluation of the quality of map and mapping on every single 1:50 000 geological sheet in Great Britain. In many ways it was a seminal document, putting into words concepts and ideas that had been understood largely only intuitively up until then. The opening words of the paper, for example, said, 'A geological map is a model of our understanding of the geology of an area. It therefore embodies the geological concepts and the information available at the time it was compiled'. This very neatly laid out the rationale used by generations of Survey staff since De la Beche to justify their belief that a geological survey can never be finished. It was argued in Plan 2000 that all maps should be revised at intervals of not more than 50 years, and in conurbations and on the coalfields the interval should not exceed 25 years. The authors of Plan 2000 concluded that of the 608 1:50 000 sheets covering Great Britain, only 125 could be classed as adequate to answer questions raised today. Of the rest, 142 sheets were not even available in published form. In terms of land area, 70% of the underpinning 1:10 000 database was deficient in terms of the user requirements of the day.

There were two main parts to the plan. The first was to carry out a programme of resurvey on those sheets considered inadequate to meet modern standards; the other was to initiate a programme of continuous revision to ensure that those sheets that did meet modern requirements did not lose their currency with time. The plan was broken down into 27 regional project areas, each of which was geologically internally consistent. Each project team was to be multidisciplinary, following the model laid out in the Regional Geological Surveys.

The Core Programme Task Force approached the matter of prioritisation of the 1:50 000 sheets, so as to reduce the size of the resurvey programme, in a number of ways. The first was to use a scoring system that had been developed the year before for a different purpose, and applied to every 1:50 000 sheet in England and Wales. Scores were made up from three classes of information. These were the state of the existing mapping, environmental factors and scientific interest. State of mapping took account of the scale of existing maps, the date of the last survey and the quality and the size of the database that had accumulated since the last survey. Environmental factors included the proportion of urban development, hazard potential, resource potential and the number of enquiries received on each sheet. Variations to the system had to be introduced to apply it to Scottish maps because of the practice of mapping the solid and drift at separate times and publishing separate maps for them in Scotland. Also, reconnaissance mapping in much of the Highlands was carried out using six-inch maps for recording data even though the resolution was more appropriate for a smaller-scale map. In the event, the Board used only the environmental factors and scientific interest to develop what became known as the 'needs' score. The system was applied only to those map sheets that were categorised as unsatisfactory in Plan 2000.

Secondly, account was taken of the need for the BGS to maintain its skill base in all parts of the geological column and all geographical areas of the UK. This would lead, naturally, to some map sheets being included in the programme regardless of their scores. Finally, it was agreed that over a hundred sheets that were either partly surveyed but in abeyance for various reasons, or were

currently under active survey should be included in the programme.

In the plan that was eventually put to the Programme Board, the area of Great Britain categorised in Plan 2000 as having unsatisfactory mapping was divided into 32 areas, eleven of which contained only sheets with low 'needs' scores. These were omitted from the resurvey programme. The remaining 21 were divided between three different approaches: there were those sheets that required full 1:10 000-scale resurvey; those sheets only part of which required full resurvey; and those sheets that could be adequately covered using the rapid mapping technique that had been developed for mapping the Southern Uplands and, later, applied to Central Wales. The Programme Board decided that the sheets with low 'needs' scores that had been omitted from the resurvey programme should be tackled by doing desk compilations using data from all sources in and outside the BGS, and that the staff effort on each sheet should be limited to three person-months. No field work was to be allowed on any of them. When published, the desk compilations were to be classified as Provisional sheets.

This way, a programme of multidisciplinary geological mapping was developed within the allocated budget that would lead to the whole of Great Britain being covered by geological maps suitable for modern purposes by the year 2005. In it were 300 1:50 000 sheets, of which 106 were to be desk compilations and 194 to be completed by rapid mapping, partial revision and full resurvey. The Programme Board required output to be at the rate of twenty map sheets a year, together with between ten and twelve memoirs a year describing the geology on a sheet-by-sheet basis. This annual output of memoirs reflected the fact that on average eight of the twenty maps published would be Provisional sheets for which a memoir was not required and that some memoirs would cover more than one map sheet. It was also part of the programme that the draft 1:50 000-scale map and a memoir manuscript should be produced within a year of completion of field work. This was the first time that a memoir had been regarded as an obligatory product of a mapping project. Each Provisional sheet was to be accompanied by an open-file dossier of information. It was also intended to revise about half of the Regional Guides, but this was a low-priority task and it was not firmly embedded in the programme.

There were three other parts to the Onshore Surveys Programme: continuous revision, the Onshore Surveys Database and overview studies.

The objective of the database subprogramme was to build and maintain computer databases in support of the mapping programme. The overview subprogramme contained several projects that were essentially regional in approach. Among them were the three-dimensional analysis of the exposed and concealed Upper Palaeozoic basins of the UK, seismic surveys in support of this project, a drilling programme to support both the mapping programme and the other overview studies, a systematic study of engineering properties of UK geological formations and regional sedimentological, stratigraphical and biostratigraphical reviews.

Continuous revision had been part of Plan 2000, but it took on a different significance in the new programme. The long-term aim was for each sheet that was completed by resurvey to be kept up to date by a process of periodic revision, so it would never have to be resurveyed again. It was envisaged that this sub-programme would start small and gradually grow, taking over from the survey subprogramme as the main activity in the Land Survey after 2005. Traditionally, each District Geologist (This was the original name for the managers of the field units. They came to be called Research Programme Managers after the 1983 reorganisation, then Regional Geologists and, after 1991, Group Managers.) in the Land Survey had maintained a set of 1:10 000 and 1:50 000 'correction copies' on which he marked any changes and improvements that came about as a result of new information being acquired. In time, when there were sufficient alterations to justify it, the maps were redrawn and reprinted. Since the late 1970s, budgetary difficulties had rendered this

practice almost obsolete. A review of the practice and processes of map revision had been carried out in 1988 and it was concluded that it was economically realistic to carry out continuous revision only in a digital environment. An R&D project, part funded by the Department of the Environment, had been started in 1988 to develop a method of generating applied geology maps for urban areas digitally from computer databases. Using knowledge gained from this research, the wholly Science-Budget-funded Digital Map Production Implementation project (DMPI) was established as a joint venture between the managers of the Onshore Surveys Programme and the NGIS Programme. It was tasked to report in March 1991 on how to act upon the recommendations of the review into continuous revision. Its remit was to develop a methodology for digitising all the information on 1:10 000-scale maps and storing it in databases that could be interrogated to produce maps displaying any of that information. The simplicity of this remit belies an immensely complex project. It was, however, to provide the basic infrastructure for a database of geological information on 1:10 000-scale maps which could be used in continuous revision.

The NGIS Programme effectively incorporated all the elements of the Information and Central Services Directorate and, despite having been unchanged since it started in1984, was in a severe state of flux in 1989. The main components of the programme were:

1. Information Systems, concerned with the design, development, implementation and maintenance of computer systems
2. the Information and Advisory Service, which was the public face of the BGS and dealt with sales of products and management of the enquiry service
3. the NGDC, containing all the paper records and material collections such as rocks, fossils, borehole core and so on
4. Publication Services, which looked after the preparation for publication of all the maps and mainstream books and reports produced by the BGS
5. Marketing.

The Core Programme Task Force asked for a development plan for the NGIS Programme to be prepared, but the New Methods Task Force also had an input into its future. One of its recommendations, for example, was that Publication Services should have a programme that matched the 15-year mapping programme to ensure that it had the capacity to handle and publish a minimum of 20 1:50 000 geological maps a year. This directly addressed the fear expressed by the 1982–84 Visiting Group that, unless it was properly managed, the output from the current mapping programme would merely be added to the backlog. Recommendations of the Charging Review were also expected to influence the way in which the NGIS Programme developed.

Despite going through several iterations before the Task Force finally endorsed it, the NGIS development plan was not fully accepted by the Programme Board. They demanded more work on it during 1990 to define more rigorously the longer-term milestones, targets and outputs. When the work programme for 1990/91 was finally agreed, the supervision of four, major consultancies was included in the NGIS Programme. These were Price Waterhouse on business development, the Central Computer and Telecommunications Agency (CCTA) scoping study on information systems and two contracts let to Logica on digital map production and a data architecture for the BGS.

The managers of the NGIS Programme were not in an enviable position. Since the creation of the Information and Central Services Directorate it had received neither the funding (capital or other-recurrent) nor appropriately trained or motivated staff to do the job that needed to be done. During the preparation of the second PES bid the overall, far-sighted aim of the NGIS Programme was explained as to develop an integrated information system to allow information from all activities within the BGS, and from sources outside it, to be brought together for processing, analysis, modelling, presentation and communication. To an external enquirer, the system must appear as a

single database, with transparent links between the component parts, and the system must be able to respond quickly to demands for the most upto-date information, interpretations and, increasingly, 'customised' products. This had been the aim for the NGIS Programme since 1983 and very little progress had been made towards achieving it. Several key activities were grossly under-resourced. Among these the high priority ones outlined in the PES bid were:

- rationalisation of the storage, methods of curation, conservation and maintenance of the traditional reference materials held by the BGS
- clearance of the accumulated backlog of untreated and unregistered materials and records
- development of a single, but distributed, digital database system
- development of a digital index to all records and material holdings, particularly for the external user
- digitisation on acquisition of all new point-source data
- development of electronic document storage
- modernisation of the cartographic and book production systems
- improvement in the sales and marketing capability
- new buildings in both Keyworth and Edinburgh for material and records storage.

There are several reasons to explain the slow progress made towards achieving any of these, but one is endemic in the BGS: within the culture of the organisation highest emphasis was placed on the acquisition of new data, not on its care after first use. To a large extent, the Programme Board endorsed this, despite Butler giving highest priority to the development of the NGIS Programme. In its response to the Charging Review report the Board, whilst agreeing that the enhancement of the NGIS Programme was a key element in realising the BGS's income-generating potential, stressed that the income generation model must not require a reduction in the level of support for core surveying. They resisted any internal redistribution of resources from core surveying to the NGIS Programme. The Board wanted, more than anything else, to see the mapping programme become successful. An early decision of the Programme Board had been to divide the Science Budget funding into three main tranches: 40% for the Onshore Surveys; 40% for the NGIS Programme, and 20% for the rest of the Core Programme. In 1989/90, without the benefit of the second PES award, the division was 55:20:25 respectively. Though the NGIS Programme share did rise to 35% in 1990/91, the Onshore Surveys component did not decrease, the Programme Board having decided not to implement its earlier decision.

The new PES money came as £1 million in 1990/91, £2 million in 1991/92 and £3 million in 1992/93 and was directed exclusively towards the NGIS Programme and the enhancement of the Onshore Surveys Programme. It brought immediate benefits to the NGIS Programme enabling action to be taken in most of the high priority areas identified in the PES bid. None of them is particularly glamorous, but each one contributed to the building of the foundations for the new NGIS Programme. New staff were recruited and capital equipment was purchased to make a start on clearing the borehole registration backlog, and to enhance work already in hand on building digital indexes to a wide range of records, in particular the borehole registers. The CCTA scoping study and the Logica consultancy on data architecture were key in this area and, ten years on, the benefits of both are still evident. They brought with them a new way of thinking about dealing with digital data. This area, though no longer in its infancy, was still young then and there was little expertise in it within the BGS. There was, with the Logica consultancy, a transfer of knowledge that put the BGS among the leading organisations in data management within Government and paved the way for the major changes that were to take place in 1999 and 2000.

A new publications distribution building was erected in Keyworth to enable the BGS to take on the responsibility for the distribution of its maps and books, until then in the hands of the Ordnance Survey (OS) and her Her Majesty's Stationery Office (HMSO). The OS had been progressively

increasing its fee for looking after the BGS map stock and was doing less and less about selling them. The BGS did not regard selling maps and books as part of its core business, but with the two available agents clearly losing interest in doing it for the Survey, some rethinking was necessary. In building the new publications store, the BGS took on full responsibility for running its own sales and mail-order business.

The most significant change to take place as a result of the acquisition of the new PES money was in the Drawing Office. There is a long history to the development of digital map production techniques in the BGS. The first geological map produced outside the BGS by the NERC Experimental Cartography Unit by digital methods was the Abingdon 1:50 000-scale sheet (253), published in 1971. Though it was a successful experiment, in that it did produce a publishable map, the process was extremely expensive and offered no prospects of being implemented routinely for production. Geochemical atlases were tackled next and this was successful, with digital methods becoming routinely used in their production from the mid 1970s. By the mid 1980s, technology had advanced sufficiently for the digital production of geological maps to be considered a realistic possibility and in the period 1985 to 1989 a considerable amount of experimentation was done in the BGS. The first 1:50 000-scale map production system, usually referred to now as DMPS 89, was in place in 1989. A huge programme of capital expenditure in 1990 enabled the BGS to phase out manual cartographic production and to replace it completely with digital production. DMPS 89 was strictly a production system for 1:50 000 maps, but in 1991, on completion of the DMPI project, which was based on 1:10 000-scale maps, it became possible for digital map production to be done from digital geological databases. Over a period of several years the two systems converged, leading to the establishment of DMPS 98 as the basis for the production of all BGS maps at all scales.

What is remarkable about this is that the BGS cartographers themselves carried through these revolutionary changes. Almost all of them had been trained and were highly skilled in manual map production techniques. They then passed through a period when they learned digital map production methods. Now, they also build digital databases as well as produce geological maps. They are more than cartographers, but no one has been able to find a short name to describe the new type of work they do.

The Offshore Regional Mapping Programme was funded jointly by the Department of Energy and the NERC and was nearing completion in 1990. Funding from the Department of Energy was assured until the end of the 1992/93 financial year, when the programme would come to an end as a core commission. By then all the 1:250 000-scale geological and geophysical maps covering both the offshore and onshore area of the UK would be published, leaving completion of the regional reports and small-scale overview maps still in hand, but likely to be published soon after. The second major project was the development and maintenance of the National Offshore Archive. This was also to be funded by Department of Energy until the end of 1991/92.

Three offshore projects were to be funded entirely by Science Budget. One was a desk study of the UK offshore-designated area, west of the Scottish shelf and north of latitude 62 degrees north. This had started the year before and was aimed at attracting consortium funding from oil exploration companies to survey these inhospitable areas. This was ultimately successful. Two consortia, Rockall and the Western Frontier, were set up and have been the only mechanism by which the BGS has been able to carry out surveys of the westernmost waters. The second Science-Budget-funded project was also a desk study, of the Quaternary geology of the Bristol Channel. Regarded as a pump-priming project, it was designed as a demonstration to attract commissioned funding for a geological survey of the nearshore zone. This area of the UK waters, lying between the high water mark and the nearest point to land that survey ships carrying out the offshore survey could reach, was variable in width and almost entirely unknown. This project was meant to begin the process of acquiring funding to carry out a nearshore zone survey. The last project was for the maintenance of

the capability to carry out operations offshore.

Like the offshore survey, the Geochemical Survey Programme had been a core commission, but funded by the Department of Trade and Industry. A funding transfer had been agreed so that the project would be funded from a ring-fenced budget within the Science Budget from 1990/91. This was a systematic survey, started in the north of Scotland and progressing southwards. It was due to cover the whole of Great Britain at a sample density of approximately one site per 1.5 km^2. Stream sediment, heavy-mineral concentrates and water were collected at each site. Soil samples sometimes substituted for sediment samples. The results were published in the form of geochemical atlases. It was planned for sampling to be complete by 2007; all data packages were to be released by 2010 and the last atlas published in 2012.

Another core commission, the Offshore Geochemical Survey Programme funded by NERC and the Department of Energy, was coming to an end. This involved the study of archived sediments collected during the offshore survey on a 5 km grid. Analysis of the samples and publication of results on single-element 1:1 000 000-scale maps was due to be completed by the end of 1991/92.

A third strand to the Geochemistry Core Programme was a project to carry out research in methodology, equipment and software development to underpin all aspects of the geochemistry contribution to the Core Programme.

The Hydrogeological Surveys subprogramme was the least well funded part of the Core Programme, although the Programme Board did identify it as a target for future development. Again, the expectation was that commissioned funding could be attracted to this programme. In the first year it consisted mainly of a series of ad hoc investigations, mostly riding on the back of completed commissioned research. It included the start of a review of the hydrogeology of Scotland, maintenance of the paper record of statutory data on well and groundwater records and the maintenance of basic laboratory facilities for the study of aquifer characteristics and groundwater chemistry.

The level of funding for the Geophysical Surveys and Monitoring Programme was reduced in 1990/91 compared with the previous year and funds transferred from it to the NGIS Programme. The validity of including in the Core Programme both geomagnetic monitoring and an earthquake monitoring network had been questioned by Butler. The Programme Board had also been sceptical about their inclusion in the BGS work programme. The questions arose because geomagnetic monitoring was an isolated activity with no connections with any other part of the Core Programme and the UK had a very low level of seismic risk. Managers of both parts of the programme were told to find external funding or see their projects closed down. There had already been some success in this with regard to geomagnetic monitoring and a target of 50% external funding was set for the seismic monitoring network by the end of the financial year. The National Gravity Survey was almost complete, with only a few areas of infill and low priority areas still to do. No or little action was planned on this. However, effort was to continue on the development of the databases for national gravity, aeromagnetic data and deep seismic reflection data. Work on a geophysical atlas, synthesising gravity and aeromagnetic data, was to begin. As with the other parts of the programme there was a project devoted to the maintenance of capability to carry out geophysical research and surveys.

The full Core Programme, as defined in 1990/91, was modified only slightly in later years, with the main elements of it remaining intact. Significantly, apart from geomagnetism and seismology, which managed to keep hold of their Science Budget allocation by tying it into co-funding ventures, those parts of the programme that were poorly funded in the first year did not prosper. In spite of considerable effort by the manager of the nearshore-zone survey, external funding was not acquired

at anywhere near the level required to carry out the programme as planned and it struggled from year to year. There was only a minimal replacement of the funding for the offshore survey that had been provided by the Department of Energy, when that contract ended and there has been only a small programme of offshore map revision since then, though the mapping consortia operating in western waters has been highly successful. The overview projects were transferred out of onshore surveys and became attached to other parts of the programme. The Upper Palaeozoic basins project was merged with research in hydrocarbons and the emphasis changed from a study of three-dimensional geology onshore to offshore, where it was hoped to use the funding to build partnerships with industry to work offshore. Hydrogeological surveys were given a small funding boost, but the monies were used to develop co-funding ventures, leading to an ad hoc programme with no clear theme. Lastly, after more than a decade of effort, a co-funded arrangement was made with World Geoscience to carry out a high-resolution airborne radiometric and geophysical survey over part of the English Midlands in 1997. This was the first geophysical data acquisition project onshore since the end of the gravity survey.

There is one clear conclusion that can be made from this. It is that after ten years of effort, attempts to enlarge the Core Programme with co-funding have not been very successful and probably never will be much better than they are now. The expectation that it might have been otherwise was part of the political dogma current at the start of the programme. Butler gave highest priority to the NGIS Programme and the Onshore Mapping Programme. The Science Budget allocations from the NERC were only ever sufficient for these two, together with the Geochemical Survey (which received the PES transfer) and the geomagnetic and seismic monitoring elements of the Geophysics Subprogramme, to be funded at a viable level if other parts of the subprogramme were starved of funds. The outcome has been an unbalanced programme, with the poorly funded parts seriously lacking in direction. The five-year review carried out in 1995 did not address this imbalance, but, since the 1997 Science and Management Audit, programme review groups have been set up to carry out thorough investigations of every part of the programme. First to be completed was the combined review of coastal geology and engineering geology. This was followed by urban geology and then, thirdly, the Onshore Mapping Programme. Each one has resulted in proposals for new, well-structured, cohesive programmes that address some of the deficiencies in those they replaced. The first two were used as inputs into thinking about the new programme during the third strategic planning exercise.

Navigation menu

Personal tools

Namespaces

- Page
- Discussion

☐

Variants

Views

- Read
- Edit
- View history
- PDF Export

☐

More

Search

Search Go

Navigation

- Main page
- Recent changes
- Random page
- Help about MediaWiki

Tools

- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Cite this page
- Browse properties

- This page was last modified on 23 September 2019, at 20:50.

- Privacy policy
- About Earthwise
- Disclaimers
-

-