

## **Revised Version**

### **ECONOMIC DEVELOPMENT COMMITTEE EDC-18-00 (p10)**

**DATE:** 29 November 2000

**VENUE:** Committee Room 1, National Assembly Building

**TITLE:** Science and Technology White Paper

#### ***Purpose***

1.1 To inform the Committee of progress achieved to date in meeting the objectives set out in the Science and Innovation White Paper.

#### ***Recommendation(s)***

2.1) None. The paper is for information only.

#### ***Timing***

3.1 The Paper is on the Agenda for EDC's meeting on 29 November

#### ***Background***

4.1 More detailed background on the Science and Innovation White Paper "*Excellence and Opportunity: a science and innovation policy for the 21st century*" - <http://www.dti.gov.uk/ost/aboutost/dtiwhite/test/execsum.html> - is set out in ANNEX 1 to this Paper.

4.2 In summary, the White Paper lists a total of 55 commitments for delivering three main aims of the Paper:

- i Excellence in science;
- ii Opportunities for innovation; and
- iii A society confident in its relationship with science.

4.3 These commitments fall broadly into the following 10 agendas, though not all of them apply equally to Wales or the other Devolved Administrations

- Better Science in Schools
- Enhancing Scientific Excellence
- Acting on Foresight 2000
- People and Skills
- Universities in the Knowledge Driven Economy
- Innovation in Every Region
- Government Departments encouraging Innovation
- Making the most of our Intellectual Property
- Linking in to Global Networks; and
- Creating Confidence.

4.4 White Paper implementation is being overseen by the Ministerial Science Group (MSG) which meets approximately quarterly - most recently on 1 November - under the Chairmanship of Lord Sainsbury (Minister for Science at the DTI). The Group draws its membership from the major Whitehall departments and from the Devolved Administrations. Until now the First Minister and the Parliamentary Under Secretary of State for Wales (Mr. David Hanson) have represented Wales. In future the NAW will be represented by the deputy first Minister.

### ***The Main Issues***

5.1 Some of the key needs identified in the White Paper were

- a stronger UK university science base with greater entrepreneurial ambitions; better science teaching in schools;
- each government Department to have a comprehensive science strategy which, with other measures, should aim to increase public confidence in science and the Government's science-based policies; and
- the Government to do more to encourage innovation and commercial exploitation of

science and technology at the regional level.

5.2 Senior officials, mainly from within the Office of Science and Technology (OST), have been made personally responsible for driving each of the agendas forward and for ensuring that progress towards implementing individual commitments is maintained.

5.3 A draft Implementation Plan has been prepared by OST - copy at [ANNEX 2](#) - and, with the agreement of the Ministerial Science Group, it is now being prepared for publication in late November.

### ***Progress Achieved to Date in Wales.***

6.1 The implications for Wales that flow from this White Paper, and the steps that have so far been taken to address them, are summarised in [ANNEX 3](#). Though a great deal has been achieved, much yet remains to be done. All these issues will be reflected, as appropriate, in the National Economic Development Strategy for Wales.

### ***Compliance***

7.1 The National Assembly's powers in this matter derive from the devolved provisions of section 5 of the Science & Technology Act 1965. These powers have been delegated to the Economic Development Minister and thence to officials.

7.2 This Paper raises no issues of regularity or propriety.

### ***Financial Implications***

8.1 Budgets for the individual activities are contained within the relevant programme budgets.

### ***Follow-up Actions***

9.1 [For the Committee](#) - none; the paper is for information only, though comments on any specific issues would be welcomed in the context of NEDS. The Committee may, however, wish to consider whether to refer the Paper to the Education and Lifelong Learning Committee, similarly for information.

9.2 [For Officials](#) - to continue developing the proposed Science and Innovation Strategic Plan for Wales while delivering on the Implementation Plan.

### ***Action Elsewhere in the UK***

10.1 The lead responsibility UK-wide for monitoring the implementation of the White Paper rests with the Office of Science and Technology (OST). The UK-wide Implementation Plan will be

published in due course on OST's web-site

10.2 Other departments and administrations are also currently engaged in various stages of preparing their respective Strategic Plans.

### **Contact Points**

General Issues	Mrs. Barbara Wilson, Head of Research and Development Group
Industry-related Issues	Dr. Ron Loveland, Head, Competitiveness and Infrastructure Division.  Bob Jones, Branch Head, Business Technology Branch, Competitiveness and Infrastructure Division.

### **Competitiveness and Infrastructure Division**

**November 2000**

### **ANNEX 1**

### **The Science and Innovation White Paper "*Excellence and Opportunity: a science and innovation policy for the 21st century*"**

#### **Background Note**

Published on 26 July 2000, the White Paper outlined the actions that are being taken by Government to ensure that our science remains world class, to open up opportunities for innovation throughout the economy and to increase public confidence in science.

Publication of the Paper followed a period of extensive consultation with all the English Regions and the Devolved Administrations. For our part National Assembly officials attempted, with varying degrees of success, to achieve a more balanced regional perspective in the Paper. Though presented as a strategy for the whole of the UK - and featuring a number of case studies from Wales - the overall thrust of the White Paper undeniably remains mainly "Anglo-centric". Many of the new initiatives announced in it apply to England only. In some cases - for example the funding for Manufacturing Centres of Expertise - we continue to press the case for wider coverage to include Wales.

In common with the other Devolved Administrations, the National Assembly is pursuing its own approach to science and innovation, driven by varying regional considerations. The continually evolving Wales Regional Technology Plan (copies available from the Library) - one of the first

such Plans in Europe and the first in the UK - has represented the main innovation strategy for Wales since its launch in 1996.

Building on the foundation of the RTP, the First Minister and the DFM/Minister for Economic Development convened an Innovation Summit on 25 October 2000 with leading Welsh business figures and academics. A number of messages emerged from that debate - the clearest of which, perhaps, was that Wales's future economic success in the global economy is heavily reliant on the pursuit of a "quest for excellence". This was especially so in areas such as teaching, attracting pupils into engineering; ensuring our universities are centres of international quality; retaining our most able students – particularly those with entrepreneurial flair – developing strong mentoring support for our entrepreneurs and generally developing business support mechanisms (for both indigenous and dynamic new investment) which are not only world class, but marketed effectively.

This Summit followed hard on the heels of a Knowledge Economy Workshop on 4 October, co-hosted by the First Minister and DTI's Consumer Affairs Minister Dr. Kim Howells and together, therefore, they represent just two recent examples of how the Assembly is moving into developing its own strategy in the fields of science and innovation.

### **ANNEX 3**

#### **Implications for Wales and The National Assembly**

Central to each Department's/Administration's success in addressing the aims of the White Paper will be the development and implementation of individual Science and Innovation Strategies. Preliminary work is currently in hand on drafting such a Plan for Wales and this is expected to include measures focussed on the following high level issues, amongst others.

We have long striven to strengthen the university science base in Wales. And it is generally accepted that we must maintain this focus if we are to see the Welsh economy move more rapidly away from its traditional manufacturing and low-level science base to being one which stands in the vanguard of the Knowledge Based Economy revolution.

Universities have a number of important roles to play in achieving this. They produce highly qualified people; they provide a significant part of the advanced technology base of their region and a stimulus for developing new companies with growth potential; they attract research and development inward investment; and act as a key source of technology and expertise for indigenous companies. But in none of these areas can Wales claim a record of success to date that is better than "mixed".

That said, our universities are succeeding both in attracting high calibre individuals and in improving their record of producing qualified people. But so long as we succeed in recruiting into Welsh businesses only a minority of our brightest graduates, we will continue to lag behind others in matching our capabilities to our economic ambitions. Graduate placement programmes such as Cymru Prosper Wales set out to address this issue, but at a scale that currently barely scratches

the surface of the problem.

The technology base of our universities continues to improve, with improved grades overall under the quinquennial Research Assessment Exercise and many more departments achieving the coveted 5/5\* grade for their research excellence. Welsh universities are also becoming more active in pursuing external sources funding for research, albeit they have still to succeed in securing more than an average 3% share of UK-wide Research Council funding.

As part of the National Assembly's guidance to the Higher Education Funding Council for Wales, the Council has been asked to continue to press the sector on a number of fronts:

- to increase the amount of top quality research undertaken in higher education institutions in Wales;
- to exploit that research more effectively; and
- to gain a greater share of Research Council funding.

Separately, the Assembly has signed working agreements with each of the Research Councils to exchange pertinent information and hold annual strategic meetings.

Our universities will also be able to bid for some of the additional funds that were allocated on the back of the White Paper to support measures to strengthen the university base in key areas such as genomics, e-science and basic technology.

In this latter context, for example, we are in Wales particularly weak overall in new and technologically very advanced areas such as nanotechnology. However, it will be vital to promote Centres that are strong in such new technology areas if Wales is to have any realistic chance of attracting internationally mobile research and development inward investment. Therefore, one of the key issues for consideration in the context of the emerging Strategic Plan will be whether, and if so how, the National Assembly should act to ensure there are sufficient Welsh university centres of international standing in areas of key economic interest to underpin the new economy we are seeking to develop.

Another of our current weaknesses is our poor record of spinning-out from our universities new businesses with good growth potential. In part this may simply be a reflection of our relatively low standing in comparison with major international institutions, such as Cambridge, MIT, Stanford etc. Conversely, however, there are also encouraging indicators. For example, Cardiff's research base continues to grow and a number of institutions are actively supporting high calibre graduates to start their own businesses. We are also developing new finance schemes to assist in this, while Objective 1 and other support measures should also lead to an increase in the number of successful science parks/incubator centres.

In addition, the Knowledge Exploitation Fund has been introduced in an effort to promote and embed more of an entrepreneurial culture in our university students and academics and to promote measure to commercialise more of the expertise that resides in the further and higher education institutions. Administered by the Further and Higher Education Councils for Wales, the KEF will realise directly some £4 million in 2000-01 and £30 million over the period 2001-02 to 2003-04, subject to approval of the draft budget, plus moneys levered in from Europe.

Historically, R&D inward investment has been difficult to attract to Wales. We therefore need to devote more effort to this activity, particularly in better marketing our strengths, and strengthening our university science base in key areas of economic interest.

In the same context of R&D spending, one specific initiative to flow from White Paper is the Small Business Research Initiative (SBRI) under which a proportion of all Government Departments' research spending is to be predicated for contracts with SME suppliers. However, Wales is not participating in this initiative because Assembly spending on commissioned research and development is too small, in total, and too diverse and widely spread in practice, to make it practicable to try to apply SBRI principles to it.

Encouraging more general innovation in Welsh SME'S has, however, been a priority for some time as exemplified by the Wales Regional Technology Plan. We are making progress, but we still have some way to go before we can withstand critical comparison with best international practice.

As part of the strategy and measures highlighted in Pathway To Prosperity, we have introduced **Know-How Wales** as a resource dedicated to brokering more effective and relevant industry/academic collaborations; we have re-introduced the Colleges and Businesses In Partnership scheme ahead of the rest of the UK; provided additional funding for the long established and highly successful Teaching Company Scheme, and have expanded the Design Wales advisory service.

The White Paper stresses the importance of each government department having proper science strategies that recognise that 'Science' should be interpreted very broadly including social sciences. Even the larger Whitehall departments will not find this easy, but for the Devolved Administrations, with their wide and diverse statutory responsibilities, this could prove particularly problematic.

A new post of Director of Research and Development has recently been created in the Assembly in order to bring much needed coherence to our R&D activity. The Director's first task is to take stock of current activity, whether commissioned directly by the Assembly and in partnership with others. Some areas of the Assembly are developing specific R&D strategies (usually in partnership with outside interests). Once we have more information about the overall position we will be considering how to develop an overarching strategic approach. A parallel strand of activity will involve improving the Assembly's knowledge base both factual information (including economic statistics which have been the subject of a separate paper for the Committee and other aspects of the Statistics plan) and by developing our links with the academic world and more

broadly.

The Education and Lifelong Learning Committee is also conducting a Policy Review of higher education in Wales.

Finally, therefore, whilst the Partnership Agreement and **BetterWales.com** recognise the need for more evidence based policy developments, we still have some way to go. Acknowledging this, Better Policymaking has been highlighted as a key strand of the Better Government programme for Assembly staff.