

phil williams charts the progress of the Assembly's efforts to get to grips with its duty to promote sustainable development

a green wales

In our euphoric moments we claim that we are the only parliament alongside the parliament of Tasmania which has a constitutional duty to pursue sustainable development. It is a sophisticated Welsh device to always claim to be second, or one of two. Anyone can claim to have an unique feature: all you need to do is fail to look anywhere else. To claim to have one of two suggests you have searched the whole world carefully – and come up with Tasmania. I imagine there may be others.

Section 121 of the Government of Wales Act 1998 states that, "The Assembly shall make a scheme setting out how it proposes, in the exercise of its functions, to promote sustainable development." This is an obligation that we have to monitor every year, though in 2002 we waited a long time for the annual report, and the debate to discuss the report was postponed several times. In the end we had the debate but still no report! Not that our commitment means as much as it should. In the early days of our Assembly I collected all official references to sustainable development and found four different meanings for it.

- In the first place there was a legalistic term associated with European grants. If an applicant receives a European Grant under one of the Structural Funds it is intended to be a once-and-only grant so that that the project supported become self-supporting. This is economic sustainability.
- The second meaning is one that is central to our survival as a nation, which the founder of Plaid Cymru, Saunders Lewis, defined as "a community of communities". In planning our future development we reject economic developments that destroy whole communities and so strive to preserve our existing communities. Thus we aim for social sustainability.
- The third meaning is surely closest to the one that former Norwegian Prime Minister and Director General of the World Health Organisation, Gro Harlem Brundtland, had in mind, and that is environmental sustainability.
- In one government document written by a civil servant sustainable development is defined as "economic growth at an accelerating rate" – almost a perfect definition of unsustainability!

Since the Assembly started there has been a fairly consistent attempt to distinguish economic, social and environmental sustainability, and the fourth definition is thankfully a fading memory.

Everyone is in favour of sustainable development, and the more the better. In America it would be compared with Mother and Apple Pie: the Welsh equivalent is Mam and Welsh Cakes. However, a few people are honest enough to point out that the different types of sustainability can be contradictory. Thus, in the Single Programme Document of the European Objective Two Programme in Wales there is an honest declaration that recognises the potential conflict:

"Investment that is made with the primary purpose of creating jobs in an area will potentially have a negative environmental effect."

To sustain a community it may be necessary to allow the economy to grow in a way that damages the environment. As an example it was stated that if we regenerate the economy of our rural areas under present conditions we will create extra road traffic and this will have a negative environmental effect. Alternatively, if we give total priority to preserving the environment we will inhibit economic development and this might undermine the viability of a community. We see the dilemma in the battle we have over the development of wind energy: cutting down on CO2 output and providing income to farmers is fiercely opposed by some on environmental grounds!

virtuous solutions

A Green Economy must therefore emphasise those virtuous solutions where a project that protects the environment actually creates employment and hence supports the economy of widespread communities. There are four examples that I wish to emphasise: renewable energy, information technology, waste recycling and public transport.

In the first place, renewable energy is a sector where Wales has huge opportunities. Global warming is by a large measure the most important item on the political agenda. The replacement of fossil fuels by renewable, non-polluting alternatives is therefore a very high priority. As it happens Wales is an ideal test-bed for almost every form of renewable energy.

We have large areas of windswept uplands where the average wind-speed is greater than 6 ms⁻¹ – ideal for wind power. And we could produce 20 per cent of our electricity demand from wind-power without any serious difficulty. This would provide an income for farmers and help to preserve the countryside.

The same is true of biomass energy. Forestry residues could pump-prime a biomass electricity station but, eventually, forestry would have to be supplemented by short-rotation willow. This could initially provide about five per cent of our electricity

Hydro-electricity might also provide five per cent of our power. Some people are surprised the figure is so low, but Wales is a small country and we build our mountains in feet rather than metres. Moreover, contrary to appearance, we do not have sufficient rain to generate a substantial amount of hydro-electricity.

However, on our south coast we have the second largest tidal range in the world. If ever the Severn Barrage project were completed, it would alone produce 150 per cent of Wales' electricity needs. But one warning: there was a 1945 proposal for a Severn Barrage and even a 1924 proposal. In reality it is too awesome a project to contemplate yet – a project with unpredictable environmental side-effects. However, smaller tidal barrages or, better still, off-shore tidal lagoons or underwater turbines driven by strong tidal streams are all serious proposals, easily able to provide another 20 per cent or more of our electricity.

Wave energy has still to drive a totally successful device large enough to make a significant contribution to our energy demand, but when such a device is available, all our

electricity could come from non-polluting sources.

The big problem with renewable energy is that it is often unpredictable, and storage is needed. Here again Wales has an intrinsic advantage with two extremely efficient pump-storage systems that could pump water to the upper reservoir when the wind-turbines are generating and use this water to generate electricity at peak time. They were built to match the constant output of nuclear power stations to a fluctuating load but they could work equally well in reverse.

Finally, Wales already has a significant sector manufacturing solar thermal panels, mainly for export.

Put all this together, include the manufacture of turbines and turbine towers and gearboxes and generating stations, add a systematic programme of energy conservation, and the total number of permanent jobs that could be created is about 10,000, spread widely throughout Wales. Environmental

protection leads to a sustainable sector of the economy, supporting existing communities.



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communication and virtual reality

The second virtuous technology is broadband communication. For fifteen years I have done a lot of my

physics teaching in Aberystwyth, lecturing to students in Cardiff and Swansea via a video link. We hold many committee meetings via the link and we have also used it for PhD oral examinations. And this is still a rather limited link.

There must surely come a time when we can replace a high proportion of physical meetings by virtual meetings over a broadband network. This would certainly reduce car travel. A saying from 25 years ago proposed that the best answer to traffic jams is the video-phone. Similarly, with a broadband link an ambitious and talented young person can choose to stay in a small rural community, and carry out high-level work from home, interacting effectively with colleagues at a distance. This is a technical development that can reduce CO2 pollution and help to save communities.

At present I am involved in a particular ICT project that could make an important contribution to tourism. In our physics department we are funded to install state-of-the-art virtual reality equipment. Our interest is in studying the atomic structure of glass but we are now applying for European grants so that the expertise we develop can be used to help a wide range of economic sectors, including heritage tourism. Blaenavon in the mining valleys has just been designated an UNESCO Heritage Site. It is the spot where the industrial revolution grew up and where the Thomas process was developed that led directly to the industrialisation of Germany. The houses, the landscape and the ruins of the eighteenth century iron works are uniquely evocative. But an extra experience would be to recreate a virtual ironworks where the visitor can experience the actual conditions of eighteenth-century iron making. We are working on it.

Of course, some people warn that virtual reality could destroy tourism. Why go to Rome when you can experience the paintings in the Sistine Chapel much better in a VR Cave in Cardiff than in the Vatican itself? But if so, so be it. If we want to preserve the planet we have to reduce the number of long-haul jet flights, so virtual tourism is a possibility to consider.

Before leaving ICT I must add that although Wales has a very poor IT infrastructure, we are a major producer of optic fibre and of optronic devices, so developments in ICT will also produce highly-skilled jobs on the hardware side.

waste recycling

A third virtuous activity is in waste recycling. Here we have an immense amount to learn from Germany. At present we recycle only about 6 per cent of our waste. We cannot express any pride in this aspect of Welsh life, but must see it as our biggest challenge. Up until recently all our waste was dumped en masse into landfill sites. Two of these in particular, Nantygwyddon in the Rhondda and Trecatti in Merthyr, caused very serious

environmental problems. Nantygwyddon is best known but the problem is very similar in Trecatti: a rugby match was cancelled in Dowlais because of the smell of Trecatti, and in Wales that indicates a very serious problem! There is a policy to phase out landfill, but if instead we have incineration of mass, untreated waste then one environmental problem will be replaced by others – including the generation of dioxins. There are several very interesting experiments both in universities and in commercial sites to apply recycling technologies to raw waste. Glass, ferrous and non-ferrous metals and plastics can be removed before subjecting the waste to pyrolysis so that the final product is a biofuel that can be used to generate electricity and heat with no serious pollution. All this in a plant where extensive heat exchanging leads to a remarkably high overall waste-to-energy efficiency. The main problem – and this is universal – is to devise a fully automatic and 100 per cent reliable method of removing plastic from the waste stream. At present this inevitably means a manual element in the sorting, though it is claimed that the pyrolysis itself can prevent the noxious emissions.

transport

If waste disposal is an area where we have so much to learn from countries like Germany the same applies to transport. Communications are poor in Wales. We have dual carriageways along the south coast and along the north coast but that is all. We do not have a good road linking north and south. Moreover, most of our railways were closed in the 1950s and 1960s and, although we produce twice as much electricity as we consume, we do not have a single mile of electrified line. Railways are not a devolved matter, and the National Assembly has no direct representation on the Strategic Rail Authority.

The opportunities are considerable: a high proportion of the population of Wales live in linear communities following the old coal-mining valleys – an urban structure ideal for a modern passenger rail system. So here we have aspirations but no resources. We do have plans to re-open two lines for passenger traffic: the line from Cardiff that runs past our national airport and the line from the ex-steel town Ebbw Vale to Newport. However, if only we had our fair five per cent share of the investment in railways planned by the UK government over the next ten years, we could fund those two projects in just two months and then, for the remaining nine years and ten months, we could link up the whole of Wales. Our dream is to use 100 per cent renewable energy to power a modern, comfortable, fast, reliable railway system. But so far dreams they are.

And I am afraid that applies to many of the plans I have outlined. The aspirations are admirable but the performance is disappointing.

between hope and disappointment

One way of contrasting the plans with the performance is to look at the funding of the different measures in our main European Funding programme, Objective One, and then look at the allocation of those funds made so far.

The good news is that of a total budget of four billion Euros, over 700 million Euros are allocated to clean energy, ICT infrastructure, environmental improvement and transport.

The bad news is that, two years and six months into a seven-year programme, we have allocated only 1.6 per cent of the budget for clean energy, 0.0 per cent of the budget for ICT Infrastructure, 11.3 per cent of the budget for Protecting the environment, and 2.8 per cent of the budget for transport. The slightly better news is that at last detailed plans are emerging to meet our commitment to a sustainable economy, and when these plans are put into practice there is a budget available to support at least some of our dreams.

For example, our performance on renewable energy is very disappointing. In 1999 we felt we were in the world premier division. We had a healthy lead in the deployment of wind turbines, with the exception of Denmark. Since the inception of the National Assembly, however, there has been an almost 100 per cent block on new wind-farms or biomass generation so we are falling behind. This was mainly the result of having, before this year's Assembly elections, a Minister for Environment, Planning and Transport who combined a basic dislike of wind-turbines with an academic's love of an extended data analysis before making any decisions.

However, slowly but surely a new planning tool is emerging with the use of the Geographical Information System. This allows you to take the map of Wales, apply any combination of criteria and then select those locations that match those criteria. Thus, if you decide to build wind turbines where the wind is over 6 ms⁻¹, there is no habitation within a kilometre, it is not in sight of a National Park, it avoids historic woodlands, and sites of special scientific interest, you can run the programme and be offered a range of sites. In addition I have persuaded the Economic Committee to develop an energy strategy. This is now out for consultation, but we hope that soon we can persuade the Government of Wales to accept a target of over 20 per cent of our electricity consumption from renewable energy by 2010 – a fairly easy target with existing plans. In February 2003 the Assembly Government endorsed the policy of setting a target of over 20 per cent of Welsh electricity consumption from renewable energy by 2010. A Technical Advice Note (TAN8) on the location of Wind Farms is expected as part of a Spatial Plan for Wales, due to be published before the end of 2003.

The same mixture of disappointment and hope applies to our broadband infrastructure. At present the UK comes 22nd in the league of industrialised nations in the percentage of the population with access to broadband communication. And of the 12 regions of the UK Wales lies at the very bottom.

Here again very little has been done since the opening of the National Assembly – mainly because the two main operators, BT and NTL, do not have two pennies to rub between them. However, one commercial secret has emerged: many years ago BT had linked almost all our exchanges with optic fibre – though they denied it – and parts of rural Wales were fibred up years ago as a test experiment. In those days Wales was the world's leading producer and packager of optic fibre, though this may have changed since Dow-Corning closed their plant. It would require about £150 million to exploit the huge advantage of the basic fibre backbone to provide broadband to 90 per cent of all homes. So far all we have is a commitment to provide broadband to every school, library, local-government office and health centre in the next two or three years.

However, our Economic Minister keeps promising a major announcement. It is a bit like Ionesco's play 'The Chairs'. We keep waiting for this announcement. I suspect there is a battle with the Finance Minister over the budget, but if he wins it we might leapfrog into the future. A budget of £135 million has been announced by the Assembly Government for broadband developments – but spread over 5 years which still does not suggest a sufficient sense of urgency.

On waste also we can hope that the future is brighter. After huge political pressure – including Labour's loss of its Rhondda stronghold to Plaid Cymru in the 1999 election – the Nantygwyddon tip has been closed. And now, at last, the Government have published a waste strategy which at least promises to remove the main blemish on the image of a Green Wales.

The statutory commitment to sustainable development is very good news. The extremely slow start in implementing this principle is very disappointing. However, there are signs that the ice is thawing as at last the big ship is starting to move. In a small forgotten country like Wales we do have an inferiority complex and we often boast without any foundation that our role is to lead the world. A poet friend of mine thinks it all springs from the memory of Magnus Maximus who set out from Wales and ended up as Roman emperor north of the Alps.

But who knows: if we have any chance of making our mark as a small nation it must be as a Green Nation and as a nation that takes its commitment to sustainable development very seriously.