



**Cyfoeth
Naturiol**
Cymru
**Natural
Resources**
Wales

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Annwyl Alun,

Craffu blynyddol ar waith CNC - Gwybodaeth ychwanegol

Hoffai ein Cadeirydd Peter Matthews rannu â'r Pwyllgor ei golofn fisol mae'n ysgrifennu ar gyfer cylchgrawn Chartered Institution of Water and Environmental Management 'The Environment', a anfonir at 15,000 o aelodau.

NRW Annual Scrutiny – Additional information

Our Chairman Peter Matthews would like to share with the Committee his monthly column that he writes for the Chartered Institution of Water and Environmental Management magazine 'The Environment', which is sent to 15,000 members.

Yn gywir / Yours sincerely

Rhys Griffith
Prif Swyddog Cyfathrebu
Principal Communications Officer

Chairman's column 1

Viewpoint Wales

In the first of a regular column, Peter Matthews, Chair of Natural Resources Wales, presents his thoughts on the hot issues of the day. This month he reflects on the best way to structure environment management systems in the years to come.

River basins and catchments have been the foundation of water management in the UK for some time – and that is unlikely to change in the near future. But how are these being refined and developed to match the ever-changing landscape of environmental delivery requirements?

Well, for starters, we have seen a growing realisation that the basis of this is much wider than just the fate of water quality, aquatic ecological status and water resources. There is a developing theme that it is about broader habitat management, so-called river corridors, the integration of ground and surface water management, the integration of flood risk management, and so on. It is about bringing together land and water management. This has been driven by practical and research experience but also by pressures from several EU Directives. The Water Framework Directive for example is as much about land management as it is about water management. Hence the importance of catchment sensitive farming.

In Wales we are moving in the direction of natural resource management areas with catchments as the logical basis for these. They are natural environmental engines which are intertwined with many of the key factors such as microclimates, human activities, landscape and so on.

They will be the basis for integrating agri-environment schemes, rural development plans, local responses to improving the state of nature, identifying and managing protected sites, the Water Framework Directive, managing forests, fisheries, hydropower, land drainage and flood risk, water resources, recreation and access and so on. We can also perceive catchments as a logical basis for managing other environmental issues like waste and air quality.

In my mind this is best illustrated by thinking of catchments as vertical columns connected by a series of horizontal, cross-cutting plans and needs. These might be rural development plans, local delivery plans, landscapes, coastlines, forests and many others.

Shoreline management plans would fit into this model but concerns have been voiced whether this would also apply to landscapes. But in the same way that catchments fit together to form river basins it may be that local landscapes, probably driven by catchments, will combine to form regional landscapes.

Let me be clear. This is not a “water take over”. Rather, it is an evolution in which we recognise that integration needs to take place in a geographical unit and a catchment makes the most sense.

But it does mean that we can build on the work that we have been doing in catchments in terms of social engagement. It is about place-based engagement and management. It will also allow us to think about other issues which might have a local focus such as payment for ecosystems markets, citizen evidence and meaningful local reporting. It might even give the opportunity of identifying unique local species of interest, not just for conservation, but for tourism also.

We have kicked off this work with three trial catchments in Wales, each reflecting different imperatives such as urban and rural, forested and so on.

But of course, people's opinions will always depend upon their perspective. For example, at the NFU Annual Conference environmental management issues were perceived as an impediment to effective farming. While at a meeting of water environmentalists many farmers, but not all, were described as being against contemporary aspirations for catchment management with the notion of food security considered as little more than inherited paranoia. Supermarkets now recognise the customer value of local food production and retail. And this would support the integration of environment, economy and community which underpins our purpose in Wales. So there is an urgent need to bring these strands together. I ask - for example - are the strands of the reforms of water services, agri-environment schemes, rural development plans and an increased focus on catchments sufficiently woven together? We will seek to do this in Wales.

The Nexus project of the International Union on the Conservation of Nature and the IWA highlighted the need to integrate food, water and energy security and touched on this bigger picture. It offers the opportunity for organisations to link together on water infrastructure solutions.

There is a renewed focus by water companies on reducing domestic water consumption. That is highly commendable in the context of customer care, and we value that concept in Natural Resources Wales, but how much does it really contribute to the big concept of natural resources management? I am not advocating that such efforts should stop, but rather that similar efforts should be invested in shops, hairdressers, cafes, restaurants, hotels and so on which have often been neglected in this respect. And perhaps there should be an even greater effort on water saving in manufacturing processes using public water supplies. Of course the same arguments can be applied to the discharge of water pollutants arising from these premises and maybe even general waste production. Equally, there needs to be a clear focus on the reduction of water used outside of public water services, such as agriculture. And all of this should be embraced within catchment plans. The challenges are the twin issues of incentives and "levers", as well as getting better value for water as part of abstraction reform. This is our focus in Wales.

It is a challenge to understand the totality of the knowledge underpinning these thoughts. But governments and their agencies must have sight of this big picture through their policy setting roles. We must understand better how some research, which might be valuable but very narrow, fits wisely into the bigger picture of natural resources management. But then once the wisdom is created, how can it be accessed readily?

In recognition of this, natural resource management in Wales has four pillars - the environment, economy, community and knowledge. Our Corporate Plan in Natural Resources Wales will take us on a journey of learning. It is not just "joined-up government". What we want it is "joined-up thinking" by us all.

Chairman's column 2

Viewpoint Wales

Peter Matthews, Chair of Natural Resources Wales, presents his thoughts on the hot issues of the day. This month he builds on his thoughts last month reflecting on the best way to structure environment management systems in the future by exploring the options available using catchments as the natural foundation of natural resource management in the UK.

Last month I explored some of the theoretical and practical reasons on why catchments are the logical foundation of natural resource management in the UK. This is not revolutionary, but as an organisation with a unique and wide-ranging purpose, Natural Resources Wales is uniquely positioned to bring a more holistic approach to this way of working than any other environmental organisation in the world.

Catchments are natural environmental engines impacting many facets of life such as microclimates, human activities, landscape etc which all require elements of environmental regulation, management, protection or improvement.

Of course, some parts of the country present a challenge to this model as they do not fit readily into a catchment, particularly areas of large plateaus in the uplands. However, a whole raft of work can be integrated by using catchments as a basis – for example land management initiatives such as rural development plans, local responses to improving the state of nature, identifying and managing protected sites, the Water Framework Directive, managing forests, fisheries, hydropower, land drainage and flood risk, water resources, recreation and access and so on.

Now we are looking to take this to the next level, and look at how we can turn the theory into practice.

And we have been given a good steer by the work of a small group of upland farmers in mid-Wales, whom I visited recently.

The award-winning Pontbren project started off as an innovative project to use woodland management techniques to improve the long term viability of upland livestock farming. It has ended up as one of the most scientifically-scrutinised practical projects on sustainable agriculture in the uplands. The project has delivered economic benefits for the farmers and their supply chain and social benefits in terms of community cohesion. Critically from my perspective, it has been beneficial for the environment, even though this was not a primary objective of the project. Make no mistake, this project was started for good business reasons – to ensure the survival of these farm businesses and to leave a worthwhile inheritance for the next generation.

By today hedgerows, trees and woodlands have become a completely integral part of farm management on the 1,000 hectares of upland catchment providing many benefits for the farmers, livestock, wildlife and downstream communities.

The work started off by planting hedgerows of native broadleaf trees as shelter for livestock. These of course also provide a home for wildlife but, after a process of trial and error, the woodchip from these also provided clean, efficient, recyclable bedding for livestock.

Creating ponds in wet areas, rather than draining the land, provided an additional supply of water and new homes for wildlife.

Fencing off large sections of streams and riverbanks allowed trees to grow, kept livestock away from much of the water and reduced soil loss – this allowed natural vegetation to grow and helped reduce sediment in the streams which meant they became cleaner and a better home for trout and otters.

And data gathered by scientists on how strategically planted hedgerows and woodlands in Pontbren absorb more floodwater is now being used more widely in flood risk management. It is suggested that reductions of around 40% in peak flow may be achievable. This potential to reduce water volumes is hugely important in the context of future predictions for increased

rainfall and more frequent storms due to climate change which could influence the regularity and severity of flood events.

When the project kicked-off, only 1.5% of the 1,000 hectares in this area was wooded. Ten years later 120,000 new trees and shrubs had been planted, 16.5km of hedgerow had been created or restored and nearly 5% of the land is wooded – all with relatively little loss of agricultural productivity.

It's also important to note that while the woods, hedges and ponds have restored some of the landscape pattern and diversity which was lost due to 20th century farming methods, what they have also done is create a sustainable 21st century landscape. This was not an attempt to recreate a historic landscape.

The learning from Pontbren – which still continues - is that managing the land in a particular way can yield benefits for environment, society and business. While all of this work will not be appropriate in every part of the country, it's a glowing example of how joined-up thinking – driven by the vision and determination of a small group of individuals - can lead to benefits across a whole range of areas and disciplines.

At Natural Resources Wales we are now looking to take this up a notch. We are looking at three trial areas to explore the possibilities of what can be done on a catchment-based level. All three have vastly different characteristics, but they also have their unique challenges from an environment management perspective. The trials will allow us to explore how to embed an integrated approach to natural resource management, capturing the learning along the way.

In doing so we will seek to deliver as many benefits as possible for the people, environment and businesses of Wales, through capitalising on the opportunities identified collaboratively throughout their development and implementation. It will also be an opportunity to raise awareness of the role of other public bodies, land managers and private business in the sustainable management of natural resources.

It is our aim that on completion of the three trials, we will have produced a successful template for the implementation of area based planning across Wales, which will shape and lead the delivery of all our functions in the future.

The trials share a common set of learning objectives which include: where are the points of integration? What do we do once and use many times? How well did we join up issues and challenges, especially conflicting ones – and did this lead to reprioritisation, delivering differently, or delivering more with the same / less?

And indeed is “catchment” the appropriate scale on which to plan for natural resource management? I believe it is, and the trials will help us to demonstrate that. I'll return to the results of these in future columns.

Chairman's column 3

Viewpoint Wales.

Peter Matthews, Chair of Natural Resources Wales, presents his thoughts on the hot issues of the day. This month he looks at a sometimes neglected cog in the environmental engine – pollinators.

November may appear to be an odd time to discuss this but a healthy population of pollinators is a vital part of the ecology of our environment, providing a very important, but sometimes underestimated ecosystem service.

Of course, the diverse and colourful range of butterflies that we have in the UK are beautiful to look at but they, along with other key species such as honeybees and bumblebees play a vital part in some areas of the economy.

For example, 20 per cent of UK crops are dependent on pollinators with their value to UK agriculture estimated to be worth over £430 million a year. Honeybees - the main managed pollinator of crops - also provide a crop themselves in the honey they produce. And, obviously, most wild flowering plants also rely on insect pollination for reproduction.

Wild pollinators, which include bumblebees and butterflies, are important pollinators for commercial crops including fruit, oil seed rape and clovers, which help to improve pastures for livestock grazing. They contribute to the diversity of plant species, habitats and wildlife. This provides food, makes our world a better place for people to live in, enjoy and visit as well as contributing to our economy.

So pollination is clearly an important ecosystem service.

But the National Ecosystem Assessment carried out in 2011 showed that both managed and wild pollinators have been declining for 30 years. This is likely to continue if we don't act now.

An ideal world for pollinators would see a countryside which supports plentiful nectar and pollen sources in a mosaic of flower-rich fields, hedgerows, woods and wet areas. This would be available over an extended summer period to provide the necessary conditions for foraging, breeding and other aspects of their ecology. Resources need to be available at the right time of year, particularly early and late in the year when there is limited supply of nectar and pollen. Ideally, grazing livestock from autumn to spring, rather than summer, would allow plants to flower in the summer months and check the growth of vegetation such as grasses and brambles which smother other plants. A proportion of hay crops left uncut until September would provide a continuous supply of flowers. Hedges and field margins would provide nest sites and hibernation sites, as well as additional flowers.

So what can we do to help?

Well the first thing we can all do is look at the land we are responsible for. And as Natural Resources Wales manages 7 per cent of the land area of Wales, we are clearly well-placed to make an important contribution.

The 76 National Nature Reserves (NNRs) we own or manage are an obvious starting point. These are some of the most important places for wildlife in Wales, supporting a wide range of habitats and species, including high mountain summits, sweeping sand dunes, ancient oak woodlands, peat bogs, hay meadows and remote offshore islands.

Here, any use of fertilisers is limited and restricted to traditional methods such as farmyard manure. This allows much more diverse, species-rich grasses to develop, offering a wider

range of nectar sources which are available throughout the season. Pesticides and herbicides are avoided wherever possible as these reduce the diversity of habitats and the associated wild pollinators.

Where possible, grazing is rotated to ensure some areas remain un-grazed throughout the season. For example, the Newborough Warren sand dune system is lightly grazed year round by ponies creating a flower-rich dune grassland, while summer grazing by cattle has been reintroduced at sites on Anglesey and the Llyn Peninsula creating greater structure and diversity, reducing leaf litter, and boosting the local agricultural economy.

Wherever possible we avoid cutting vegetation in and on car parks, access tracks, footpath and bridleways throughout the summer.

There are also opportunities for beekeepers to place hives on some NNRs. This however must be balanced against the risk of transmitting disease to wild pollinator populations and potential for out-competing native species.

In our forest estate we currently have 14 sites which are managed specifically for pollinators, some in partnerships with the 3rd sector organisation, Butterfly Conservation. But we can do so much more.

For example, our network of forest roads and rides extends for 5,250 kilometres (3,262 miles). Road verges are a highly diverse habitat with a range of flowering plant species which are useful to pollinators. Developing a strategic approach will allow us to identify appropriate roadside habitats which can link key pollinator-rich sites such as riversides and open habitats. And some of the replanting we do to recover from the deadly larch disease, *Phytophthora ramorum*, will allow us to develop a forest structure which will be more favourable to wild pollinator populations.

We are also looking at our flood defence assets - there is potential to integrate pollinator friendly maintenance into our management plans of the significant lengths of flood embankments we own and manage.

And while vegetation at our reservoirs must be kept to a certain length so the structure can be inspected, a number of these are already subject to management agreements for nature conservation, but there is significant scope for further development.

Of course, not everybody owns or manages vast swathes of forests and nature reserves. What can be done around a regular office environment to help these key ecosystem-services-delivering species?

Well, we have identified some significant opportunities around the way we manage the land around our premises. For example, the contract specification for grounds maintenance at our offices in Bangor has delivered impressive results in improving communities of flowering plants such as orchids and should be commended as a model for us, and others, to follow.

Moving forward, we are coordinating a programme to implement these land management measures and encouraging specialist staff to use this example to explore the potential for more pollinator-friendly management of our offices and their surroundings.

Last July, Natural Resources Wales' Board approved an integrated strategy which considers pollinators across our estate. We also signed a Memorandum of Understanding with the Welsh Beekeepers Association which we hope will bring further improvements. Many of the commitments in these are transferable and we'd be delighted to share the learnings with other like-minded organisations.

Natural Resources Wales was created by amalgamating the Countryside Council for Wales, Forestry Commission Wales and Environment Agency Wales, and the new integrated pollinators strategy is a great example of how we can do more as one organisation. Imagine trying to create and deliver an integrated strategy between three different organisations and ways-of-working!

But there remains a huge lack of knowledge in society generally about the value of pollinators and the ecosystem services they provide. To help address this we are actively looking for opportunities to work with local bee keepers at some of our visitor centres for educational work on the role of bees as pollinators.

That way, the steps we take today can help to encourage the next generation to understand the true value of pollinators and the importance of looking after them.

Chairman's column 4

Viewpoint Wales.

Peter Matthews, Chair of Natural Resources Wales, presents his thoughts on the hot issues of the day. This month he looks at how developing Customer Care practices can help the environmental sector deliver better results for people, wildlife and the economy.

Whatever part of the environmental sector we work in, our operations almost always involve working with other people, be that internally or externally. To meet the greater goals of our purpose, in managing natural resources sustainably, we need to make those practical relationships work well.

But how often do we take a step back and analyse how things are going? Do we ask: "If I was at the other end of this relationship how would I like to feel?" or "did the transaction with my partner go well?" Do we really think of people with whom we conduct our affairs as customers? How many times do we suffer poor customer care in our private lives? This is usually not the leadership's intention - but it happens nevertheless.

Achieving high levels of customer care is a growing issue in public sector organisations as customers increasingly expect commercial-style 24/7 service. There is also a shift in reputational impacts due to direct customer influence via social media which means that views and feedback can be shared world-wide in minutes. Many organisations are moving from viewing customer *service* as a largely transaction-based activity to a strategic customer *care* driver that helps generate mutually beneficial value.

But compared with other measurements, calculating Return on Investment in customer care is complex. The various drivers of customer care can be combined to deliver financial returns such as increased income, reduced costs and avoiding reworking or remediation by getting things right first time. But they can also deliver more intangible benefits such as loyalty, delight, trust, customer commitment, reputation management and brand building.

Understanding customer needs is consistently one of the highest ranked activities in studies because it provides the foundation for developing and improving services. This involves identifying and engaging directly with customers, and asking what they need or want before agreeing what the organisation will deliver.

The four pillars of natural resource management in Wales are economy, environment, community and knowledge - but these are merely words unless they mean something to people at a personal level. This aspect of the culture-shift that's necessary to deliver the

integrated approach to environmental management is often overlooked. Well, I am determined that this will not happen in Wales. And the concept of customers - people and organisations with whom we have any kind of transaction - fits comfortably with this.

We have to ask what is it that is common to the way we deal with a vast range of people, organisations, issues and activities. These include how we serve, deal with, and respond to the victims of flooding, complainants, our businesses customers, planning applications, those we regulate, and so on.

The principle of customer *care* is, to a large extent, cutting edge. If we look at leading organisational brands we will find a variety of expressions - customer experience, custom obsession and so on. Search for the term "customer care" on the internet – you'll find the odd reference to it, but by far the bulk of your results will be around customer *service*. Customer care goes beyond the more impersonal customer service, although service standards are part of the package which ensures customer delight. While customer service is the provision of service to customers before, during and after a transaction, customer care may be described as the customer's perception of how well we supply those services.

All fine words and sentiments, I'm sure you'll agree. But how will this work in practice and how can we move from rhetoric to reality?

Two emerging priorities in Natural Resources Wales are to ensure that every one of us understands what we are trying to achieve and the delivery of customer care orientation as a core competence. We are thinking about what a customer care template will look like and how we can overlay that onto all of our activities. As a starting point it would ask the question: "If I was in my customer's shoes, would I like it"?

As I said at the start it is also about internal working. Every one of us receives services from colleagues within our organisations and, in turn, provide services to other colleagues. Every one of those internal transactions has to be provided with care. This means embedding a customer care ethos amongst all staff so that they view their colleagues as important customers in the same way as they view their external customers.

Having the right staff with an 'inborn' attitude to customer care and creating the right experience, and the freedom and capability to make customer-based decisions are seen as increasingly important contributors to growing value from customer care. These are staff who understand how that experience relates ultimately to an organisation's reputation and brand.

Bearing in mind that Natural Resources Wales was created by amalgamating Environment Agency Wales, the Countryside Council for Wales and Forestry Commission Wales, a combination of internal and external customer care will give us a common focus, making the question of "how are you getting on with amalgamating the legacy bodies?" redundant.

Of course, we will not always be able to give our customers what they want – licence applications may still be rejected and advice may still be given to refuse development, but presented in ways which understand the impact on our customers, and that usually means being clear and timely.

And the issue of cost will always be present. But if we take one of the principles of total quality management as "getting things right first time saves money", a good customer care approach will do the same.

Providing clear uncomplicated forms, answering the phone appropriately, writing letters succinctly, and communicating simply and clearly. These are all stepping stones to help provide excellent customer care.

All of us should aim to make our customers' experiences extend beyond customer service delivering satisfaction, to be customer care delivering customer delight. Our aim should be to delight customers - a term we have chosen deliberately. When I say that one of our principal aims will be "to delight customers" and to drive for "delightfulness", I'm sure there will be a flutter of negative mutterings from some cynics. But I am very serious about this matter and determined that we will make this journey.

I want Natural Resources Wales to be a leader in this area and to share and learn from others in our sector. I invite you as a reader (my customer) to share your thoughts with me on how we can all help make this difference.

Chairman's column 5

Opportunity knocks, even in tough times

The world in which we work is changing with public finances increasingly under pressure. Organisations operating under tight monetary constraints have an obligation to focus scarce resources on their core tasks says Peter Matthews, Chairman of Natural Resources Wales. In this month's column he makes the case for finding new solutions for old problems.

Our environment is one of our most valuable assets. It provides a home for our wildlife, it enriches our lives with stunning landscapes and seascapes, and it is also vital for the range of natural resources it provides – food, water, energy, even the air we breathe.

And we all want to be able to use these wisely and efficiently to improve the resilience and diversity of our environment, while at the same time enhancing quality of life for people.

But in challenging times, tackling the consequences of climate change, halting the decline in biodiversity and helping our rivers recover from centuries of pollution sit alongside issues such as improving people's health and wellbeing, tackling poverty, and green growth – creating more sustainable jobs.

The recent flooding and the outbreak of larch disease has brought some of these challenges into stark focus. If we are to genuinely address these issues during a time of financial constraint we need to explore new avenues, seeking new solutions to old problems. We all care deeply about improving the environment - not just for wildlife but also for people and the economy, but we must do the right thing, not the easy thing or the quick-fix.

And the birth of Natural Resources Wales in April 2013 was a landmark moment. Never before have so many aspects of environmental stewardship been entrusted to one organisation. We warn people of impending flooding and build schemes to reduce the likelihood of that happening, regulate industries large and small, manage 126,000 hectares of woodland and market 650,000 tonnes of timber each year. And all of our 1,900 staff work with a passion to protect and enhance the landscape and biodiversity of Wales.

Flood risk management, industrial regulation, woodlands management sit alongside the important species and marine conservation work that we are responsible for, it is what we have been tasked with delivering by the Welsh Government.

This provides us with a unique opportunity - to manage our environment in new ways to reap maximum benefits for the people of Wales and its wildlife. So for example, our work to improve peatlands not only creates a better habitat, it also stores flood water and reduces the risk of flooding for people's homes. Or that developing a strategic approach to the way

we manage our vast network of forest roads will allow us to identify opportunities to develop roadside habitats which can link key pollinator-rich sites.

We accept that environmental budgets are not isolated from reality and strive to provide the taxpayer with the very best value for money, constantly making sure that the environment is getting the most out of every penny that's being spent. And we also understand the need for a focused approach - which does mean that sometimes hard choices have to be made.

But therein, also, lies the solution. It's a familiar societal phenomenon - times of greatest need often deliver the greatest results. And, I believe that now is the optimum time for us all to collaborate, sharing ideas and wisdom to create innovative, alternative funding models to address the challenges we face.

In previous columns, I have explored the issue of how we can manage knowledge more effectively to gain wisdom. And here we have another example. Surely many of us have already succeeded in creating and delivering alternative ways of doing things – but, I ask, have they been communicated with the broader community?

Let's look at the example of Professor Tim Birkhead from Sheffield University. He had been monitoring the population of Guillemots on Skomer Island, off the coast of Pembrokeshire, for 40 years when his funding came to an end. So he made the most of the new opportunities provided by social media and within a week last autumn had conducted a successful "crowdfunding" campaign to raise £12,000 to continue his study. A good example of alternative thinking.

And I believe that this underlines the point that now is the time to start a broader conversation about how society funds this kind of work in the future because, with less money available, we just cannot keep on doing everything we did in the same way we used to.

And there's not one organisation that can address these issues alone. We have to do things differently and devise new solutions together to the challenges we face.

All of us working in the environmental sector - Government sponsored bodies, Local Authorities, NGOs, charities and individuals – are driven by the same desires and ambitions. We all want to see our wildlife thriving in a healthy, sustainable environment.

What we now need is an open and honest conversation about how we can all do that within the current and future financial reality.

We must acknowledge that this will not be universally popular – but reality dictates that we have to be flexible and innovative. If we collaborate effectively, in the true spirit of partnership, we can create modern ideas to solve some of the multitude of historic and complex issues facing our environment.

Chairman's column 6

Viewpoint Wales

This month Peter Matthews, Chair of Natural Resources Wales, discusses the difficulties involved in using the right language to help us achieve the right outcomes and the complexities involved in improving knowledge management to gain wisdom.

Getting sustainable management (which includes development) into the heart of what we do is absolutely crucial for the future of our environment and the development of our society.

This is clear to the central caucus of experts, but understanding proves elusive to the bulk of the population. Achieving that understanding lies within the concept of persuasion. At the Conference for Nature conference in London last year a great deal was made of this. As so often happens, it was recognised that part of the problem is in the language and syntax that we use. The same issue was identified at the conference organised by the Wales Biodiversity Partnership in Cardiff, Nature Recovery Planning in Wales – implementation approach to 2020.

There was criticism in London of many of the words we use. The word “Reserve” was challenged and it was suggested whimsically, but with some intent, that these places should be described as “mind bogglingly beautiful places”. Interestingly, the subject came up at the Cardiff conference as well. Personally, I have yet to find a better one word than “Reserve”, which I think accords well with public understanding of what we are trying to do. Similarly, the term “Protected Sites” has been criticised because it is said to create a sense of exclusion for ordinary people – and gaining access to protected wildlife sites is notoriously difficult.

When challenged to cite examples of successful transformation of language, there was not much response from the London audience. But good examples do exist. In the water industry for example, biosolids (defined as properly treated sewage sludge) used responsibly as a fertiliser for agriculture paints a very different picture to “sewage sludge dumped on land”. Another is that, if we want to drop the term “sewage” from day to day descriptions, “waste-water” is not the best alternative. “Used water” is a little better, but we do have to be careful to avoid accusations that we are trying to create misleading spin.

We need to embed the language of sustainability and natural resource management into our everyday lives. If our futures depend as much on understanding sustainability as much as our ability to be articulate and literate, then we have to ensure that sustainability is at the heart of secondary education. If we want to be the world's leading green economy, secondary education has to produce young people who are fit for purpose.

This is a convenient point for me to turn to my second point on a related issue - knowledge management in modern society. We recognise the difference between explicit knowledge which is about hard learning - reading books and so on, and implicit knowledge - which is about experience. Hard learning may, of course, involve reading about other people's experiences! Decision-making must be based on evidence created of data and information. The collation and interpretation of data and information creates knowledge. But it is the beneficial application of that knowledge which creates wisdom. Another way of looking at this is that a combination of explicit and implicit knowledge create wisdom. But sometimes we cannot wait until all the evidence is assembled and sometimes we have to use our common sense and join the dots across knowledge gaps, for example as we confront climate change management.

In our society we are overwhelmed by information and it is very hard to keep track of all that is being produced. This can have a counter-productive effect - when faced with such complexity some people seek comfort in prejudice. And while people who make decisions on the basis of the heart and instinct may do so rapidly they are also notoriously difficult to change their minds, because such changes feel threatening. Whereas, people who make decisions on the basis of evidence may do so more slowly, but will change their minds more easily when confronted with new evidence and do not feel so threatened personally. I sometimes hear things being said which reflect these difficulties and my job, as Chair of NRW, is to ensure that preconception and prejudice have no place in our decision making - although we all have initial opinions!

Knowledge is found in so many places and in so many forms in our modern society and we no longer look just to peer-reviewed papers. We also have conferences, workshops, seminars, presentations, organisational reports, submissions to committees, Board papers, press releases, webinars, twitter accounts, LinkedIn, blogs, websites and many others.

But there are also good examples of knowledge gaps. At various conferences recently I have heard:

- calls for farms to work together on agri-environment projects without any awareness of the work at Pontbren, for example, which you read about in my second column
- a presentation on the well-being benefits of exposure to farm life for people suffering from a variety of problems did not refer to the Care Farming project
- a call for more integration of environmental management did not mention the work we are doing in Wales, as I described in my first column
- and a call for faster progress on the evolving strategy for pollinators, did not recognise the work we are doing on this in Wales as I described in my third column
- a call for farmers to be paid to manage their land in ways which sustain a recovery in the state of nature did not recognise what is done now in agri-environment schemes
- and a call for a better integration of economy and the environment - central to our purpose in Wales and underpinned by our key event at the Mansion House, London, - did not refer to the Welsh Government's "Growth Wales: Investing in the Future" prospectus

Now, let me be clear, these are not sensitivities about a lack of awareness about what we are doing in Wales – I'm sure that there are equally valid examples of work in progress elsewhere in the UK. Rather, this serves to highlight again the problem of how to keep up with, collate and use the knowledge from all relevant sources and make wise decisions.

We must learn to work together to exploit modern e- techniques. I am convinced that we have not yet exploited the full potential of the Cloud, but we do not have a common protocol or language to do so.

And I am not alone in all this - the same angst is expressed in many places. At a Plenary Meeting of the Heads of European Nature Conservation Agencies, to discuss the contribution of agri-environment schemes to landscape management I learned about what is happening in the rest of Europe, but the most striking thing is that we all agreed on the need for simple language and the urgent need for better knowledge sharing.

So I have identified some problems and I look forward to hearing from members of CIWEM if you have any contributions to make in solving these.

Chairman's column 7

Innovation at the Heart of Our Business

Peter Matthews' develops the themes from recent columns discussing the underlying philosophies for modern management of our natural resources which has taken us into some unfamiliar territory. The traditional knowledge management cycle of data, information and knowledge has been extended to include wisdom which in turn creates innovation.

There are many ways we can move from being knowledgeable to being wise and that step is where cultural assets like common-sense and ethics come in. This is the ultimate blend of fact and experience. But the essence for organisational leadership is to understand, harness and apply these to practical advantage. The challenge is to convert rhetoric to reality.

Studies have shown that from wisdom springs creativity – it provides the insight that allows creative spirit to flourish. From creativity comes innovation and this provides new experience and evidence. So an organisation develops not in a continuous circle, but in a helix which drives forward. Leadership must understand and embrace these ideas.

Innovation is often perceived as technology-based, but it is in fact anything which brings beneficial change. The web gives a definition; an idea that is replicable at an economical cost which satisfies a specific need. Innovation involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all processes by which new ideas are generated and converted into useful products.

In business, innovation often results when ideas are applied to further satisfy the needs and expectations of customers. In a social context, innovation helps create new methods for alliance creation, joint venturing, flexible work hours, and creation of buyers' purchasing power. Innovations are divided into two broad categories

- evolutionary innovations that are brought about by many incremental advances in technology or processes
- revolutionary innovation which may be disruptive and new

Innovation has inherent risk and needs strong management. There are all sorts of dilemmas. For me, innovation is research and marketing with development implicit. The first step in market research is to determine need and explore new ideas, then these are developed and sold as new products or ways of doing things. This concept is valid for many kinds of processes such as classic research and development - but it applies equally to other processes such as suggestion schemes.

Market research might be within an organisation and the customers internal; new ways of doing things are notoriously difficult to get accepted within any organisation and must be marketed well internally. And any changes in an organisation should be wrought talking to internal and external customers. Organisations forget this at their peril. The staff of even the most innovative company need to be treated in this way when internal change is happening.

There is an old adage “never ask today’s customers what tomorrow’s customers want”. Customers do not always want innovation in the products they buy. Customers who expect something better in cameras and phones each time they purchase do not necessarily expect constant improvements in their drinking water, they may place more emphasis on constant good quality and pressure. They may also want constant improvement in service – for example in the use of modern e- communications. For example a tech company is expected to exude innovation in products, but a water company has to be more circumspect and exude stability in the product they deliver – their innovation has to come in developing better, cheaper ways of delivering that constant service. These dilemmas have profound effects on the culture of an organisation.

What has this meant for NNRW? Our creation was certainly revolutionary innovation and the inherent risks weighed heavily on the minds of the team which established the organisation. Our job has been to blend the stability that our customers want and the innovative services we provide. Some of our customers were worried about the idea of an uncertain tomorrow – I hope they are now happier and we are responding to the wisdom of understanding how they feel with our innovative customer care strategy. For example, everyone expects that we will be constant in our focus on the management of flood risk, but the innovation comes in integrating that into natural resources management. We are starting to deliver that.

The introduction of integrated natural resources management is a sufficiently big step to qualify as revolutionary innovation. But the development of how we will do this on an area basis - based on catchments - is a demonstration of evolutionary innovation through trials in the Dyfi, Rhondda and Tawe catchments. We are increasingly using continuous improvement and total quality management across the organisation to introduce other initiatives of evolutionary innovation. A good example is how we have taken innovative steps to accommodate hydropower abstractions, particularly at a micro scale.

This article is too short for me to share all the things we are doing which qualify as innovation. But I give you a few further examples.

Sometimes creativity and innovation comes from lateral application of knowledge and wisdom arises from seeing the relevance of knowledge across sectors. There has long been an understanding that sectors involved with services for community safety benefit from schemes promoting excellence. Examples are Water Safe and Gas Safe. We recognised that pollution from package sewage treatment works and septic tanks is an issue in the rural environment in Wales (and indeed elsewhere) so we are being innovative in promoting an idea nick- named 'SewageSafe' on an analogous basis for the installation and maintenance of such plants and we have been working in partnership with British Water.

In some cases the nature of wisdom is to exploit the creativity of others and in this cyber world we all need to use revolutionary innovations in an evolutionary way. We moved from the wise insight that clear communication during serious flood events is crucial to introduce the successful use of texting to keep people who could be affected informed and this worked well in the flood events of the winter of 2013/14. We are using handheld computers to speed up the collection of field data and camera drones to collect more effective environmental information. And the use of Apps has improved the availability of information to customers. Our Board is leading by having days of 'sensible imagination' to consider innovative options for the future. It has an Innovation and Bright Ideas Champion who constantly reminds us of the bigger goals. August 19, 2014 was Earth Overshoot Day, marking the date when humanity exhausted nature's budget for the year. So now is the time for us all to be creative and innovate. It would be great if the contribution of NRW will be that we will have played a significant role in bringing Wales Overshoot Day to midnight December 31 in future years and to have contributed to Wales being the World's leading green economy.

Chairman's column 8

Viewpoint Wales

This month Peter Matthews, Chair of Natural Resources Wales (NRW) considers the issues around waste regulation, how to balance the often conflicting desires of stakeholders, and explores how current changes in Wales will help deliver better outcomes for the environment.

In recent articles we looked at some of the principles with which we are managing natural resources in Wales. We will base this on integrated areas and we will be managing with wisdom, innovation, responsibility and customer care, for example, to quote from those recent articles. I now want to return to the basics of how we in NRW will apply these ideas to front line issues. Considering waste as a resource and the move towards a circular economy provides a very good, and current example.

Policies from Europe, Westminster and, for NRW, the Welsh Government have driven up recycling and driven down landfill. In 1998-99 only 5% of local authority municipal waste in

Wales was collected for preparation for re-use, recycling and composting. This has risen to 54% of all waste collected by Welsh local authorities in 2013-14. Wales is the only UK country to have introduced statutory local authority recovery targets for waste recycling and, collectively, Welsh local authorities achieved the first target of 52% cent in 2013-14. If it was a fully-fledged member state, Wales would rank fourth in the EU on this measure, and a recent National Assembly inquiry into recycling in Wales recognised “outstanding” public levels of engagement and passion for continuing to recycle as much of our waste as possible.

Current regulations give certainty to the waste sector. They know what is expected of them and how they are able to comply. It reassures the public who question how often regulators visit sites and carry out enforcement activities. However, we have a complex legal and regulatory picture implementing more than forty separate pieces of legislation. We take a risk-based approach with a focus on improving poorly performing sites and providing advice and guidance to encourage compliance and intelligence-led methods are used to take enforcement against waste crime and illegal operations.

A well-run site should pose no significant risk to the local environment, health or amenity but communities often expect zero impact from waste sites. Unfortunately, some are not ideally located or have outgrown their original purpose or scale and these often result in complaints and there are a very small number of cases where current ways of regulating do not always improve operator performance, deliver for the community or for public finances.

The waste market is continuously having to adapt to deal with future aspirations in dealing with waste and high levels of minimisation or recycling. This can drive perverse outcomes for the environment and communities. While we strongly support the principles of waste recovery this must be in the context of environmentally appropriate waste management.

I believe that there are lessons from the challenges we are facing in NRW which could equally benefit colleagues throughout the UK. Our primary role is to ensure that we deliver our statutory responsibilities, but we need to ensure that we regulate effectively and efficiently, delivering the required environmental outcomes at least cost to business and society, and to provide sound advice.

We work to deliver for the environment and people whilst minimising the burdens on business and the public purse – at the same time as looking for the most effective method in each given situation. Against a backdrop of reducing budgets we investigate alternative methods to deliver the service required with fewer resources, strengthening the drive for innovation and flexibility. Our approach will comply with the better regulation principles within the Regulators Code.

We have a unique opportunity to reconsider how we deliver environmental outcomes and regulation is only one of a number of tools that are available to achieve these. Alternatives could include voluntary schemes, market incentives, use of the circular economy, trading schemes and behavioural change.

To guide us, we developed some simple principles to articulate and define what we need to do without detailed prescription. We used available evidence and, considered academic work in this area and the wisdom created. These principles are designed to ensure our customers understand what we do and why. They articulate that we will seek to:

- **deliver outcomes** - not just regulation, outcomes will be shared outcomes where possible

- **be prepared to challenge** - addressing barriers where they don't contribute to the environmental outcome
- **be flexible** - tailoring the approach to the needs of the recipient, using innovation and novel approaches where appropriate and learning from past experience
- **be intelligent** - using all available evidence from a range of sources so the data we collect from those we regulate helps to deliver outcomes
- **use the full range of tools available** - the tools we use will be chosen for their effectiveness in delivering outcomes, using the law to deal with those who act illegally, to protect honest business, society and the environment
- **bring the right skills / expertise together** - having the right skills to use the right tools effectively, or work with those who do
- **be clear on what we do and why** - embedding a consistent approach by ensuring everyone understands our role, purpose and desired outcomes so that it is easy to see the link between what we are doing and why and to
- **be efficient and effective** - being efficient and effective, working with others where we can, and where this is a good thing to do

In addition to our current approach our focus will include targeting the root causes of issues in the waste flow. To do this we will use wider social and economic interventions and influence behaviour which, through wise use of natural resources, will give rise to a more sustainable business cost model, preventing waste build-up at sites and help ensure the liabilities of waste operators are not transferred to the public purse. Taking a risk-based approach and allowing our staff to focus on outcomes using flexible ways of working will ensure we are proportionate, transparent and evidence-led and use the full range of tools available to us and others tailored to the situation and people we deal with.

Short-term actions are designed to create capacity within the business to develop our thinking around medium-term solutions. This includes developing the space to effectively engage with others who can help deliver the outcomes we want through partnership working. Specifically, we intend to:

- investigate the potential for using subsistence income more effectively
- develop the wasteflow approach at poor-performing sites to identify the root causes of non-compliance
- investigate mechanisms to protect the public purse from environmental liability
- develop supply chain interventions to maximise industry compliance schemes delivery of shared outcomes
- further our partnership working with Trade Associations to develop shared outcomes with industry

Our approach is not without risk. It could lead to a perception of inconsistency as the method would be strongly tailored to the recipient. But we manage our organisation on a risk-based approach, and this risk is worth taking for the greater good.

What is clear is that we have a unique opportunity to change the status quo on waste regulation to contribute to a better Wales which values the contribution of the circular economy in the overall thrust towards being the world's leading green economy. I am very happy that we in NRW are playing a leading role in this.

The wisdom we have gained from these experiences could well help others faced with the same dilemmas in other parts of the UK and we are keen to learn from you as well. If you are one of these, we would be delighted to from you.

Chairman's column 9

Viewpoint Wales

In this month's column, Peter Matthews examines the evidence of the holistic benefits of using our environment for access and recreation and considers the opportunities provided by brigading more elements of environmental stewardship together.

Last month I shared with you how the principles of better regulation, customer care and natural resources management come together in the front line management of waste as a resource. Now I am going to do the same for access and recreation using examples from Wales; it is a central feature of what we are doing.

There is now ample evidence that exposure to a healthy environment is good for human fitness and mental health. So we want people to “come outside” enjoy themselves and at the same time contribute to our economy. How does it all fit together?

Environmental benefits - Participation teaches people more about the natural world, often gaining a sense of responsibility and care for the environment and their local green-space. There is evidence that community engagement with a particular space not only provides individual health benefits for those involved, but often discourages crime and anti-social behaviour. Walking and cycling can play a key role in serving local transport needs and helping address the issues of congestion, pollution and climate change associated with car dependency. “Everyday journeys” to work by foot or bike also serve fitness and enjoyment demands. We need a healthy environment as a platform and some of our most enthusiastic outdoors sports people such as walkers, birdwatchers, anglers, hunters and swimmers have also been enthusiastic environmental guardians and form partnerships in delivering our purpose. Protecting sea water quality maximises the opportunities for beach recreation and managing our fisheries well maximises the opportunities for angling. Rhossili beach on the Gower is regularly ranked among the best in Europe.

Social and health benefits - Active participation can make a significant contribution to people's physical health and mental well-being. Increasing levels of physical activity has benefits in terms of increasing people's healthy lifespans and reducing the incidence of chronic disease, including cardiovascular disease, some cancers, type II diabetes, allergies and osteoporosis. Nearly a third of adults in Wales have been able to gain the health benefits associated with physical activity through participating in outdoor recreation, indicating the significant contribution it can make to the nation's health.

Economic benefits - Economic prosperity and employment opportunities for communities and local enterprises are often derived from recreational opportunities and are particularly important for areas that are economically reliant on tourism activity. For example, over one third of accommodation providers located on or near a National Trail in Wales described the Trail as “very important” to the profitability of their business. Walking as an activity generates £562m of additional demand in the Welsh economy, £275m of Gross Value Added (GVA), and around 11,980 person-years of employment. This is demonstrated by the Wales Coast Path, which alone generates £32.2m of additional demand, £16.1m of GVA, and 730 FTE of employment. In addition proximity to high quality green space increases property values and every £1 of public spend on green space projects levers in £4.20 of private sector investment, boosting regeneration.

Outdoor recreation already provides society with a wide range of valuable services. NRW is in a unique position - globally - in the way it combines so many elements of environmental stewardship in one organisation to go much further. There is so much more our organisation can do with managing fisheries, the National Nature Reserves we manage, the mountain

bike trails and pathways in our forests, adapting our Flood Risk Management schemes to provide green spaces for recreation and wildlife and developing society's understanding of the true value and benefits provided by our environment. And of course working with tourism and our partners in National Parks and AONBs.

For example, a consistent, strategic approach to recreation and access opportunities across Wales means we can mitigate visitor impacts or direct people away from the more vulnerable areas. Developing a consistent approach to recreation planning that considers the sensitivity of the environment by encouraging behaviour change is an important part of our natural resource management approach.

It is estimated that the annual cost of physical inactivity to Wales is around £650 million per year and that one in four adults in Wales experiences mental health problems or illness at some point, with an estimated annual cost of £7.2 billion. Passive contact with green infrastructure can be psychologically and physiologically restorative, reducing blood pressure and stress levels. Participation in outdoor recreational activities is often perceived as being limited by income, ability and access. But the outdoors can offer opportunities for everyone and appropriate promotion, facilities and access opportunities can improve social inclusion. The development of path networks, urban woodlands and other green infrastructure aimed at enhancing the quality and accessibility of the local environment play an important role in improving people's health and well-being.

We have already taken large strides towards reaping the economic benefits of our amazing natural resources and more opportunities are within our grasp. Research demonstrates that gains are being made and that there is an appetite for more.

High proportions of the Welsh adult population visit the outdoors. And the numbers of adults who have met the required level of physical activity through participation in outdoor recreation in Wales is growing. Studies show that participation in outdoor recreation is helping people to 'turn the curve' and increase their physical activity levels and therefore improve their health.

Tourism is increasing. Out of around 6 million holiday visits to Wales in a year, almost 2 million visit our beaches and we sell around 60,000 angling licences every year.

The Path Forward!

What do we need to do to achieve further successes? NRW's Board have agreed a strategy which draws together all the elements into an integrated whole and this is unique in the UK. In summary this will help us not only to embed the recent improvements, but to make sure that more of the people of Wales take advantage of, and benefit from, the opportunities provided to them by outdoor recreation. But we want to share this with the rest of the UK.

1. Opportunities are provided and improved that best meet people's needs for recreational enjoyment of the outdoors
2. Promotional information and engagement about recreational access opportunities are widely available in appropriate formats
3. Recreational users have an increased understanding of how to act responsibly in the natural environment
4. Effective planning for the sustainable recreational use and management of natural resources is embedded in our work

5. Effective mechanisms for the delivery of the benefits of outdoor recreational are developed and embedded in our work

Over the next five years we will focus our efforts on ensuring that we deliver to people and places which will benefit the most. We need to ensure that our activities help deliver our overarching aim of more people participating in outdoor recreation more often and at the same time contribute to the green economy.

We need to co-ordinate and integrate our work with a range of public, private and third sector organisations as well as with communities at national, regional and local levels. Our role as an enabler, facilitator and helper to others where they are best placed to deliver will be key. We will be good regulators to protect the environment, make sure that our customers are delighted and recreation and access will be key elements of our natural resources management area statements ... so watch this open space!

Chairman's column 10

Viewpoint Wales

This month Peter Matthews, Chair of Natural Resources Wales (NRW), expands on the themes articulated in recent columns on the application of the principles of management – this month in the area of front line operations and trees.

I have learned that with the inclusion of forestry in the remit of NRW and natural resources management, the most basic principles of good environmental management are the same for forests as they are for other aspects of the environment - such as water. But there are also some differences. The first is what I describe as ecological inertia, decisions made with trees take a longer time to manifest themselves and mistakes take longer to rectify. This requires us to think and plan over a longer timescale. The other is that in addition to our ecological purpose we have responsibilities to grow trees and market timber. We manage the Welsh Government Woodland Estate, which is 7% of the land area of Wales.

The terms treeland, woodland and forests can be confusing and are often interchangeable. The WG 50 year Strategy 'Woodlands for Wales', published in 2001 and updated in 2009 states that it will have a significant influence on the direction of Welsh forestry. It established the role that woodlands and trees can play in sustaining and improving the environment and lives of everyone in Wales.

Ordinary people might think of "woods" as being relatively modest in size and comprised principally of indigenous species with some traditional management such as coppicing, and "forests" being larger and comprised more of commercial species managed sustainably to produce timber.

In recent times forestry management has evolved to contribute to a diverse environment with extensive recreational opportunities for local communities as well as making a significant contribution to the economy. I am going to refer to the principles of what we are doing with all trees and when there is a specific point about managing the forests on the Welsh Government Estate I will make that clear.

It was recognised explicitly in the creation of NRW that forests, managed previously by the Forestry Commission would be integrated with the other aspects of natural resources management. We could not meet our purpose if forests had been excluded. It is clear that, with the concept of basing Natural Resources Management Areas on catchments as environmental engines, that forests are major drivers. I described in my first article how our

Area Plans will have local and cross catchment elements. Our Forest Plans are examples of the inter-catchment elements and it has been an inspiration to me to see how this matrix model is being understood and developed as we move to more integrated planning and outcomes through our Forest Resource Plans, the concepts of which are currently being piloted.

And as it turns out, we expect quite a lot from our trees, including:

- a contribution to the biodiversity of the countryside
- a pleasant appearance to the countryside
- a range of access and recreation opportunities as an ecosystem service, either by managing woods in our National Nature Reserves or within our forests
- contributions to the Welsh Government's strategy to increase tree cover
- contributions to the economy by the provision of timber as an ecosystem service and to promote the innovative uses of Welsh timber
- key elements of natural resource management where woodlands are managed to support the retention of water in uplands, abating flooding in lowlands and retaining sediment in the uplands to protect lowland water quality – key ecosystem services
- reduce carbon dioxide in the atmosphere by fixing it into the tree, particularly in our forests, and storing this through timber products and by using timber instead of products which use more carbon

Timber production must be a major contributor to the Welsh Government's aspiration to be the World's Leading Green Economy. We need better predictive models for supply and demand in future and we need innovative market mechanisms such as hedging of timber prices.

But recent events have demonstrated that the many services provided by trees and woodlands are vulnerable. The threat to our trees and whole woodlands from new diseases have materialised in Wales over the last few years. We have seen the devastating effect of *Phytophthora ramorum* - a fungal disease imported on horticultural nursery plants - on larch trees across the country. I have been amazed how easy it is to import diseases, apart from wind and insect vectors, and more needs doing on import controls. In the two years since we were established we have had to fell 3 million larch trees and are planting around three million new trees each year. We have met this challenge of doing all that we can to check the spread of the disease and to find new markets for the larch wood without affecting timber prices. Dealing with this has disrupted the planned programmes for felling, timber sales and replanting, but it has also given us the opportunity to redesign these areas to reflect new opportunities and future challenges such as improved resilience.

When we plant trees in a forest, we do so typically with a mixture of conifers and hardwood. Our focus is on how we can change the nature and species of planting to make our woodlands more resilient to future environmental threats and change. So public perception of forests will change as the years go by.

But we also have a regulatory role and that applies as much to our own enterprise activities as it does to privately managed forests. Hence, we have a clear division of roles and responsibilities in NRW. We manage our forests sustainably to meet the UK Forestry Standard and we certify under the UK Woodland Assurance Scheme, our Forest Resource Plans are a key part of that process and assessment.

Forestry plans are also a requirement under the Rural Development Plan regulations for the private sector seeking Welsh Government grants (known as Glastir) to manage existing woodlands and create new ones. The formats have been developed by the Welsh

Government to meet the requirements of the UK Forestry Standard (UKFS - the reference standard for sustainable forest management in the UK) leaving it to forest owners to further certify to UK Woodlands Assurance Scheme standards if they wish. Although the full details are still being developed they will include NRW regulatory approvals where these are required and the final Plans will be signed off as meeting UKFS, as well as grant scheme rules, as part of the approval process.

We have a long way to go. But as we move forward with the delivery of existing and new pieces of legislation in Wales, decisions over how we manage and what we deliver from Wales' public woodland estate will have to adapt in line with changing National policy. Recognising the value we can derive from sustainably managed woodland allows us to think about our wider remit for the sustainable management of all of our Natural Resources to ensure we make conscious decisions about integrated resource management, optimising the benefits for Wales. Critical to this is good customer care, reflecting on the needs of our communities and good regulation to support others towards optimising the forest resource.

As the rest of the UK reflects on how it wants to create further integration to manage our natural resources more sustainably, it might also wish to think carefully about the role of trees and how they can help optimise the benefits.

Chairman's column 11

Viewpoint Wales

Peter Matthews, Chair of Natural Resources Wales (NRW) presents his thoughts on the hot issues of the day. This month he looks at the challenges involved in improving air quality in the context of one scheme where collaborative working has led to some innovative improvements.

A constant theme running through this series of articles has been natural resource management and in particular the notion that area management will be based on catchments. It is easy to envisage this in terms of fixed environmental assets like rivers and fields, but how do we think air quality management will fit in? It obviously moves about a lot! However, the sources of air pollution are manageable as identifiable assets, which fits into the notion of integrated management. So I am going to explain how the principles are being applied in one specific example.

We breathe without thinking. And whilst we can survive without water for 3 days, we can only manage 3 minutes without the right air quality. How fragile and dependent we are on something most people take for granted and hardly ever contemplate.

The Clean Air Act of 1956 put an end to industrial smogs and the recent Industrial Emissions Directive, fondly known as IED, is electric in the atmosphere of governments and Board-rooms throughout Europe. In NRW we believe in the four pillars - environment, economy, community and knowledge. We support a thriving economy for jobs so communities are sustainable and we want to preserve our traditional manufacturing base. We also value knowledge and our experienced staff work with government and industry to write guidance so we implement the new IED standards to drive up air quality for everyone who lives, works and visits our country.

Even if we forget we have to breathe, we are frequently reminded on the news about the risks to good air quality with stories about fine sand from the Sahara or dust from European

pig farms blowing across to the UK. We depend on an air quality regime that is operated by the Local Authorities and is familiar to us as Air Quality Management Areas (AQMAs).

To get technical for a minute, the European standard allows for an annual average of 40 micrograms (one millionth of a gram) per cubic metre and a daily mean of 50 micrograms per cubic meter not to be exceeded for more than 35 days in a calendar year. So we start counting the number of exceedance days. If the 35-day threshold is breached, then there is an initial multi million pound fine followed by fine of up to 850,000 euro a day to the end of the calendar year. This fiscal measure, drives an 'invest to save' approach; it is worth investing in good air quality for the economy, the environment and people's health. New technology has driven down point-source emissions such as Sulphur Dioxide, lead and dioxins but the more stubborn ones are those from diffuse sources such as Nitrogen Oxide and particulate matter less than 10 microns per cubic metre (also known as PM10s).

In 2000, the Local Authority declared an AQMA in Port Talbot for PM10s. The principal source was recognised as the various industries on the steelworks site with the geography of the coastal location, the prevailing wind and the main M4 transport link to West Wales all contributory factors. Through our participation on the Neath Port Talbot Local Service Board (where leaders from Health, Police, Fire and Rescue, Local Authority Councillors and Officials, Probation, Housing, Industry, Education, the Third Sector and Natural Resources Wales meet to improve service delivery into communities) we championed an Air Quality Project, working collaboratively with multi-agency partners to co-produce local solutions that directly improved air quality.

The initiative delivered innovation and proven results as our ambitions for Port Talbot were raised higher and higher, providing me with confidence that new alliances will be forged through the Public Service Boards, suggested in the Welsh Government's proposed Environment Bill.

We set about the task by establishing a multi-agency working group with partners from industry, regulators, government and academics who work purely on the basis of evidence. This co-ordinated monitoring equipment and locations to give triangulation points for pinpointing sources at any one time, activity logs for reference and the latest technology to give us data on not only wind direction, PM10s and the smaller PM2.5s but also metals in the particulate matter. Working in a technical group has broken down barriers, experts poring over data has produced insights that have led to new operational procedures on sites. Reducing lorry movements and using tarmac roads is one change that has saved the companies money in transport costs, an example of how being good for the environment can also be good for the economy.

Health and wellbeing is a primary driver at Local Service Boards, so driving an air quality agenda through this channel made sense because while compliance with an EU standard is one requirement improving air quality for a community is so much more inspirational and motivating. And the community in Port Talbot is central to the project. We have organised three annual community engagement events where those who were previously viewed as complainants are now at the heart of influence. The Minister speaks alongside NRW and industry and the workshop session has generated the project ideas.

I have previously written about ecosystem services in this column and one of these ideas to improve air quality in Port Talbot is the Urban Trees Project. Planting more than 1,000 trees of the right species to improve air quality attracted a European Social Fund grant and involved schools, churches, local councillors and the community. The day planting trees at the school turned into an environmental festival with stalls and enthusiasm to inspire even

the cynics. And it didn't end there, many more trees have been planted on the steelworks site and along a recently completed new distributor road.

Focussing on health, one of the projects investigated the impact of poor air quality on residents in the AQMA. Health professionals liaised with local GPs to identify patients at risk of asthma, lung and other complaints so they could receive an alert in real time when the live monitoring data showed any increase in PM10s. Patients then changed their routines to reduce activities according to medical advice. Primary benefits were realised for people's health and wellbeing while also offering potential cost savings to the local health board through reduced emergency admissions to A & E.

These examples demonstrate that regulation alone will soon be a thing of the past. NRW is fighting for the environment on a new front, one where the economy and people also benefit.

What next? Well, we are actively sharing our knowledge and in May a delegation from the (South) Korea Environment Cooperation (KECO) asked specifically to visit Wales to learn about our natural resource management approach to regulating steelworks. The searching questions they asked and the presentation from Tata Steel Ltd demonstrated that an open and transparent regulatory approach which benefits from clear communication and early engagement signals the way ahead.

If you think that this approach would pay dividends for your area of work, we'd be delighted to discuss it with you.