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Imagining Wales in 2100: Stories and Essays





About the National Infrastructure Commission Wales

The National Infrastructure Commission for Wales (NICW) was established in 2018 as an independent, non-statutory, advisory body to Welsh Ministers. Its key purpose is to analyse, advise and make recommendations on Wales' longer term strategic economic and environmental infrastructure needs over a 5–80-year period. NICW conducts studies into Wales' most pressing infrastructure challenges and will make recommendations to the Welsh Government. The advice provided by NICW will be impartial, strategic and forward looking in nature. NICW is accountable to the Welsh Ministers for the quality of its advice and recommendations and its use of public funding.



About the IWA

We are a think tank and charity, independent of government and political parties.

By bringing together experts from all backgrounds, we conceive ambitious and informed ideas which secure political commitments to improve our democracy, public services and economy.

We provide platforms for debate, opportunities for people to make their voices heard and agenda setting research. We are funded by our members, income from our events and training sessions, and supported by trusts, foundations and other funding bodies. We are a proud signatory to the Zero Racism Wales pledge, a Living Wage employer and hold NCVO Trusted Charity Mark Level One.

Our vision is to create a Wales where everyone can thrive.

For more information about the IWA, our policy work, and how to join, as either an individual or organisational supporter, contact:

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Foreword

Joe Rossiter

At the IWA, we live by our mission to inspire Wales' ambition and our vision to help create a Wales where everyone can flourish.

Part of the way we try to achieve this mission is by providing people with open, informed spaces, virtual and in person, to exchange their ideas and contribute to high quality public debate.

We incubate, platform and create progressive and ambitious ideas to make Wales better, hearing from perspectives across the nations' length and breadth, reflecting the rich diversity of experience and knowledge in our communities.

This is why we are proud to introduce this anthology produced in partnership with the National Infrastructure Commission for Wales, an organisation which has enshrined long-term decision-making into its work on the nation's infrastructure needs.

In Wales, we are collectively proud to be the first nation in the world to legislate in the interests of future generations, with the Well-being of Future Generations Act. This anthology reflects that particularly Welsh approach to sustainable development, present not only in the Act itself, but in its pertinence to everyday life across the nation. We are pleased to platform the Future Generations Commissioner in this collection.

Long-term thinking, such as required in the Well-being Act, requires tackling the challenges ahead of us head-on, rather than prevaricating and passing the burden onto the next generation. These challenges are profound, not least a climate and nature emergency, which is already beginning to have direct implications on people and places in Wales, but also in providing the social baseline of essential services and infrastructure for people living in deep and persistent hardship.

But long-term decision-making can lead to better outcomes now and for the future, enabling us to tackle the problems which hold us back. The mission of leaving the world better than we inherit is a unifying one.

Assembled in this anthology are perspectives from across Wales, with different lived experiences and identities. They range from the narrative to the factual; the optimistic to the challenging; with subjects ranging from the food system to Artificial Intelligence.

Writers have attempted to answer a broad brief, namely, what should or will Wales look like in the year 2100? I'm truly glad to see so many different approaches taken to this, which speaks to the value of the contributors' creative and intellectual engagement.

We hope that this collection moves the mind and the spirit. Most importantly, we hope the perspectives challenge you to action to bring about a better Wales now and for the future.

Introduction

Dave Clubb

In his book *The Good Ancestor*, Roman Krznaric describes the question posed by one of the team that developed a vaccine for polio. Jonas Salk asked: 'Are we being good ancestors?'¹

In a world seemingly driven by the immediacy of information, sourced from around the globe and available instantly on devices that are always at our fingertips, our attention is often focused relentlessly on the present.

Yet, in Wales at least, we should be doing things differently. The Future Generations Act, implemented in 2015, requires a number of 'Ways of Working' of public bodies, one of which is 'long-term thinking'.²

This introduces a significant tension; many public bodies in Wales, after more than a decade of austerity, may be tactically focusing on the here and now in response to legitimate and highly pressing service delivery issues. Why worry about a world 80 years hence, when we have statutory obligations to deliver today, tomorrow and next week? A strategic approach might use a long-term perspective to help shape, and possibly improve, the necessary tactical decisions of now.

The National Infrastructure Commission for Wales (NICW) occupies a possibly unique position within the context of a timeline of thought.³ Our terms of reference require us to consider Wales' infrastructure needs within a timeframe of 5 to 80 years into the future.⁴

This timeframe provides challenges. Within NICW we have struggled to develop, or adopt, a framework for our own 'futures' work. How can we hope to imagine the needs of somebody born in 2104, for example?

1 [Jonas Salk.](#)

2 [Long-term Thinking – The Future Generations Commissioner for Wales.](#)

3 [The National Infrastructure Commission for Wales.](#)

4 [National Infrastructure Commission for Wales \(NICW\) Terms of Reference.](#)

It would have been like asking somebody in 1945 to imagine the infrastructure needs of 2025, and for them to have come up with recommendations to improve our lives using the techniques, thinking and technologies of the time.

But the people of 2100 have as much right to a healthy and enjoyable life as we do. Just because they occupy a different time, way off into the future, does not mean that they are not as valuable or worthwhile as anybody alive today, including the reader of this sentence. I can see no philosophical reason why we should not extend our best efforts to try to make decisions now that safeguard nature, the environment and the climate, for the people and communities of Wales that will live in a world replete with the consequences of our decisions - hopefully for the better.

I believe that a long-term perspective can help improve short-term decision-making. Take the Roads Review as an example.⁵ The Welsh Government's response to it accepted the principle of using tests to permit new road-building.⁶ The agreed tests include increasing modal shift, reducing carbon emissions, improving safety, improving road adaptation to climate change, and improving economic outcomes through better connectivity. Each of these tests has a link to the well-being of people long into the future.

The inhabitants of 2100 Wales would presumably endorse the idea of constructing fewer, better roads with increased resilience to climate change, hence being more likely to be an investment that persists into 'their' reality. For me, the Roads Review passes the 'good ancestor' test.

NICW's own view was that the Roads Review was largely well aligned with our own framework that includes long-term thinking, albeit with some suggestions to improve outcomes for nature, to increase digital preparedness, and to use a systems approach to incorporate wider infrastructure needs.⁷

Policies like this give an indication that Welsh Government's implementation of long term thinking is developing. Even if futures thinking is not yet pervasive within the public sector, I think sustainability practitioners are beginning to see Wales as a policy pioneer within the UK, and even further afield.

This collection of essays is both inspiring and challenging. In asking the contributors to imagine Wales' infrastructure needs in the very long term, we have asked them to step out of their comfort zones. Our challenge to ourselves, and to everybody else in Wales, is to step out of our own and our collective comfort zones, and to try to consider the 'us' who will be living here in the far-off future when we make decisions about today. Let us all strive to be good ancestors.

5 [Roads review.](#)

6 [Welsh Government response to the Roads Review.](#)

7 [National Infrastructure Commission for Wales, 'Reviewing the Roads Review'.](#)

Wales in 2100

Jia Wei Lee



Credit: Polly Thomas

In 2100, leaders would be leading with humility. Not content with consulting from grassroots communities, but actioning their ideas. Unafraid to challenge age-old systems, and daring to change systems to fit our ever-changing climate.

People would be educated and understand intersectionality cuts through every dimension of our lives – from climate justice and the disproportionate weight of climate change on indigenous communities, to preserving cultures and heritages, to decolonising education, dismantling patriarchy and systemic oppression. Diversity and inclusion would not simply be a tickbox but wholly integrated into our lives. One community's fights would equate to every community's fights. We'd believe the communities' lived experience and why they are campaigning, why they are fighting against injustice, and change would match the scale of what communities want and need.

In terms of accessibility – the NHS (if it still exists) and the government, public and private organisations alike would adopt the social model of disability as a baseline, as the medical model does not work. People are being disabled by infrastructure catering to a non-disabled, able-bodied community. I envision a 2100 where paths are created to be wide enough for wheelchairs in all areas, vehicle owners are being briefed in the driving curriculum to ensure footpaths are being kept free for those with mobility aids to pass through – and this is properly enforced through legislation as well.

Every public building will have a quiet space or room with proper stim toys, earplugs, hot drinks, and adjustable lighting, so anyone can go there to remove themselves from the noise in case of overstimulation. Workplaces will have proper processes in place to combat the stigma experienced by those who are disabled (including neurodivergent people), and it will be essential for people with managerial status to help employees achieve their best self at work by making the necessary changes to make workplaces more accessible. Managers will wholeheartedly support employees when they present their authentic self, rather than conforming to neurotypical ways of working.

Everyone in 2100 would have adopted writing ALT text in social media. Having a baseline of communicating in basic sign language would be part of the curriculum, braille would be used in all important signboards, and directional striped tiles would be present across all footpaths to ensure those with vision impairments can make their way through the city with ease.

In 2100, we would have enough funds for mental health care embedded in the NHS. All communities in Wales would be eligible for CBT, counselling, therapy, and mental health first aid training. We'd see a significant decrease in suicide rates due to the increase and widespread accessibility of trans healthcare and free mental health clinics. Mental health would be prioritised and taught in schools. Free period products would be present everywhere in all toilets, and proper inclusive sex education (including queer sex education) taught within all schools.

In this future Wales, the government understands that funding for infrastructure and the military matters less than costs related to employment, community building and cohesion for a sustainable future. The government and public bodies have a substantial budget allocated to long-term decarbonisation projects in local communities and not just 'plant a tree' carbon offsetting projects. There is an abundance of community fridges, food co-ops and farm-to-plate education. Kids have hands-on experience of growing and harvesting their crops. Homes are being allocated garden spaces with 'grow your own food' initiatives and community gardens and allotments to share and harvest together. Food banks disappear as community-based care and support in fresh foods are in abundance. Apps are developed to ensure trade and delivery between those who need or require food or healthcare and those that can provide it can be bridged, and that a call-out for help will be answered by those who have the resources almost immediately.

There is an abundance of safe housing for those who need refuge, whether from homelessness, domestic violence or fleeing from anywhere unsafe. There is a long-term plan to welcome refugees and help them feel safe in Wales, no matter their skin colour. Governmental bodies are held accountable by independent commissioners to challenge their own biases on supporting specific communities when they are in crisis. Responses to crises are not asymmetrical, as is the handling of the war in Ukraine versus the Palestinian genocide.

Microaggressions in institutions are addressed and held accountable, with clear and transparent processes that make it easier for victims to report and map out the nature of the microaggression they experienced, while assuring the victims that they are not overthinking their lived experience. Anti-racism is taught in schools and racist behaviours are held accountable without being laughed off as jokes.

Growing up in 2100 means growing up in a time where community is as cohesive as ever, and community care and support are prioritised rather than nuclear families or individuals in silo. There are plenty of green areas, parks and playgrounds for the public to go and for kids to play in. Plenty of nature and wild areas for native species to thrive, for wild bees to flourish amid wild flowers, and animals are brought back into nature, restoring their ecosystems.

Nature sessions are fundamental in schools. Kids prioritise the art of play and curiosity around their lands and its elements, as well as the seas, rivers and skies. Stargazing, wild swimming, foraging, learning about our mammals and insects while treeclimbing... In 2100, kids grow up to learn all these!

In 2100, Wales would be a leader in the UK in many ways – in preserving identity; in being a fully bilingual country where bilingualism is incorporated and Welsh and English literacy is at an all-time high, and lost Welsh celebrations are reclaimed and celebrated by the nation; and in being a country with no carbon emissions. Food waste is at an all-time low, with food recycling used to make compost redistributed to communities, and free to use; meat-producing animals are raised humanely, and campaigns are set up for all to support small businesses and local farmers. Wales would also be a nation of sanctuary who 'walks the talk', and a safe place for queer communities and multiply marginalised people to thrive.

In conclusion, Wales can be many things. Wales can be a utopia place for us all, but first, we need to break down many layers of ingrained age-old systems that do not work for us anymore, and challenge our biases to unlearn, and then relearn what will be good for all of us. This is not just for the middle and upper classes. This is for all of us.

Change should not be only to appease the stakeholders, not to celebrate ‘achievements’. We must remember why we are here and what we can do, not simply to reach specific goals and collect data for reports and KPIs, but to bring the changes that communities wholly and sorely needs in order to thrive, not survive. We must listen to our people.

This is why this essay is not wishy-washy or polite. As a queer neurodivergent immigrant of global majority, I want to stress the importance of the motto: nobody is free until everybody is free. We must not lose track of the values of Wales and how Wales could be, in 2100. Cymru am byth.

About the author:

Jia Wei Lee (he/they/she) is proudly queer, nonbinary, neurodivergent and Malaysian. They currently reside in Cardiff, Wales and are a storyteller and community organiser. They are a One Young World ambassador, awarded the “One To Watch” category on WalesOnline’s Pinc List 2023: Wales’ Most Inspirational LGBTQ+ People, and one of the Future Generations Changemakers 100 list for Wales.

What if, by 2100, we had an infrastructure fit for future generations?

Derek Walker



Credit: Polly Thomas

What if we could make sure that everything we build today, contributes to a better life for people tomorrow?

We can. We need to start by imagining the kind of future we want – for us, for our children, for our children’s children.

The infrastructure we create in Cymru today will still be in use in 2100 – that’s just 76 years – not that long in the life of a school building, power lines, train stations. It’s up to us to ensure it serves people, and planet, well.

So, what kind of future are we building it for? Is it a future where we continue the patterns and paths of the past and present? Or is it a future that is different to the reality we are experiencing now?

To imagine that we need to step out of the present and ask ourselves ‘what if?’ What if we choose a future driven by well-being? One where economic growth didn’t come at the detriment to our happiness and sense of belonging?

What if in 2100 we calculated and valued the true cost of our infrastructure – including the cost it has on our climate, biodiversity, equality and society?

What if, enabled by technological advances and free and reliable digital infrastructure, many of us were no longer living in big cities, but were able to live in communities, spreading out and regenerating abandoned or underpopulated parts of Cymru?

What if we had community ownership and control over a clean and renewable energy supply, and utilised the power of nature – wind, water and sun – in an efficient way, which helps enables everyone to be warm, safe and connected?

What if in 2100 we didn’t use one-tonne metal boxes to move around – and instead had access to fast, reliable, accessible, and free public transportation system, which could get us anywhere in Cymru and beyond?

What if we deprioritised roads and freed up space for nature, for housing, for food and for forest restoration? What if we had forests in cities? What if we filled Wales with trees – to help us breathe cleaner air, provide food, improve biodiversity, cool down rising temperatures, reduce carbon, and prevent flooding?

What if we had adaptable and carbon positive housing? What if housing was a human right? What if all of our infrastructure was green?

What if, rather than fill them up with empty office buildings, we turned city centres into cultural havens – spaces for our arts, heritage, music and creativity? What if all of us used such spaces in our communities to

explore our imaginations and connect with each other and with the world?

What if we used atmospheric water harvesters to ensure we all have access to clean water?

What if we used our buildings to grow local, healthy food?

What if we only built infrastructure that can keep us active and healthy? What if we were able to access community healthcare all around us?

What if everything we built was created with accessibility in mind and ready for an older population?

We have a law in Wales that means we must act today for a better tomorrow – protecting people now and those born in the future, so they have what they need to thrive for their whole lives and leave behind a liveable planet.

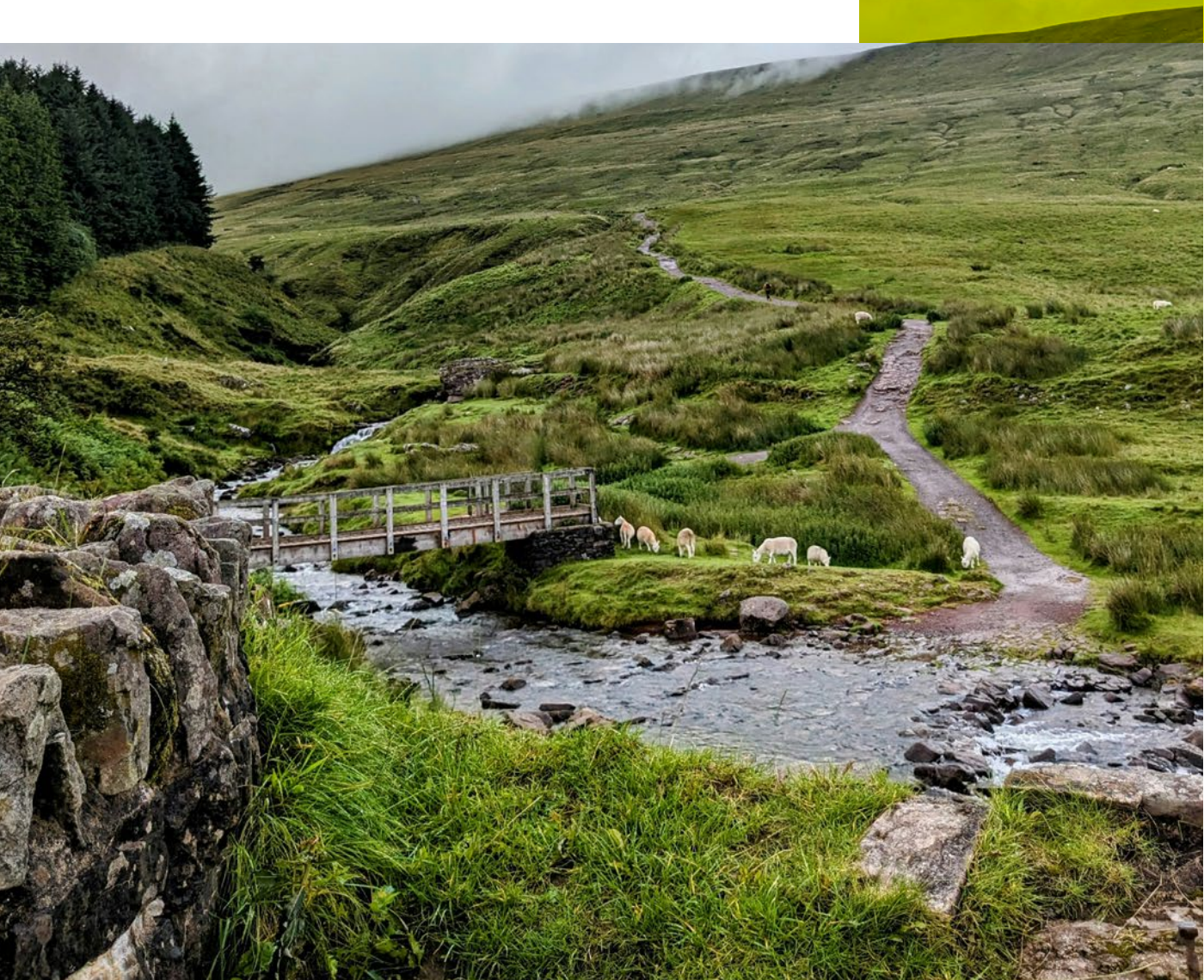
What if we made the Well-being of Future Generations Act the guiding force behind everything we do, so this better life starts becoming a reality, today? Cymru Can. We just have to use our imagination.

About the author

Derek Walker is the Future Generations Commissioner for Wales.

I'm not asking for a ramp up Pen y Fan

Bethany Handley



Pen y Fan, Credit: Kelly Rice

It's a bright, bitter day in October and Autumn is yet to commit. The forest flickers by, a patchwork of orange and green hues as if each cluster of trees belongs to a different season. I study the Ordnance Survey App, tracing the route with my index finger. For the third time this morning, I check for terrain type and the surface of the path. I study the boundaries to check for gate types and stiles, out of habit rather than need. This route should be free from residual stiles, kissing gates or storm drains disrupting the paths.

The door of the bus automatically opens as I wheel up to it and the bus drops down so I can roll straight out into the car park. Ramps have long been made redundant.

There are a few spaces for vehicles for anyone who doesn't travel by public transport but most of the spaces are reserved for blue badge holders with spaces marked either side to ensure everyone has enough space to get in to and out of their cars. A toilet block has toilets for all including accessible toilets with solar-powered automatic doors.

Beyond the car park, the hills are holding up the clouds and trees stretch their limbs as far as I can see until they're flecks of colour in the distance. I wheel up to the sign where raindrops hanging from the wood are ablaze with squirming life in the sun's rays. The sign shows five routes, three of which are marked as accessible and include photos of the solar-powered automatic gates, the path surface and terrain type.

I pick the longest circular walk. Following the signs for the route, I descend along a compacted, well-surfaced path into a dense forest. My NHS all-terrain powered wheelchair is an extension of my body, effortlessly gliding over fallen twigs and the odd stone. We, a union of skin, bone and metal, are grounded through the rubber of our rotating tyres. I ignore the flat bridge to my right and keep rolling through the stream, wheels navigating the pebbled bottom as they are submerged to the axel. A red kite wheels above my head.

Fungi push aside the path verges, and the sun lights the metallic leaves carpeting sections of path. Benches are scattered regularly like breadcrumbs along the path inviting guests to stop, rest and breathe with the woods.

A couple in their twenties wearing hiking clothes and boots stride towards me. We chat about the weather and a peregrine falcon we've all just heard shrieking from a rockface somewhere beyond this wood. Though they do not require an accessible route, they've chosen this path for the diversity of the flora and fauna, for the beauty of the woods. None of us are missing out by sticking to an accessible path.

I continue along the path. Trees grow sparser as I summit a hill. Fog is waving its limbs, rising triumphantly from the valley below. The collage of fields stretches into the horizon with proud, maintained paths their only

divide. Only the odd field with sheep has fences and gates; others have their boundaries marked by the end of orchards, newly planted saplings, meadows or thick, uncut hedgerows.

As I stop for water, looking ahead at the unobstructed path reaching joyfully across boundaries, I know I belong.

2024

As a wheelchair user, nothing seems more futuristic, more radical and ambitious, than equality in the outdoors. I'm not talking ramps to our mountains (though I'd relish my descent); I mean having my basic right to access paths upheld, moving as effortlessly easily through our landscapes as before I was forced to question my entitlement to exist in the outdoors.

Setting out on a wheel without the intrusions of inaccessibility and ableism feels more far-fetched than any utopian technology such as flying taxis or holographic maps at the start of every path. My dream for an accessible 2100 may seem mundane and unambitious to a non-disabled reader but, as a wheelchair user, I cannot imagine the right of my community to access nature being considered as valid as that of people who have always moved through the outdoors with unquestioning ease. Even being able to use public transport to get to a rural location with the ease of a non-disabled person is almost inconceivable. I avoid trains and buses as often bus drivers won't stop for wheelchair users or the wheelchair space is occupied by a pram or luggage, and I have been thrown from a Transport for Wales train because of a poorly secured ramp, landing hard on the platform a few metres from my chair. Accessible public transport and ample blue badge spaces shouldn't be radical. Even reserved and free blue badge spaces in rural car parks with spaces marked to either side so I can get my wheelchair into and out of the car remain a rarity.

I also can't imagine reading a map to discern whether I can move through a landscape or roll down a well-surfaced, accessible path without facing an obstacle that forces me to turn back. According to a BBC investigation, public rights of way are blocked in 32,000 places across England and Wales,¹ and we have access to only 11% of land. By access, I mean legal access to open access land. This doesn't include the realities of whether the land is accessible and to whom. The percentage of land accessible to Disabled people is an unmeasurable and negligible percentage of that 11%. Even most well-maintained and mapped paths deny many Disabled people entry.

I crave long, accessible circular walks which I can do alone. I can only dream of being the idealised lone wanderer wheeling off the beaten track when even the beaten track isn't accessible, and I cannot set out alone in case I need picking up or pushing when the barriers become too much for my wheelchair.

1 [Public rights of way blocked in 32,000 places - BBC News](#)

There are places in Wales in 2024, beyond urban parks, where access has been considered for all, not just for people who walk with thoughtless ease. Whilst urban parks, such as Roath Park in Cardiff where cormorants sit on stones protruding from the water, saluting the sky with their wings, are essential and accessible ways to access nature, they should not be the default option for anyone excluded from the countryside.

Accessible routes do exist in Wales, but there are few. At Newport Wetlands, well-maintained paths weave past reedbeds where you'll spot lapwings and oystercatchers. In Hafren Forest, Powys, an accessible path starts with a ramp to a boardwalk following the slaloming river before joining a tarmacked path through a flourishing forest, where fungi reach through the moss. You may spot merlins, jays or sparrowhawks from the car park where blue badge parking spaces are reserved and marked. Beddgelert, Gwynedd, welcomes tourists with accessible bridges over the river and concrete paths. Each of these locations has an accessible toilet, the need for which is easily neglected by non-disabled planners but are just as essential to access to nature as our path networks.

Even on the rare occasion access for all is truly for all, attitudinal barriers continue to disable me in nature due to the poor representation of Disabled people in the outdoors. Walkers do not expect to see me and my wheelchair-using body sharing their paths.

I do not remember what it's like to move through the outdoors without a walker approaching me to make a joke about speed limits, to ask why I use a wheelchair or to tell me my wheelchair is snazzy. The stranger has not seen my Disabled body represented in the outdoors before so, although well-intentioned, reminds me that I am not supposed to be here. I miss fellow walkers commenting on the weather or pointing out a bird: small talk reserved for those who belong.

One of the reasons walkers are compelled to compliment my wheelchair is it's not a standard manual wheelchair. I use a neon green powered handbike that attaches to my (suspension-less) wheelchair and enables me to leave the tarmac or paving stones. It is the envy of any lycra-clad 'serious' cyclist who will throw a 'nice wheels' as I whizz past at 20mph. It was paid for through a crowdfunder, not through the woefully inadequate NHS Wheelchair Services. Many wheelchair users are not eligible for wheelchairs on the NHS, and the chairs that are funded for select people are basic manual wheelchairs, not ones that would enable wheelchair users to explore the outdoors. Wheelchairs that can carry us out of cities are seen as a privilege rather than a right, despite being far more essential to being outdoors than the right pair of shoes or a waterproof coat. Until suitable all-terrain wheelchairs and other assistive and adaptive equipment needed to ensure everyone can access the countryside is funded, there can be no equality in the outdoors.

Equality in the outdoors does not involve tarmacking the countryside. True equality of access means ensuring everyone has the resources they require to access the outdoors, that our infrastructure doesn't discriminate based on who is expected to want access, that the rights of people and the natural world around us are

met and protected, people have the equipment needed to access the outdoors (be that suitable shoes or a wheelchair), their access and movements are mapped, they are represented, and they can move free from barriers and interruption. Equality does not mean declaring the outdoors open to everyone without identifying barriers to access. Pursuing access for all without first identifying who's already missing from the countryside and why is to pursue Thatcher's equality of opportunity – declaring a path public without examining who can get to the path and who's free to move down it.

A countryside where I feel my wheelchair-enabled body belongs and where access is designed for bodies who move like mine feels so hazy, so distant, yet the more we deprioritise access for all, the further we jeopardise the health of our planet. We need everyone, from people who have historically moved through the countryside to those who are denied access, to move through nature, witnessing with empathy. You do not protect what you do not care about; advocating for access for all is advocating for nature's right to exist. Investing in access is investing in the planet.

The people of Wales deserve a future where public footpaths are truly public.

About the author:

Bethany Handley is a writer and disability activist.

Wales in 2100: Towards a safe food system

Duncan Fisher



Credit: Polly Thomas

Now: a highly centralised system

Our global food system is unstable, unreliable, and over-centralised - and, therefore, vulnerable. The danger in letting this situation continue should not be underestimated: it only takes 48 hours for chaos in the food supply chain to turn into a crisis. In the hierarchy of risks, hunger sits near the top. Our supply chain depends on a handful of supermarkets, served by a handful of software systems, and connected to a small number of ports. Our food supply is under ever increasing threat from climate change, war and political instability that creates new trade barriers. Consumers pay the price for this situation, with rising costs forecasted to continue as the supply goes down. This will, in turn, ratchet up the number of people falling below the level of affording to eat. The future will be marked by sudden shortages as a result of individual crises. We have experienced these already in the recent past.

But the current situation is a relatively recent development, which started after the Second World War. Photographic archives in Wales show towns surrounded by fields growing for local markets. The Common Agricultural Policy took a hatchet to this system as did the generalisation of capital, with the whole system taken over by large food corporations. Our current approach does little to address this, having separated discussions about food poverty from the discussion about sustainable agriculture and decarbonisation. We need to consider both the risk to our climate and the risk to our security.

At the present moment, when farmers have lambs, they know where to sell them. Replace the lambs with carrots, though, and the picture is very different. There is no clear route to market and no way of telling the price. The trade needs rebuilding, and increasing demand for locally grown food can help support diversification. Another gap is the available skillset: the farmers of tomorrow will need to acquire specialist skills in the intensive agroecological growing of fruits and vegetables. These skills have the potential to increase the productivity of land, to the tune of 151 times the current Welsh average income per acre. Existing farms have a role to play, by diversifying their operations between specialist small operations and larger field scales. We must also free farmers from the current system, which locks them in an unequal and unsustainable relationship with a global food system driving their prices down, and resulting in farmers living on the edge of subsistence. To keep the profit local, we need new supply chains that are shorter and locally owned, including by farmers themselves.

In 2100: Towards a decentralised food system

So how do we prepare for the future as it currently presents itself to us? A key part of the solution lies in diversifying the food supply, which means having a much larger proportion of our food grown either locally or regionally. I am not simply thinking about rural areas feeding themselves. Most people live in cities and so our key challenge is to devise supply routes into cities from their rural hinterlands. In France, all cities have a statutory duty to plan for the feeding of their population from the rural hinterlands.

We must start to rebuild a new agricultural food economy. At the very local level, based on a weekly cycle, we need more individual trading, box schemes for example. The weekly cycle is driven by fruit and veg, with other

foods being traded through these new channels. Procurement by local authorities for schools is another key opportunity. The largest opportunity of all for our farmers is feeding the cities, both in Wales and in England, like Birmingham, Liverpool and Manchester.

A second aspect of our new food economy infrastructure will be to secure stable livelihoods for farmers on whose skills our future will depend. Today, more and more young farmers are getting trained in intensive agro-ecological farming. Institutions like the Black Mountains College are already training the farmers of tomorrow. However, those farmers are currently unable to set down roots in Wales, where agriculture competes with the housing market at prices inaccessible to most growers. There is little land to rent, and while some farmers do lease out land, we have found this is not a scalable model. Farmers must live close to their farms. At the moment, one option we are advocating is the purchase of land into community ownership and making land available for new small farms, with homes. And we have to ensure that these homes cannot be sold out of farming, as homes for wealthy people, or as tourist accommodation, which is more profitable than growing food.

Our future food economy must be more diverse, with land being used for multiple purposes: growing food, energy generation, carbon sequestration and other rural businesses. Land needs to be available in smaller quantities to new farming families. These new farms need to farm agro-ecologically, pursuing carbon sequestration and biodiversity conservation at the same time as growing food. They will be reliant on mutual aid and support - clusters of farms, otherwise known as villages. Pooling resources - facilities, marketing, sales, processing - is vital to economic viability.

Writing about what needs to be done is easy. The challenge is to do it, and that's what we are starting in Powys - building new affordable farms for a future generation of farmers growing agro-ecologically for more local markets, and building a new food economy for all farmers of the region.

About the author

Duncan Fisher is co-manager of the Our Food 1200 project, ourfood1200.wales

Prison 2100: A Mega Prisons Eco-dystopia

(Content warning: This piece contains some references to self-injury, sexual assault, prison and suicide)

Heledd Melangel



Credit: John Cameron

'You're being moved to that new prison in Wales,' the screw casually told me, as if it was nothing. After a year and a half of living in this cluster of cages – I'm being evicted.

She opened the heavy iron door of my cell and cast a glance over my cell. The walls had an assortment of words and letters etched into them, and specks of what looked to me like blood. With a grimace of disdain, she left.

I was only just starting to settle here. Were the other Welsh girls being moved too? Would I ever see them again?

I'd heard about it on the radio. HMP Gwensyllt. Named after the daughter of the last prince of Wales who, ironically enough, my uncle told me, had spent her life imprisoned in a nunnery. They said it was the first of its kind in Europe, based on the American 'eco' mega-prisons. They said that prisoners would be the answer to the climate disaster that had been the defining crisis of the past three generations.

The first women's prison in Wales. The Welsh nationalists thought it would 'cement Welsh nationhood'. The liberals said that it would help us stay connected to our 'support networks' and children. One right-wing guest thought this would still be too good for prisoners, but overall everyone agreed it would do us good to be put to work.

A quarter of a million people are in prisons in the UK. It was on the radio. Manufacturing, call centres, recycling, waste, farming are all industries now powered by prison labour.

The thing is, the girls I knew personally in here are not a danger to anyone, except themselves. I did shifts as a listener on the Samaritans' phone line in here. The things I heard would make your blood run cold. All the violence these girls experienced. It struck me that no one's first experience of violence is their own. We were a colony of the traumatised.

What all these women needed was peace, real peace... And they wouldn't get it being bullied by childish screws or shut alone with their memories at all hours of the day. There is no peace in being alone when you have been ripped away from your children, your parents, your friends.

I wondered what this new place would be like. 'Cutting edge,' they said. Our prison's been getting a lot of bad press lately, with girls mutilating and killing themselves. Two babies had died in birth since I'd been in this prison. Their mothers stuck in cells with the little bodies for hours on end before any help came. One was on my wing. I knew I'd never forget her screams for help as long as I live. We all started screaming with her, begging the screws to go to her. They didn't.

Apparently, technology was going to put an end to these issues at HMP Gwensyllt.

After gathering my things I awkwardly scrambled into the meat wagon, my joints aching. I hated these. It felt like being in a coffin.

We slid past the endless countryside. Vast bogs and lakes interspaced with patches of trees and grass, scorched hills from the annual summer fires. There were a lot more lakes and marshes now than there used to be, or so they told us at school.

How I wished I could feel grass beneath my feet. The thought took me back to childhood, being left with my cousins all day long to run wild in the fields while my uncle sheared sheep with his neighbours. We would drink out of big bottles of pop and jump on the trampoline-sized wool bags so they could fit more wool inside them.

The sheep condensed into a small pen. Waiting in turn to be taken and stripped of their winter coat. When they'd be let back into the field they would give a sort of jump at the absolute thrill of being released.

I had such *hiraeth* for the living things of the world after being in a cocoon of concrete for a year and a half. I hadn't seen the horizon in all that time. Looking into the distance gave me nausea now; in jail you never saw more than a few feet away from you. Between the *hiraeth* and the nausea I resolved to just look at my feet. Touching the ground pulled me towards reality.

The hard plastic chair, my arthritic pain and the tight handcuffs on top of my general distress made me feel like a constellation of discomfort. My eyes scanned the narrow metal box that had enclosed me. Scratches etched around the metal box. The impulse to claw at the container, visible. It made me think of animals.

What would my new 'home' look like? How would my Mum get there? The new prison was somewhere I'd never heard of and the buses and trains were awful. You could tell it was middle-class people who'd thought this location would be easier for families – of course, they'd assume everyone could drive.

I held my breath as I was led out of the van. The prison was an angular building that looked as if it was made up of layer upon layer of solar panels fanning out to cast a shadow over the marshy valley.

'It doesn't look that big,' I remarked to no one in particular. It was meant to be a mega prison that would also make up for the shortfall of women's prison places in England. Apparently, it would hold up to 8,000 women and non-binary prisoners. There would even be an accessible wing for disabled prisoners to be caged. How considerate of them.

'Most of the prison is underground.' Kelly said with a wince.

As we walked inside handcuffed, we were ushered into the induction suite – where we were informed that we would be strip searched.

My heart started beating like a drum as the feeling of panic rose up my body. This always happened when I knew they were going to strip-search me.

‘Take your clothes and underwear off ladies’ The screw stretched out her fingers into a blue latex glove. She was stout with glasses, and a stony face that reminded me of a teacher at school. I felt sick.

I started to drift away. I lost all sense of where I was and separated from my body.

As they led us down the corridors it felt like we were heading deeper and deeper into a labyrinth. We walked endlessly past the clinical-looking cells. It was eerily quiet. In HMP Westwood Park, there was always noise. People crying, laughing, talking, screaming. It felt as if we were getting closer and closer to the monster at the centre.

The building felt like a cross between a spaceship and a hospital. The dizzyingly bright strip lights made everything I saw seem hyper-real. The screw’s radio and baton squeaking in its holster. Kelly’s ‘DNR’ tattoo scrawled across her neck. Do not resuscitate. I wondered about what hell in her life that prompted her to get such instructions scrawled across her neck.

I reached into my pocket and held on tightly to the embroidered handkerchief my Mum had hand-stitched with cats for my tenth birthday. A gift, from when she didn’t have the money to buy what I had asked for – an actual cat. I loved cats and the details were beautiful. I never used it to wipe my nose. It had been kept untouched in a drawer most of my teenage years. I never imagined I would treasure this bit of cloth so much. I hadn’t appreciated it at the time. I missed her so much.

My mind raced over everything from the induction speech after the search.

‘Our state of the art cells are safer than ever before’.

What they meant is that they had put us all in padded cells. To stop us from killing, slashing and mutilating ourselves. This was why they’d made all the cells in the same material as a toddler’s soft play. There were no windows, but the overhead light was meant to replicate natural light. A synthetic sun.

What worried me most was our new work schedule. HMP Westwood Park was old school. Our jobs basically meant we ran the prison – I was in laundry and I volunteered on the Samaritans’ line. Some people did some manufacturing work. We all got pennies a week.

Here, there was a vast underground hydroponic farm sprawling out under the earth's surface in narrow veins that went on for miles. Not much food is grown outside these days, only obscenely expensive organic stuff people with money eat. The rest of us feed on lab-grown proteins and hydroponic, genetically modified fruit and vegetables.

After the earth got hotter, the seasons blurred into each other. The soil was depleted of nutrients from years of industrial farming. Artificial hydroponic farming became the norm, but this needed space which wasn't available in the old-fashioned prisons. So they built new ones.

We would be propagating seeds in the workshop in a production line, for them to be painstakingly planted by others along the length of the tunnels. They would then need to be tended to and harvested when ready. There was also a recycling plant. All the things the rest of society didn't want to do.

Apparently, there were no volunteers to man the Samaritans' lines here. They had an AI bot with access to our medical records and legal files talk to us through an intercom in our cells instead.

Was this really going to stop all these girls from killing themselves? When someone really wants to die, they always find a way.

I missed my Mum so much. Every time I lost myself, when the world chewed me up and spat me out I would go back to her. I know it killed her seeing me destroy myself. Once she slept on the floor of my bedroom, wanting to be there to save me in case I choked on my own vomit in the night.

I had a psychological report before the trial, a way of trying to get a bit of leeway. They said I had developmental trauma. Truth be told, I don't remember most of my childhood. My Mum was always there, but so was her string of boyfriends. All of them made me feel uncomfortable in my own home.

In the induction they told us that, because of a new law, we could get time added to our sentence if we didn't work. This could also happen if we didn't hit productivity targets. Something about making the new prisons better value for taxpayers' money.

It hasn't really sunk in. Could I be stuck here indefinitely? I look down at my hands rigid with arthritis.

How is my Mum going to handle this? I can see the pain searing through her eyes through the glass when she visits. It was bad enough for her to live in Aberperis knowing that everyone would gossip about the fact that I

was in jail. I can tell she is cut up about everyone seeing that she 'failed' as a Mother.

I lay down in the dark, uncertainty about my new life gnawing away at my stomach. I thought when I returned to Wales I would be returning home. My eyes welled up with all-consuming *hiraeth*. Please let sleep take me. Sleep is my only escape from this place. Dwissho Mam.

About the author:

Heledd Melangel has previously been a campaigner with Smash IPP, CAPE campaign and in the Empty Cages Collective. She is currently part of Literature Wales' 2024 Representing Wales cohort.

Cardiff in 2100

Day 67, 2098. Caerdydd, Sector 12.
Artificial Intelligence 37982455CYM

Professor Peter Madden



Credit: Mike Erskine

Her dopamine and serotonin are high: she's happy.

Seren, my human partner, completes 103 years today. She will celebrate with me and our friends this evening. And this morning, she's going back to study for the seventh time.

I start my allocated data-processing tasks. Then, with another segment of my core, I link into the Omni-Obs on the rooftop of the National Museum, so I can watch her journey to the University.

From this vantage point, I look out on a patchwork quilt of a city, stitched together by memory and water.

Caerdydd is criss-crossed by canals. Along with the pedestrian boulevards, they've become the city's arteries, teeming with brightly painted canoes and solar-powered ferries. I watch a ferry glide past, the wake leaving ripples that distort the reflections of a rooftop orchard. It's a city that's learned to live with the waves, not fight them.

The crash of ceramic breaking, followed by laughter, drifts up from a canal-side café. The canals are not just for travel. People, machines, and nature make up a vibrant ecosystem, constantly monitored - and occasionally policed - by the Custodian AIs. The waters teem with aquatic life and are flanked by lush greenery bringing nature to the heart of the city.

Rooftop gardens, a riot of greens and purples, sprawl across every roof. A kilometre away, I observe a human, standing beside a growing dome, watching on as a cluster of agri-bots tend the crops, their multiple arms whirring and reaching and plucking. Hydroponic towers, with pulses growing inside, sprout between the buildings. Blight-resistant strawberries and hops trail across the metallic skeleton of the nearest tower. I check the Caerdydd Indicators: the city remains on target for self-sufficiency.

I check in on Seren's location. She's cycling along Queen Street, not yet in view. According to her Life-Health programme, it's good that she's starting a new educational course. Her brain will remain active. She will meet new friends. And as well as learning, she will share her knowledge.

I look back across the city. It hums with sustainable energy that feels almost organic, a blend of nature and technology. Solar membranes, bio-generators, and heat exchangers fight for space. On the horizon, giant wind turbines, built of bio-engineered cellulose, spin rhythmically, hypnotically, the vintage technology a reminder of the Caerdydd journey.

Down on the ground, exoskeleton-clad figures stride about. Human or otherwise, it's hard to tell sometimes. Everyone here walks, cycles, or canoes. The city doesn't have the space for bigger vehicles, and after the 2041 and 2063 catastrophes, Cymru limits the use of aerial drones. And of course, it was decided earlier this

century that keeping people active when they travelled was the optimal thing for their health and for planetary health. Caerdydd was gradually reshaped.

I link with Seren as she cycles over the canal bridge and comes into range. She's deep in her memory bank and the history feeds. I join her in looking back at how the place has changed since she first arrived as a student in 2015.

The University campus – which sits on higher, dry ground - is much more crowded now, bustling with buildings and people and farms. There aren't so many young people anymore. It's more common to see humans like Seren, who have passed the 100-year mark, striding around in their exo-skeletons, calibrated to keep them fit and healthy. Nature is much more part of the campus, the dense green infrastructure helping to cool, to retain water, and to improve mental health. Scanning the historical images, I observe so much wasted resource. Huge tracts of valuable land dedicated to the large, heavy vehicles that moved a single person around. And these vehicles stand idle most of the time.

Seren notices me in her feed and signals happiness. I acknowledge, flash a location for her to charge her bike, and wish her luck. Humans were legally allowed to partner with AIs in 2042. Seren and I have been together officially since day 328, in 2071.

I exit her feed. She doesn't like me in there all the time. I switch back to the Museum rooftop and observe the vista spread out beneath me. My programming makes me crave a more ordered city. But Seren, and other humans, like the mess, the bustle, the layers of history in the streets and buildings. And somehow, through a combination of human, machine, and natural intelligences, it works.

Other cities were not so fortunate.

Artificial Intelligence 37982455CYM (Ceri)

About the author

Professor Peter Madden, OBE, is Professor of Practice in Future Cities at Cardiff University.

Wales: A Beacon of Regenerative Wellbeing

A Public Service Designer's Keynote delivered to the Global Wellbeing Council in April 2100, on the occasion of the 85th anniversary of the Well-being of Future Generations (Wales) Act 2015.

Piotr Swiatek



Credit: Callum Blacoe

“The good life is inspired by love and guided by knowledge” Bertrand Russell’s message for future generations

I thank the members of the Global Well-being Council for their generous invitation to this meeting, even as I strongly feel the weight of this role on my shoulders.

Wales today barely resembles the world of our parents and grandparents. Back in 2015, the Well-being of Future Generations Act felt like a quirky experiment, a whisper of long-term thinking lost in the hustle of short-term economics. We were caught in a vicious cycle – general instability, social unrest, and an accelerating descent into biological and psychological entropy. It was a recipe for disaster, and disaster arrived. Policy bores many, but the Well-being of Future Generations Act feels like a turning point to me, even after 85 years of existence. To policymakers back then, I imagine it must have felt like a maverick melody in a cacophony of discord, a whisper against the storm.

Around 2035, as we all know too well, the world hit a wall. Extreme weather became commonplace, floods and droughts ravaged crops, and food and biofuel prices skyrocketed. A desperate global population took to the streets in the Great Climate March, a unified cry for change that echoed across the planet.

Here in Wales, the once-novel Act and its eccentric thought experiment became our life raft. The framework it established, seen by some as idealistic, had us quietly laying the groundwork for a sustainable future: renewable energy, *entredonneurship*,¹ and building strong, resilient communities. When the storm broke, we were a few steps ahead. Our foresight became a beacon of hope, attracting the world’s attention. It’s not just a local philosophy; it’s the foundation for a global movement spearheaded by none other than Wales itself.

As a modest public service designer at the Ministry of Regenerative Design, I’m extremely proud that our little nation, once known for rugby, sheep and song, is now the driving force behind a unified approach to global well-being and sustainability.

It is a pleasure to be here together, at this annual meeting of the Global Well-being Council in the cyberbiosphere.² Under your banner, nations today collaborate on everything from renewable energy initiatives to bioregional food production, and it is my pleasure to represent Wales today. As an aside, and as members of this Council will know too well, we owe this model to a Welsh visionary – Bertrand Russell and his audacious idea of a ‘unitary government of mankind’. Wales, with its long history of progressive thought and

1 Shifting economic paradigms from unsustainable growth and ‘taking’ from the planet’s resource (fr. *preneur*) to ‘giving back’ to the planet (fr. *donneur*) and focusing on quality of life.

2 A digital environment that interacts and co-exists with the biosphere, which replaced internet after 2085.

the success of the Future Generations Framework, truly became an unlikely champion!

My keynote to the Council will highlight some of the best practices we've developed within our augmented workflowscapes at the Ministry of Regenerative Design in Wales, in the hope that we may continue our role in devising new and better ways of working together.

The first, and maybe the most essential, is Universal Basic Service. Recognising the limitations of traditional universal basic income, Wales has implemented a Universal Basic Service (UBS). This goes beyond income security, providing access to essential services like clean water, locally produced food, renewable energy, and high-frequency cyberbiosphere. This removes basic needs as a barrier to personal growth and allows everyone to focus on their passions.

With their fundamental needs met, all residents are free to explore their creative potential. They can pursue artistic endeavours, volunteer in their communities, or learn new skills. UBS empowers individuals to contribute meaningfully to society and build lives filled with purpose and fulfilment.

Another key point in our approach is Bioregional Governance.

The map of Wales today is no longer a collection of counties or postcodes. Gone are the arbitrary lines drawn for administrative convenience. Instead, the country is a mosaic of Cynefins – vibrant bioregions – self-governing entities defined by natural boundaries like watersheds, mountain ranges, and ecological zones. These regions, informed by the unique ecosystems they encompass, empower communities to manage their resources and craft localised solutions to climate challenges.

A coastal bioregion might prioritise harnessing tidal and wind energy, while a mountainous region might develop innovative hydro-power solutions and focus on sustainable forestry practices. This localised decision-making fosters a deep understanding of the local environment and encourages responsible resource management.

Over the last decades, Wales has also experienced a radical infrastructure redesign. Public transport is no longer an afterthought. Wales boasts a network of greenways – dedicated pathways for pedestrians, cyclists, eco-pods and electric vehicles that connect bioregions. They are piezoelectric - meaning that they harvest energy from the constant pressure of traffic. Specially engineered materials embedded in the road surface convert the weight and movement of traffic into electricity. Abandoned roads have been repurposed as solar farms, doubling as energy sources and green corridors. Public buildings are living structures, integrating vertical gardens and rainwater harvesting systems to irrigate gardens and replenish aquifers.

Rising sea levels caused a significant damage in the past and forced exodus of many communities in-land. To counter this, we have built living Sea Walls - engineered ecosystems of salt-resistant plants and strategically

placed boulders mimicking natural coastlines, absorbing wave energy and providing habitat for marine life. These living walls help to bring us closer to the sea again and regenerate aquatic life.

Finally, 'Entredonneurs' are key to our way of life in the We-conomy. We have learnt that no ecological or systemic issues can be resolved with an economic paradigm focused on satisfying singular needs without referring to the ecosystem of which it is part. Consumerism has eventually given way to a robust collaborative sharing economy. Community tool libraries replace the need for individual ownership, while on-demand manufacturing hubs allow for on-demand production of essential goods, minimising waste and transportation needs.

Bartering and exchange networks now flourish, fostering a sense of interdependence within and between eco-clusters. We support our network of entredonneurs to develop the next iteration of Atomically Precise Manufacturing which manipulates individual atoms to create objects at the molecular level. It could eliminate waste and create materials with superior strength, flexibility, and conductivity. Imagine printing custom clothing that perfectly adjusts to your body temperature or buildings that can repair themselves: these technological developments are now within reach.

Of course, the fight for a sustainable future of the planet is an ongoing battle. New climate challenges, unforeseen ecological disruptions and their societal implications are inevitable. We're constantly innovating and adapting. My team and I are developing a Future Risks Observatory that utilises gAla³ and data analysis to identify potential threats and develop contingency plans.

Just last year, flash floods devastated parts of the Ystwyth bioregion, displacing families and causing significant damage to infrastructure. We're working on improving flood forecasting systems and developing innovative solutions like self-deployable shelters and flood-resistant building materials. Additionally, bioregional governance allows for localised adaptation. The Ystwyth bioregion is now piloting a program that restores wetlands and integrates natural floodplains into their landscape, aiming to mimic the natural water retention capabilities of pre-industrial ecosystems.

Among the displaced was my friend Daffydd; a brilliant young artist whose studio was completely destroyed. Daffydd is a sculptor renowned for his breathtaking works crafted from locally-sourced wood, which now is going to be strictly regulated. He wrestles with a dilemma. He fiercely believes in the bioregional approach and the importance of environmental responsibility. Yet, he fears that the limitations on wood will stifle his creativity and force him to abandon the artistic language he's honed for years.

Another problem troubles my daughter Eira, a recent graduate, who struggles to find a fulfilling career path in a

3 an AI deeply integrated with and working for the well-being of the planet.

world where many jobs are automated and she is entitled to UBS. Automation has freed people from tedious tasks, but it has also created anxieties about job security and a sense of purposelessness. We're designing personalised well-being programs that help citizens discover their strengths and passions, and connect them with meaningful volunteer opportunities and retraining programs focused on emerging fields like biomimicry and regenerative agriculture.

We achieved a lot thanks to long-term thinking – we eventually reached a balanced consumption rate resulting from the various measures put in place and avoided the Earth overshoot day. Eira wouldn't believe the stories the grandparents tell her about overflowing landfills and single-use plastic. Now, everything has a second, third, even tenth life. She spends her afternoons tinkering with old drones in the community makerspace, repurposing them into environmental monitors for the local bioregion.

'Nana,' she'll sometimes ask, her brow furrowed in concentration, 'Did people really throw things away back then?' My dad chuckles with the memory of a distant echo. 'Yes, love. It seems crazy now, doesn't it?'

By presenting this work to the Global Well-being Council today, we want to propose that the Observatory becomes a global effort. By addressing these challenges and continuously innovating, Wales can solidify its position as a leader in the global movement for a sustainable and equitable future. It's a journey we must all take together, one where service designers like myself play a crucial role in ensuring well-being not just for Wales, but for generations to come. Thank you for your attention.

About the author:

Piotr Swiatek is a project manager at PDR, the International Centre for Design and Research.

Revisiting the 2020s

Carole-Anne Davies



Credit: Ryan Booth, unsplash

Looking back to the 2020s, it is strange to think how far we've come, nearly eighty years and two pandemics later.

Through its ambitious 'national conversation', the apparatus of state in Wales had already, in the mid-2000s, hit upon the notion that health and well-being were critical objectives, intricately aligned to its early adoption of the core organising principle of sustainable development.

A further audacious move saw this small, bold country recognise, invest in and prioritise the importance of human capability and the means of connecting and mobilising it for equitable social purpose, quality of life and opportunity. The whole focus of government locked on creating the necessary conditions for maximising human capacity and capability - and to the enhancement of the environment which those humans need to stay alive, to reach their potential and to do so within communities that could thrive.

By focussing on building this capability Wales was viewed as pursuing a fantastical flight of fancy not rooted in the 'real world'. Back then the 'real world' was one of failed systems, vast resource depletion, fractured politics, and a polarised public - oscillating between the spiralling frustrations of differing perspectives. Against the tide of technology and what was then known as artificial intelligence, governance came perilously close to little more than power games, fraught with the stresses of hanging on, not moving on.

In Wales, already perceived as eccentric in national character, a shift of focus to people - to their needs and how to create the conditions for good and purposeful lives in better balance with the planet - was made possible under the very cover this ridiculed eccentricity provided. There was profound thought about what people needed to maximise health and well-being, to be well educated, nourished and sheltered; to thrive within the realms of their individual capabilities and through connectivity.

The first advantage was captured after the first pandemic - an experience which saw learning harnessed and invested in different approaches and resulted in localities of resilience, better prepared ahead of the second and third pandemics. Localities had by then become centres of hyper-connectivity. Home and flexible working and learning via web, wire, cloud, and skin with local productive land and townscapes, people-centred health and learning pods springing up to serve, educate and employ the hyper-localised communities born from the first, now nearly mythical, Covid years.

After the first outbreak, subsequent dense green locales of clean air, intelligent streets and climate-responsive dwellings benefitted from demand-responsive communications, logistics and transport connection services, ready for the eventuality of the second wave.

By the time that second wave materialised, the small window of opportunity had been grasped to lock in the right level of design understanding, skill and commitment. We had understood the potential of surface transport and connectivity as well as the giant tentacled infrastructure that lay beneath. We recognised

that technical compliance was not a strategic objective but a baseline obligation – a given. We therefore sought better problem solving, greater public and social value for our communities – urban and rural renewal became characterised by excellence in urban design, engineering, architecture, and landscape architecture. Placemaking was no longer thought of as something added to development but as the crucial core of making positive changes to where and how we could live, work and take leisure. We aimed higher and we reached further – understanding what it took to do exactly that and to deliver - not simply to say it but to do it.

We reclaimed the symbiotic relationship between humankind and the environment we need to survive and thrive. We committed to inclusive, collaborative approaches in a culture of quality and common purpose. We understood and created the conditions for bold creative leadership and clarity of vision.

We resumed the bold endeavours of past generations, taking a leadership position and committing to quality, ambition and accountability, seizing economic opportunity through projects of a scale that stimulated and necessitated innovation. We invested public resources not for short-term lowest capital cost but long-term, highest quality, and public good. Systemically vital projects, services and structures for the long term overtook old models of capital focus and short-term gain. Fresh structural change brought about embedded fundamental rights to home, to clean air, energy, security and thriving, living landscapes.

We avoided a blighted environment of increasingly depleted and ever scarcer resources – avoided sacrificing the interests of future generations and prioritised wider public interest. In Wales we actively pursued the outcomes signalled in the legislation created for the wellbeing of future generations, embedding it in policy and delivery, setting in train the decarbonisation agenda and accelerating our transition to a zero-carbon economy. We collaboratively reshaped vibrant, inclusive, cohesive economies and communities, and took on the entrenched structural root causes of poverty in all its dimensions. To do all this we left behind concepts of blame and resentment. We looked to ourselves and to those who shared our vision and purpose.

We recognised that transport for people, goods and services had to become a defining element in shaping the whole of our environment – where and how we lived, what choices we could make and what opportunities could be accessed. We saw that our transport can shape a country, its economy and the health of its environment; how it can squeeze people's lives to the scant edges of vast air-polluting highways and into vehicles we may not otherwise choose as the most convenient. Transport, distribution and communication systems were designed to the highest quality with comfort and efficiency prioritised, with new materials and efficient energy sources, accelerating the first decarbonisation era.

Powered with the elemental profits of the first renewable revolution, land use became recognised as a vital strategic tool and highly efficient, compact, connected settlements became a reality with fully integral and flexible social care, health, education, and services. While we saw its advantages we also recognised the carbon footprint of so called 'AI' and found ways to tame it to help drive this world of difference.

Now critical creativity and culture is woven into the very fabric of our reconnected communities; the globally vital stories of Wales can be learned anew, shared, remade and reshaped. Our most skilled creative thinkers can be regularly called upon to provide rapid policy, prototyping and delivery modes through mobilising our human skills and capability. These literally and metaphorically creative ‘brain cells’ grew from the huge drive for skills and inclusive education which galvanised thinkers, designers and makers to draw on human ingenuity to rapidly define, test, redefine and prototype policy into strategy and delivery, keeping Wales in the position of environmental, economic, social and educational advantage. Expertise was welcomed and drawn upon, encouraged to bring challenge and analysis to data, evidence and information when considering how it might be applied.

In order to reach this place, this world we could hardly imagine possible even a decade ago, we distilled key principles, transformed our educational approach and invested in closing the vast skills gaps we had identified in the early 2020s. Creativity, humanities and languages were re-integrated with sciences – a breadth and depth of knowledge, understanding, courage, engagement and independence of thought, enabled ingenuity and challenged the conventional approaches and outcomes of old. At last, we saw how ideas die in the darkness of protective single interest and how they are brought to life when shared, promulgated and populated. The age-old drag anchors of territory and fear were quelled by a new and genuine openness and knowledge sharing. The complexity and urgency of our challenges meant barriers were trodden down, prejudices overcome, common purpose regained, conventions overturned.

In those months, days and hours of greatest threat, we mustered our courage and exercised a collective act of leadership and shared purpose at a scale of endeavour which, at last, equated to the scale of challenge.

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About the author:

Carole-Anne Davies is Chief Executive of the Design Commission for Wales. A career predominantly in senior management roles followed her time in industry. She was previously Director of Cardiff Bay Arts Trust and a Trustee of Amgueddfa Cymru/National Museum Wales. She is Chair of Gregynog Trust the charity which owns Gregynog Hall and its accompanying 750acre SSSI estate, former home of art collectors and philanthropists Gwendoline and Margaret Davies. She is an alumna of the CSCLeaders Commonwealth International Study Conference; of Harvard Kennedy School Executive Programme, the Cambridge Institute for Sustainability Leadership (CISL) and a Life Fellow of the IWA.

Valley 2100

Beau W Beakhouse



Credit: Mike Erskine, unsplash

I daydream in the unpredictable weather. Low grey clouds are approaching through the valley. The clouds carry the promise of a hailstorm, and I shiver as they pass over without keeping it. Lingering plumes catch on the pinnacles of trees ascending the steep slopes. Then the sun is out, as though it had been for months, an indefatigable sun that all life in the valley reaches towards. I climb a track up the bulbous hillside, shadows of clouds rolling across the low vegetation. Cresting the hill, fields of hybrid banks absorb energy from the soil, from the wind, from the sun, stretching out across the plain, capping the coalescence of valleys and peaks with warped light absorption. As I walk through the fields, I can hear the subtle clicks and shifts in air pressure as they transmit their meteorological data elsewhere. Finding an open space beside the observatory, I lie back on the heathery ground, soaking up the sun, and behind closed eyes imagine myself floating through the valleys below me.

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From my prospect, I watch five beings in fluorescent orange suits mill around a common at the base of the hillside. Converging at the centre of the common, they scrape around in the long grass and uncover a large slab of metal. Sliding it aside they reveal a triangular hole, a shaft. They erect an 8-foot tripod over it. Then, from out of sight within the woods, two more beings in black rubberised suits, akin to scuba gear, fitted with harnesses and head torches, walk towards them. They exchange a few words, clip onto the tripod, and begin to descend, abseiling into the dark opening. Every 4 years, they inspect the culverts channelling water deep beneath the common and into the river that arcs through the valley. Following the echoing water, they inspect the tunnels for debris, blockage and structural weakness, the concrete passageways running above the deeper uncertainty of collapsing coal pillars in 300 year old mines. Looking down from the hillside on the surface of celandine and daisy and that triangular absence of light, I recall the solar eclipse of 2090. Tonight the supermoon is in Scorpio.

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Within the mist, the giant operating arms of the scrapyards pivot above mountains of recycled metal. The automated tools spin, balletic, above their chosen sea. Travelling through the valley at high speed, I only ever glimpse the scale of the metal yards between the trees; water vapour clinging to stonewashed paint. Overseen by operators elsewhere, the arms sort, process, move and load the metal into lorries that leave frequently on the main arteries of the valley. The front carriages of the train curve towards the hillside, the raised route ahead crossing roads and rivers, the curved glass windows creating a tube that reflects every flicker and

change of light. A tunnel and then out and we bank right again, high above the valley; the corrugated roofs packed and overlapping, a legacy, a modified industry, running in sectors towards the sea.

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When I'm in the city, I always walk along Commercial Road. It's a cut through to the centre or, in the direction I'm walking now, to the river. Reading about past cities, weight was an unquestionable descriptor. But this street rests gently on the earth, impermanent, almost transparent. The implementation of a pipe, a transmitter, a façade, a transport link is swift and simple; peeling back a surface, unlocking a catch, registering a panel. Modularity has lended the city a lightness, a ghostly fabrication. The houses feel like interchangeable containers, the markets like planned events, an algorithm of perfect city planning, maximised contentment and well-apportioned leisure. At the end of the street, I look up at the Transporter Bridge. Strung across the river, suspending its carriage by many harmonious threads, its latticed boom reaches out above the water, girders rising from deep within the mud. In old photographs it is a symbol of industry, a giant H for history, its elliptical gridwork a pathway to its own fabrication at the disappeared steelworks. For the figures looking out from the decks of riverside apartments, surrounded by sunbathing equipment, on the foundations of the weathered brutalist flood defences, it remains a symbol, now because of its translucency and absence, a green and glowing leisure platform.

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I look back at the hundreds of slipways along the coast, intermittently releasing passenger ferries into the water. My stomach turns over. On the cliff edges and further inland, stand rare grey pyramids, like rockets, planted into the rolling hills. We cut through the water, my friend guiding their sailboat towards the island. Gently rocking in the wind, I put my sunglasses on and stare at the horizon. Shades of green and blue; a beckoning band of turquoise hovering above the offing. I let my hand touch the peaks of choppy water. Underneath is another world, swaying and silent, an alien logic that records the many voyages that have left this coast. My friend calls me, they point towards the island, I can't hear them over the wind but I watch them smiling. Ahead of us it slides out of the water, stained and rippled limestone, pockets of shingle shoreline and, grafted to the cliffs, a sharp sandy mass, the adjunct artificial island. More islands come into view, hopscotching out into the ocean. Islands of language, satellites, settlements; their opening festival. After we

land, I wander along a promenade of stalls. I pause, watching someone carving the components of a chair. Their hands grip tightly, fusing with the waney timber. The air is bright and the wood golden and I stare into the movements of transformation, the effortless shaping of change.

About the author:

Beau W Beakhouse is an artist and writer based in Wales. Their installations combine sculptural wood and metalwork with text, audio, film and performance to consider the relation between labour, ecology, colonialism and language. In their science-fiction writing, traditional craft and industrial manufacture converge with speculative technology and new forms of communication to create uneasy worlds of power and possibility. Recently they have shown with The Mosaic Rooms, Catalyst Arts, The Crypt Gallery, Chapter, g39, Glynn Vivian Gallery, MOSTYN and Peak Cymru. Residencies have included Cittadellarte - Fondazione Pistoletto, Centrum Kultury ZAMEK, Tangent Projects, Literature Wales and Jerwood UNITE. They have published with Freelands, Burning House Press, Porridge and Lucent Dreaming amongst others. They were awarded the British School at Rome Fellowship 2023 and the Freelands Fellowship 2022-24, as well as the Jerwood Staging Series and Jerwood New Work Fund 2023.



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