

SEDA

Scottish Ecological Design Association

Degrowth



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Autumn 2022

SEDA was formed in 1991. Our primary aim is to share knowledge, skills and experience of ecological design. SEDA is a network and links those seeking information and services with those providing them.

SEDA's membership comprises a large number of people involved, and with an interest in design, principally in Scotland. Members include academics, architects, artists, builders, planners, students, ecologists, landscape designers, materials suppliers, woodworkers, and many more whose work or interest involves design for a sustainable future.

SEDA is a charity and is run by a Board of Directors, who are elected at Annual General Meetings. The Board is advised by a voluntary Steering Group which meets 8 times a year for discussion and for planning the activities of the Association. All members are welcome to take part in these meetings. SEDA registered as a Company Limited by Guarantee in February 2011.

A SEDA membership is a great way to support ecological design in Scotland. As a member you will receive the SEDA Magazine for free, get discounted tickets to SEDA events, and have the opportunity to connect with a wide network of talented designers.

Editorial team

Nick Domminney, Viktoria Szilvas, Doug Tullie

With thanks to all our contributors, sponsors, and supporters.

What do you think of this SEDA magazine? Do you have any disagreements or something useful to add to the issues covered? Do you have an idea for an article? Drop us an email at magazine@seda.org

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Editorial

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SEDA's May Assembly - see the [Summer edition](#) for a report - identified a number of issues to be the focus of our discussion and action over the coming year. This process began at SEDA's Conference on the 2nd of September. This edition copiously covers the event as well as the AGM, plus suggestions for a series of follow-up gatherings to take the process forward.

One of the topics which sparked much interest was Degrowth. Hailed as an idea whose time has come, September's discussion prompted SEDA magazine to ask May's group leader, Sam Foster, to guest edit this edition. The task of collating the contributions fell to the tireless Jo McClelland of EALA Impacts CIC. The articles only scratch the surface and raise more questions than answers, but we hope that they at least give readers an inkling of the issues.

At SEDA we are always thinking of the future, so it was with great pleasure that the Kristina Johnson Award, for ecological design by Scottish year 2 architecture students, was relaunched at the AGM by its instigator, Jim Johnson. We only have limited space to give you an impression of the quality of the submissions but the boards should be on display at the next SEDA "in person" event.

Many at the conference remarked upon the pleasure of meeting "in person" and are determined to reinstate the Green Drinks tradition, where local SEDA members select a venue and time and get together.

Sometimes they invite a speaker, other events are mainly social. If you would like to meet or arrange such a gathering, email info@seda.uk.net.

SEDA Solar is continuing with fascinating series of lectures on applications of solar energy; we have an in-depth report from the Spring 2022 event. We continue our series on the various forms and features of mass timber, this time nailed laminated timber, by Peter Wilson of the Mass Timber Academy. This sits alongside a description of Eco Refurb website by Sandy Patience, he of the much-used Green Spec website. In the next edition, Sandy will follow up on how Green Spec intends to develop. Finally our chairperson, Catherine Cosgrove, gives us her thoughts on the conference and where we go from here.

Catherine intends to step down very soon, so we are urgently looking for somebody to take her place. Our treasurer, Clive Bowman, is also about to move on. SEDA relies on a shrinking band of volunteers. We need you to help. Think about how you might get involved, whether it is setting up a Green Drinks event, assisting Clive, helping with magazine, or some other activity. Email the Info @ address.

You receive this edition via a link to SEDA's website but remember, you can also order a lovely hard copy of the magazine via the [SEDA website](#). ■

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Below: Hannah Busing, Unsplash



Guest Editorial

Joanne McClelland: Conservation Accredited Architect RIBA RIAS, EALA Impacts CIC www.ealaimpacts.co.uk

Degrowth is about changing the habit of a lifetime

Could we ever admit that the way we have been living is so destructive? Do we even need to? Perhaps acceptance and forgiveness are key parts of moving on? But due to the extreme climate emergency do we even have time to grieve, debate and reflect? Do we even have time to write this magazine and for you to read it? Should we just be focusing on the next sales pitch, starting the marketing campaign for a degrowth lifestyle? I am advocating yes, we need to talk about it.

Research on confirmation bias has shown that we are more likely to look out for, notice and remember anything that confirms opinions we already hold. In other words, we rationalise the things we feel stuck with. It's as though we free up brain space to get on with our lives by deciding it's not so bad, a psychological immune system. But once a critical mass gets behind a cause, people stop rationalising the status quo, feel they can make a difference because others are with them and begin campaigning for change.

I believe SEDA are leaders in these critical conversations. The aims of SEDA are to share knowledge, skills and experience of ecological design, encourage sustainable thinking and promoting environmentally proactive behaviour. They have been brave to ask the question, what is Degrowth and start the conversation. At the SEDA Conference [Enough.Scot](#) talked about using Degrowth for shock. [WEAll Scotland](#) talked about Degrowth being the same as the Wellbeing Economy.

The Circular Economy, Wellbeing Economy, Triple Bottom Line measuring, Community Wealth Buildings, Degrowth, four-day weeks, Sufficient Society, Regenerative Society...they are all ideas of how to critique the global capitalist system which only pursues growth, causing human exploitation and environmental destruction. These ideas are means to measure. Some writers have been brave enough to contribute. WeAll says we are measuring the wrong thing, Common Weal says we are distracted by measuring, EALA asks for measuring holistically. In all instances they are means to raise awareness of values, other than just Growth. Values that we need to survive. Values that we take advantage of everyday. Whilst continually measuring our life may be unsustainable, it should help us appreciate the fortunate ability many of us have to make decisions and the impacts they make.

As an architect I can see how the circular economy can help, with maintenance, repair, whole element reuse or cascades of material uses. We can incentivise long term business models and rise to the restrictions of our local supply chains. We don't always need to reach for the raw extraction from our commons, to create a new product, we can create new products via reuse, many times over and locally. We are currently too detached, with long supply chains, to be able to empathise, to stand in others' shoes and actively help with the solutions in other countries, not just offer sympathy and handouts.

Designers think outside the box, this is our role, there are no boundaries anymore, we all need to move our perceived red line boundaries. Fear is understandable but

tradition, paperwork, profit, intellectual properties are no longer an acceptable excuse to hold back solutions. The big marketing will change, green travel gloating, plane shaming, egotistic car owners, everyone will want to be on a community council, we will demand proof and evidence due to lack of trust. Then with the overwhelming evidence the market demand will change, then those that are in the local community with prosper, and those that are not community led will finally fail to thrive.

The proposal is systemic change. The suggestions made may seem like simple nudges, but I believe they will be the hardest things we ever do. We have muscle memory for economic growth, even if we can accept it is not good for our wellbeing or our planet, we are hard wired to live it. The proposal is to drop the habit of unintended consequences, and find net gain means of achieving leisure, caring, food production, comfort and shelter. We must 'self-regulate' in our work and in our lives to no longer do more than the task in hand, to reduce our impact to only that which brings true value.

'The highest reward for a person's toil is not what they get for it, but what they become by it.'

John Ruskin ■

What Is It? The principles and aspects of the Degrowth

Joanne McClelland: Conservation Accredited Architect RIBA RIAS, EALA Impacts CIC www.ealaimpacts.co.uk

What is Degrowth?

*“Degrowth broadly means shrinking rather than growing economies, so we use less of the world’s energy and resources and put wellbeing ahead of profit.”*¹ The idea is that by pursuing degrowth as an economic policy we can become more holistically sustainable; equally measuring people, prosperity, and planet.

Is Degrowth a new thing?

In their foundational book *Degrowth*, Kallis et al state that *“The contemporary degrowth movement can trace its roots back to the anti-industrialist trends of the 19th century”*² key amongst these being John Ruskin, William Morris and the Arts and Crafts movement. Ruskin’s influence championed the idea of “truth to nature”³ William Morris *“embraced Marxism and influenced by anarchism, in the 1880’s became a committed revolutionary socialist activist.”* In his work he responded to the *“shoddy practices of much of Victorian manufacturing.”*⁴ All of which prefigure key threads in contemporary degrowth thinking, such as re-use, craft-based maintenance and repair.

In 1968, the Club of Rome⁵, a think tank headquartered in Switzerland, asked researchers at the Massachusetts Institute of Technology for a report on the limits of our world system and the constraints it puts on human numbers and activity. The report, called *The Limits to Growth*⁶ became the first significant study to model the consequences of exponential economic

growth. It concludes *“at some point the world’s growing population will consume too great a quantity of natural resources, such as clean water and fossil fuels, for human society to exist.”*⁷

1973’s *Small Is Beautiful* critiques the neo-liberal model of economic growth, it challenges *“we are estranged from reality and inclined to treat as valueless everything that we have not made ourselves.”*⁸

To further critique Degrowth, are we all sure we all first know what Growth is?

Max Roser, Our World Data, gave a definition as: *“Economic growth is an increase in the quantity and quality of the economic goods and services that a society produces.”*⁹ These goods and services require extraction, of raw material and of surplus value i.e. profit. Max notes *“the most important change in quantity is from zero to one, when a new product becomes available and that many of the most important changes in history became possible when new goods and services were developed; think of antibiotics, vaccines, computers, or the telephone.”*

I am in awe of human advances but I don’t think we have the ability to extract profit without detriment to equality, wellbeing and ecology. As Jason Hinkel says in *Less is More* *“It’s not growth that is the problem, its growthism: the pursuit of growth for its own sake, or for the sake of capital accumulation, rather than to meet concrete human needs and social*

*objectives.”*¹⁰ Likewise, Rosa Luxembour says, *“capitalism contains an inherent drive towards accumulation”*. This questions whether private business ownership is compatible with human needs and social objectives. So it is not simply what your business does, but how it is structured. Does your business structure extract profit or does it reinvest for equality, wellbeing and ecological regeneration?

The argument across nations is nuanced. Back to Max Roser, who goes on to say, *“there are only two ways to increase the incomes of the poor: lower global inequality or economic growth for the poorest billions of the world.”*¹¹ As Degrowth would discourage economic growth for the poorer billions in the world, we are left with the option to reduce global inequality, which means a simpler life for those in the developed nations. Research shows our level of economic activity to be way beyond the level needed for social wellbeing, giving scope for reduction without reducing the expected quality of life and conditions of the developed world.

What are the impacts of Growth or Degrowth on ecology?

Tejvan Pettinger sums this up well *“Economic growth leads to resource depletion and loss of biodiversity. This could harm future carrying capacity of ecological systems for the economy.”*¹² Simply put, the earth can provide only so much, and plenty of scientists have explained how far beyond these limits we are. To continue to grow our economy, which requires resources

and services from the earth, pushes us further beyond those limits. Some argue that economic growth can be decoupled from material throughputs, though this is yet to be proven.

And, what are the impacts of Growth or Degrowth on equality and wellbeing?

Never has a society had more indicators of poor mental wellbeing. However, clinical conditions, often put forward as the cause, are unlikely to be to blame. *“Recent research concluded that depression is not caused by a chemical imbalance of the brain”*¹³. Ironically, *suggesting we have a broken brain for life increases stigma and disempowerment. What’s most devastating about this myth is that the problem and the solution are positioned in the person, distracting us from the environments that cause our distress. Our distress might even be a sign of health – a telling indicator of where we can collectively resist the structures that are hurting so many of us.*¹⁴ Kasser (MIT) shows that *“when people organise their lives around extrinsic goals such as product acquisition they report greater unhappiness in relationships, poorer moods and more psychological problems.”*¹⁵ The consumerism powering growth is clearly making us unhappy.

Kasser helpfully also explains that less materialistic people show the greatest life satisfaction. This is nearly matched by materialists with means to have material rewards. The least happy of all are the materialists without material rewards. So a

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Below: Inhabit.com
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degrowth economy has the greatest chance of satisfaction for all.

What's the proposal then?

As Giorgos Kallis states *“Degrowth means we live a simpler life, so that others can simply live.”*

So what does a simpler life look like?

More circular economy, which blocks production of new things to satisfy consumerism so limiting extraction, also incentivises re-use, repair and maintenance by local supply chains. According to the United Nations, *“material extraction alone is responsible for 80% of total global biodiversity loss.”* We don't always reach for the raw extraction from our commons, to create a new product, we can create new products via reuse, many times over and locally.

Greater localism makes sure the impacts of our activities are clear for us to see, discouraging negative destructive behaviours.

Change what we measure. If you only measure GDP or finance, you are only driven by GDP and finance. Community Interest Companies, for example, have to submit social measures to Companies' House at the same time as financial measures, so are more likely to deliver social change.

Echoing this, Tim Jackson suggests businesses should be structured around providing services, not products, and where ownership is de-centralised. Our

economy should be a provider of social wellbeing, not growth.

And at the heart of it all, a reconnection to the environment around us, and our place in it and the genuine real impacts on our wellbeing of plants and animals. ■

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- 6 Donella Meadows, 1972
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- 8 Small Is Beautiful, E. F. Schumacher, 1973
- 9 [What is economic growth? And why is it so important?](#)
- 10 Less is more, Jason Hinkle
- 11 [The economies that are home to the poorest billions of people need to grow if we want global poverty to decline substantially](#)
- 12 <https://www.economicshelp.org/blog/145989/economics/environmental-impact-of-economic-growth/>
- 13 <https://www.sciencedaily.com/releases/2022/07/220720080145.htm>
- 14 [I'm a psychologist – and I believe we've been told devastating lies about mental health | Sanah Ahsan | The Guardian](#)
- 15 <https://www.apa.org/monitor/jun04/discontents>



It's not degrowth, it's post-growth

Robin McAlpine, Common Weal

Growth

Our relationship with growth has to change in Scotland. Why? Because humanity's relationship to growth has to change. It is patently obvious that you can't grow indefinitely in a finite space, or using finite resources. As Scotland has more space and more resource than most, it is up to us to move first – by getting beyond growth.

First, let's briefly talk about growth. There we go – now let's stop talking about growth. That, for me, is the key message – it's not about growth at all. But that also means it's not about 'degrowth' (which implies reversing growth) because, again, it's not about growth. This is the trap we need to escape, the trap in which things are measured only in size. Worse, they're measured only using proxies for size.

If environmentalists play this game, we lose, because there is no answer to 'how big should civilisation be?'. In a head-to-head ideological battle, we cannot beat the promise of 'more of what you like' with an offer of 'sacrifice your lifestyle'. And we absolutely need to win that ideological battle.

Sadly it is Scotland's history of centuries of depopulation, enormously concentrated land ownership and the developmental benefits of having been a colonial power that can make us a key player in that ideological battle.

Post-growth

Our role should be to achieve a post-growth politics, not to debate how much or how little growth should be but largely to remove growth from the equation altogether. Instead we should think in terms of 'develop', to improve and make better. If we are improving the quality of goods and services, if we're increasing wages and job quality, if we are doing it without creating environmental and social harm and if we are distributing resources such that everyone can maintain a high quality of life, we have succeeded. Size doesn't matter.

Development could lead to increases in the indicators which we traditionally use to measure growth (such as GDP). In fact if Scotland was to decarbonise properly, we almost certainly would (at least in the short term). But eventually we could easily hit a state where further development reduces measures of growth. Both outcomes are fine; it's not about size.

There are so many ways we can envisage post-growth. If we follow the preventative principle and invest to avoid failure later, the cost of failure is reduced (inducing growth now but reducing it later). Or if we move past consumerism and focus more of our household spending on being active we do less damage, but the economic multipliers actually increase. We, traditionally speaking, would grow. Doing the right thing just isn't directly correlated with bigger or smaller.

Internalise

Moving there requires a simple shift; we need to de-globalise and internalise. Globalisation is an economic model which is only viable if we ignore all the externalities, the damage done that is not paid for in retail price. It leaves us free to keep doing damage.

So we need to internalise those costs. The easiest way is through an externality tax to capture the true lifecycle costs of goods and service. That changes the arithmetic completely. Instantly ethically and cleanly produced domestic goods and services become price-competitive. It opens up the market for better-quality products. It will not transform the economy overnight, but it will create a vigorous pace of change.

And this absolutely does not mean a drop in affordability, or a premium which punishes the poor. Since this is a price adjustment tax it can all be recycled straight back to those from whom it is taken, consumers. Common Weal proposed that all income from an externalities tax be returned to citizens via a Universal Basic Income.

This means goods become more expensive but that purchasing power increases at the same rate (though with an element of redistribution included). In time, the externalities tax will raise less as more and more of the economy is untaxed because it is wholly sustainable. But in that process we'll transform the economy and create many more good jobs, so wages will rise.

Image:
Measuring only in size; Jeremy Bishop - Unsplash



This is why degrowth leads us down the wrong path; we might easily see a significant domestic manufacturing boom and end up doing all the right things at the same time.

Ownership

The other crucial post-growth approach is to change our relationship to ownership and resources, because the rewards of circular economics are large. What we do just now clearly makes no sense; we buy poor-quality products which aren't worth maintaining so we soon dispose of them to buy a replacement. We know this costs us much more in the long term, but capitalism dictates that's how we must behave.

The economic reason is that better quality products which last have a higher upfront purchase cost and so are at a disadvantage when incomes are paid monthly. The commercial reason is simply that corporations make more money out of selling us five bad products than one good one.

The answer to this is leasing. When we lease something we spread its cost over its lifecycle, so products with better lifecycle performance (almost always the high-quality ones) become more competitive. We can repair and maintain them because building that cost into the product makes sense.

And in turn this means that we do not need to seek the cheapest labour we can

find; primary labour (in construction) becomes a smaller proportion of lifecycle costs and so becomes much less of an issue. Which means we can build more things domestically, designed to be repairable and upgradeable. And we exchange low-pay retail jobs for high-pay maintenance engineering ones.

Again, this could stimulate traditional measures of growth. Again, that's fine because we're doing the right thing. This is why decoupling development and growth is the priority – that way we can reform based on improving quality of life, not sacrificing comforts.

That's all very well for Scotland, but...

In Scotland the physical capacity to do this is very real, the political opportunity is realistic and while not all the political powers required are in our hands, enough are to make a serious start (you would really want to control monetary and trade policy which would require Scottish independence).

But isn't this all a bit myopic? Scotland is hardly alone on this planet of ours. That we're resource-rich doesn't mean everyone is. And the fact that we start from a high level of development doesn't mean that everyone does. What about the global south? Don't we need to 'degrow' for their sakes?

This is to misunderstand what I have argued above. I'm not suggesting that we do this with some kind of 'I'm alright

Jack' attitude but to show a path. The planet is finite, some resources are finite, but circles are infinite. If the global south seeks development-through-growth like we did, replicating a waste-based model, it will fail.

That is why we need a different model of development, one which shows that you can exist within resource limits, yet live very well indeed. I simply do not know enough about the varying resource portfolios of nations in the global south to describe a specific model for their development, but through careful product design, longevity and maintenance, remanufacturing and recycling, changing economic environments and changing relationships to ownership and waste, development without damage is possible everywhere.

This is where we come back to Scotland's duty; we can do this quickly and easily because of the specifics of our history and geography. Our model will not be directly applicable to other nations, but the methods and techniques of our model will be.

That is the point; if Scotland persuades the world that the only option is 'degrowth', making things smaller, we will fail to influence this change. If we can show the world that you can have really positive post-growth development, we will have contributed very significantly to the future of the planet. ■

Green Growth vs Degrowth

Nick Domminney: SEDA Magazine Editor, Architect

“There is no growth on a dead planet”. Tim Jackson’s aphorism (Jackson, 2021) has become a watchword for the Degrowth movement; only matched by Schumacher’s dictum “infinite growth... in a finite world is an impossibility”. Nevertheless, overwhelmingly “growth”, that is economic growth, remains accepted as a good thing.

Accumulate accumulate

Since WW2 growth has been the aim of national economies. Developed economies saw it as a way of expanding profits while avoiding social instability; Rostow’s seminal *Stages of Economic Growth*, for example, was subtitled a *Non-Communist Manifesto*. Underdeveloped societies, on the other hand, particularly those extracting themselves from colonial domination, strove for growth to tackle poverty and assert their independence (Rostow, Third Edition 1990). “*The march of compound interest*,” as Rostow put it, the rate of increase in GDP have become the measure.

There have always been doubters about economic growth as a measure national health or happiness, however (UNDP, 2020), but the climate crisis has driven at least some GDP exponents to acknowledge that current economic growth may be terminally ecologically destructive. Indeed Mann claims, “*Even the likes of the... IMF..., the Financial Times, the European Deutsche Bank and the US military now acknowledge that modern economic growth has been ecologically destructive, and is*

a principle driver of the looming climate cataclysm.” (Mann, 2022) There is now a thriving library of Degrowth publications with the confidence of an idea whose time has come eg *Less is More: How Degrowth Will Save the World*. (Hickel, 2021)

Indeed Degrowth, or at least its shadow, is gradually penetrating deep into political and economic discourse. February’s IPCC report, for example, albeit tortuously, acknowledges that economic growth may be inimical to the climate crisis. “*Linking development to past and current modes of economic growth creates significant challenges for Climate Resilient Development.*” (Mann, 2022, p. 30).

The Invisible hand with green fingers

But is the problem economic growth or just this particular manifestation of it? Is it possible to “*decouple*” economic growth from CO2e? Green Growthers think so.

Growth is intrinsic to capitalism, they say, and capitalism isn’t going away so let’s “*do capitalism differently*” (Mazzucato, 2018); Adam’s Invisible Hand of the Market but with green fingers. “*Techno optimist*” Martin Sanbu of the Financial Times and others, claim carbon taxes, carbon trading and governmental pledges to “net zero”, carbon capture and storage, tree planting etc. will allow business to flourish while offsetting CO2 emissions. Even Amory Lovins - he of Gaia - co-authored “*Natural Capitalism: creating the next Industrial Revolution*” (Lovins,

1999) which ascribed economic values to nature thereby setting the scene for the Stern Review (Stern, 2006) with forests and rivers to be valued against their exploitation. Ex Governor of the Bank of England, Mark Carney, is now the UN Special Envoy on Climate Change and has marshalled financial institutions valuing at \$130 trillion for a “*global transition*” to net zero by 2050 (Mann, 2022). However, it is difficult to see significant evidence that this approach can, in any way, match the problem and may indeed create many more, economically and environmentally.

Other Green Growthers are deeply sceptical that business can be trusted and advocate “green deals” (Caroline Lucas, 2008) requiring governmental mobilisations on a wartime footing. Given the scale of the climate crisis, it is difficult to disagree. Advocates for the poor demand such targeted growth to tackle poverty as well as climate devastation; the sort of coordinated investment that only governments provide.

But, economically, can such vast global scale investment avoid precipitating the same crisis as Mark Carney’s “*global Transition*,” ? What happens when the huge investment required to make profit from these mobilisations becomes too much, even for huge corporations and nations’ credits are exhausted? George Monbiot and others who rightly point to capitalism as the culprit for the stupidity and destruction visited on the environment (Monbiot, 2019), seem to say yes; that there is some sort of sweet

spot between capitalist competition and its need for economic growth. Is there such a solution or, alternatively, is there a case for radical redistribution; not creating new wealth, which contributes to the rate of profit, but redeploying it from the rich to the poor?

Abstract application

Unsurprisingly there is a predisposition among those of us in the “environmental” movement to favour Degrowth, one which I share. Other contributions to this journal will make the case well. However, notwithstanding Green Growthers’ technological optimism and sociological pessimism, Degrowthers still have a lot to explain.

How do we get there and, related, why would the poor of the undeveloped and developed worlds want to? Specifically how will Degrowth deal with global corporate capitalism, the military industrial complex and the potentially catastrophic economic effects of zero or negative growth—particularly on the most vulnerable. As the eminent “eco-socialist”, John Bellamy Foster, explains: “*The notion that degrowth as a concept can be applied in essentially the same way both to the wealthy countries of the center and the poor countries of the periphery represents a category mistake resulting from the crude imposition of an abstraction (degrowth) on a context in which it is essentially meaningless, e.g., Haiti, Mali, or even, in many ways, India...*” (Foster, 01 January 2011)

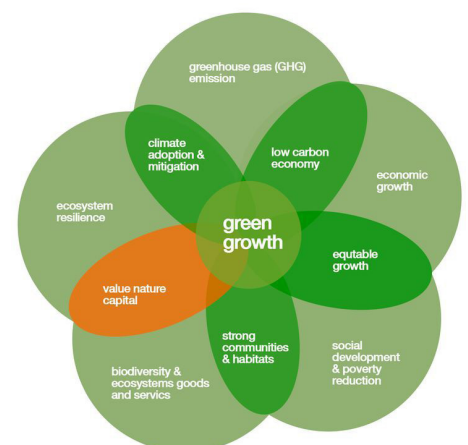
This dichotomy was exposed at the recent SEDA Conference during a brief discussion, “*Sufficiency & Degrowth*”. The invited speakers outlined the case for Degrowth well but, when challenged about its universal applicability, claimed that degrowth was a demand from those poorer societies. There is, however, little evidence of Degrowth being anything like an overwhelming demand from the Global South or indeed trade unions. Aware of this, perhaps, others characterised degrowth as “development not growth” or “sufficiency not greed” as a way of legitimising the movement.

Other contributions to this journal will make the case for degrowth. And SEDA will continue this crucial discussion. Hopefully, we will square the Degrowth/Green Growth circle. ■

¹ Much of this article’s structure and references are based on Geoff Mann’s insightful review of books by climate pundits Per Espen Stoknes, Jason Hiickel, Tim Jackson and Giorgos Kallis et al. in the 18th August 2022 London Review of Books, which I have shamelessly plagiarised.

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A Wellbeing Economy would benefit everyone, not just the wealthy

Joey Gartin: WEAll Scotland

When it comes to the economy, we're measuring the wrong things.

Over the last 80 years, the world has embraced gross domestic product (GDP) as its main measure of economic success. But GDP was never meant to be a barometer of people's wellbeing. Instead, it measures people's economic output.

GDP represents the total value of goods and services produced in a country, usually over a one-year period. That includes everything produced, whether it is beneficial to communities and their environment or not.

For example, consider an oil spill. The equipment procured to clean up the damage. The jobs created for people to manage the equipment. The extra oil extracted to make up for the delay. All of these things have a positive impact on the GDP of the country where the oil spill happened, despite the damage caused, because they add greater financial value to the economy.

Likewise, consider all of the things in our society that improve the health of our environment or the quality of life for the people in an area. More people taking public transport. Neighbourhood residents teaming up to pick litter from the beach. Children playing outside instead of meeting at a shopping centre. These activities arguably build community and improve the local environment, but we can't attach a financial value to all of them. The fact that they are beyond the

scope of GDP, the standard by which most countries measure their economic success, verges on self-defeating.

Wellbeing v Growth

That's where a Wellbeing Economy would change things for the better. Whereas GDP focuses only on financial output as a measure of success, pursuing growth at all costs, this degrowth perspective would rate a country's success based on how well the system maintains the wellbeing of its residents and their environment. It would be like putting on a new, stronger pair of glasses, giving policymakers and the public a better view of how well we're collectively doing.

So, what's the alternative to GDP? The truth is, there are many.

Here's one. Dr. Katherine Trebeck, one of WEAll Scotland's co-founders, has long advocated for the number of girls riding bikes to school as an alternative metric which explains the Wellbeing Economy ethos. Think of all the policies that would have to be in place for this number to keep increasing: well-maintained roads which aren't congested with too many cars; effectively planned neighbourhoods so that people's homes are within cycling distance to schools and other public facilities; safe communities where children can commute and play unsupervised without danger; the list could go on, and each of these has positive ramifications for society beyond the immediate communities which benefit from them.

This vision of using alternative metrics to assess the health of people and the planet applies as much to communities in Scotland as it does to people in the 'Global South'. Because regardless of where you are, our reigning economic system disproportionately benefits the wealthy. That includes high-net-worth individuals and families in Scotland as much as profiteers in landlocked African nations struggling to grow their trade networks.



Image:
Previous Page: Girl cycling, Vladislav Vasnetsov - Pexels

Wellbeing Economy

So, what are some ways a Wellbeing Economy approach could actually benefit people in our communities?

To start, we should increase state and non-profit provision of basic services. From housing and transport to energy, removing these essential services from private interests who seek to profit off their delivery and providing them in a collective way by non-profit institutions will ensure everyone is looked after. This includes people who struggle to pay rent or who must decide whether to buy groceries or pay their electricity bill in a given week.

As part of this, we should ensure everyone has enough funds to make ends meet through measures such as a minimum income guarantee or universal basic income. Wellbeing measures like these would empower everyone to live with dignity. They would give more people choices on how to live their lives and what sorts of work or leisure activities to pursue. They would also enable more people to get involved in their communities beyond the realm of paid work.

Critically, we must change the way we make economic decisions and measure the economy's performance. This doesn't just include moving away from outdated metrics like GDP. It means opening up the conversation – and seats at decision-making tables – to people from all walks of life.

Citizens assemblies are a great example of this, including Scotland's Climate Assembly, which met and published its report in 2021. By actively reducing exclusion and enabling participation, which goes beyond simply offering an open invitation to be heard, we can ensure that 'marginalised' voices have an active say in the long-term future of our economy.

Who pays?

The classic rebuttal here, like with most movements to improve society in any way, is, 'That's nice, but how do you propose we pay for it?'

Countries around the world already spend vast amounts of money each year repairing problems that the current growth-orientated model created. Through this lens, pivoting to a people- and planet-focused economy could pay for itself in many areas.

Consider these figures for Scotland, researched and released as part of a 2022 WEAll report called 'Failure Demand: Paying to fix what we continue to break through economic choices'.

In 2018-19, due to the existence of low pay, the UK and Scottish governments spent £774 million on welfare payments, free school meals, and costs connected to work-related ill health. Overall, we've spent over £900 million on healthcare costs for people who have experienced homelessness. And at various levels of government, we've spent an estimated

£956 million due to the effects of air pollution.

This is known as 'failure demand': the financial costs of an unjust, unsustainable economic system. In other words, we're caught in a cycle of paying to fix what we continue to break, costs which could have been avoided.

To be clear, that doesn't mean these expenses weren't justified. After all, we're advocating for a system which supports people and planet, and that's what these funds were doing, albeit in a roundabout way. But imagine if everyone had a decent wage, a stable place to live, and an environment that didn't harm their health. Think of the millions of pounds in failure demand spending that could be reallocated to the very projects which would support the wellbeing of the people from all backgrounds, all communities.

A Wellbeing Economy is possible, yes, but it's also very achievable. Let's start with measuring the right things. ■

SEDA AGM

Clive Bowman, SEDA treasurer

The SEDA AGM was held again online this year, a few days before the annual conference on the evening of Wednesday 31st August. This was our third AGM online and though this comes with all the negatives of not meeting in person, the big positive is that all SEDA members, regardless of where they live, are able to attend, of which about 30 did this year.

The meeting began with the official business of two Directors standing down; Chris Stewart and Janice Foster. Both have been extremely valuable members of the board for several years and their contribution which acknowledged. David Seel also stood down but was happy to be re-elected. We also see the welcome return to the SEDA board of Sandy Halliday who was also elected as a Director.

Catherine Cosgrove our current chair, announced she would be standing down from this role as early as a new chair could be in place. Volunteers and/or suggestions please from all members for this role, as well as additional directors and a future treasurer for 2023 with accountancy experience.

Catherine gave a comprehensive summary of the year, including these highlights:

- 347 current members
- 5000 followers on social media
- Two publications: *A new vision of land use in Scotland* and *Indoor Air Quality*

in *Airtight Homes - A Designers' Guide*

- SEDA NGO: applied and is now recognised as a non-departmental government body with the UN
- SEDA Land: very successful Land Conversations events
- SEDA Solar – a series of successful seminars
- SEDA Build: the Bridgend Bothy is nearing completion. There was an open day on the 8th October, and future dates will be announced to visit.
- Kristina Johnson Award (KJA): funded by Jim Johnson, is relaunched (winner announced at the annual conference)

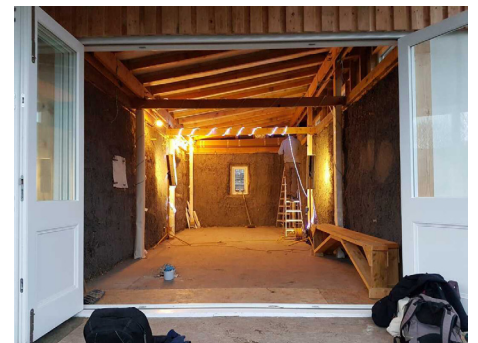
• There have been a number of support staff changes in recent months. Both Reem Alkayem and Scott McAulay have stepped down as publicity and social media support and these roles will now be taken on by Tom Manley and Evie Spiridon. Doug Tullie has also now stepped up to support Nick Domminney and Viktoria Szilvas with the magazine layout.

Clive Bowman, the SEDA treasurer gave a summary of the accounts for 2021 which have now been submitted to OSCR and Company House, and an update on where the accounts are at the end of June 2022. The overall picture is good, we have a comfortable healthy balance in the

accounts which will allow us to invest in website improvements, event equipment and professional services, and fund more publications.

The AGM concluded with a presentation from each of the 4 student finalists for the Kristina Johnson Award- see the KJA report in this edition. ■

Image:
Below: Bridgend Bothy - William Golding & Simon Hakin



Kristina Johnson Award 2022: second year sustainability

Nick Domminney, DipArch RIAS, Strathclyde University Year 2 tutor

Kristina lived through the Nazi occupation of Warsaw with its famine, repressions and terrors, which taught her the need to conserve, to recycle and, at all costs, to avoid waste. She and her husband, Jim, helped found SEDA. Both also got huge satisfaction from teaching at Glasgow's two schools of architecture. After her death in 2003 it was natural that Jim and SEDA, would create a student award in her memory, the Kristina Johnson Award, to be assessed on sustainability criteria.

The award is for Year 2 students at Scottish Schools of architecture and began as a scholarship. It evolved into a simple prize with SEDA judges looking for how ecological ideas formed part of the project's inception, were tested and carried through. However, entries have to be not only objective in its ecological approach but also beautiful. Each school chooses a winner and these shortlisted students make their presentations to SEDA. Jim Johnson is the final judge. The winner will receive £100 and the nominated students £50 each.

Relaunch

The award has been relaunched, after a few year's hiatus. The shortlisted made online presentations to SEDA's AGM on 31st August and in person at the Edinburgh Conference on 2nd September. Unfortunately Aberdeen's Robert Gordon University did not submit due to tutor illness but SEDA was delighted to welcome Jiayi Liu from Edinburgh, Jonathan

Lynn from Strathclyde, Selina Sode from Dundee. Stefans Pavlovskis from Glasgow School of Art couldn't attend in person but presented onscreen from Poland.

Students' presentations comprised up to 5 A1 landscape "slides," plus a "banner," outlining their project, which SEDA mounted and displayed at the Conference. Jim and SEDA members were very impressed with the standard of entries, some of which displayed an extraordinarily mature understanding not just of technical issues but of wider ecological design.

Jim Johnson summed up the feelings of many when he said, *"This was a very high standard of work; any of the four we are seeing today would have won easily in the past. The level of thinking is very high, as is the understanding of sustainable design."* Making the award, he went on, *"A very difficult decision to make. But, by a whisker, I give this year's award to Jonathan Lynn."*

The "banners" will be on display at future SEDA events, including this year's Show & Tell. The magazine images are necessarily low res but repay close viewing. ■



The focus of this project was to design a library that addresses the environmental mistakes of the past hundred years and tries to put forth a 21st century solution.

Aims

1. Minimise energy demand through high levels of insulation.
2. Minimise energy losses via good air tightness and heat recovery.
3. Minimise embodied energy within building fabric.
4. Consider ecology and health by using natural materials. Minimise toxicity.
5. Consider circular economy
6. Maximise free energy through solar gains.
7. Use renewables for the remaining energy demand.
8. Maximise natural daylight.
9. Landscaping & Biodiversity

Abstract environmental map

Looking back to the past to inform the future

To get away from unacceptable levels of toxicity & embodied carbon within materials, one may look back in time. The abstract map depicts a juxtaposition between the historic sustainable buildings and many of the new buildings which are environmentally damaging due to their material composition.

You can learn from the mistakes of contemporary history and consider the historic and more Medieval practice of building in St Andrews.

Use of wood in Medieval Scottish building

Tree-ring analysis of timbers provided evidence of timber framed buildings between the 12th & 15th century, e.g St John's House, St Andrews. The Medieval town was constructed from timber framed buildings with wattle and daub panels. They didn't pollute the environment or cause harm to health, and were often reused.

A modern interpretation

Historic materials: Timber, Wattle and daub
Modern alternatives: Hempcrete, CLT

Claym offers an ability to reduce the volume of a structural element, yet retain strength. It also allows for large spans with minimal waste.

Can hempcrete be the new wattle & daub?

Daub offers a flexible mass between timbers, as can Hempcrete. In addition, hempcrete can be cast to any depth allowing for close thermal performance. The hemp can be grown locally and the lime binder, in theory, quarried nearby.

Evidence of shingle roofs in Scotland

Evidence for wood shingles goes back to the 12th century. Scotland had many steep-plotted roofs ideal for shingle cover and there is also documentary evidence of the removal of oak shingles in 1873 from the Canongate Tolbooth in Edinburgh built in 1591. Archaeological evidence also suggests that shingles were used in Perth around 1520.

Wood shingles are an entirely sustainable material and can be produced locally without environmental harm.

A Library in St Andrews

Jonathan Lynn - University of Strathclyde

KJ Award SEDA 2022

Site, position & solar

Grand hall long sections 1:50

West - long section 1:100

East - long section 1:100

Architectural perspective view

Architectural & botanical perspective view

Mechanical ventilation

MVHR recovers 70% of the energy that would otherwise be lost by natural ventilation. In addition, a CO2 sensor would ensure good air quality by keeping the air changes at 0.5/second per person.

MVHR will be connected to a humidistat, which will maintain a relative humidity at 90% in order to prevent the books from deterioration.

The remaining energy demand will be:

1. Highly insulating the building
2. Recovering ventilation losses
3. Ensuring solar gains will be supplied by a ground source heat pump feeding an underfloor heating system, that can also be used for cooling.

Advantages of Hempcrete

- High moisture mass (buffering humidity peaks - ideal for preserving rare books)
- Carbon negative (-105 kgCO₂e/m³)
- Good insulator (0.065 W/mK)
- Good thermal mass (300 KJ/m³)
- Simple building process (non-toxic wall construction)
- Fire resistant
- Good indoor air quality as no toxic Chemical VOCs present

Limacrete & Recycled foam glass

Limacrete could be a more sustainable alternative to a concrete slab. Recycled Portland cement for concrete, lime, fly ash & coarse aggregate. The use of recycled foam glass as an alternative to petrochemical insulation such as polystyrene, addresses the intention to move away from oil based products.

South elevation & solar shade

The graph shows that the building does not require heating between April and September and that the building overheats in the summer months.

However, these figures do not take into account the correct angle and orientation of the glazing, which would result in lesser gains. Based on these data I have implemented solar shading via louvers to the south and west elevations & recessed glazing to the south.

Winner
Jonathan Lynn, University of Strathclyde

MR HULOT LIVING IN PARIS

SUSTAINABLE DESIGN

JIAYI LIU UNIVERSITY

SITE CONTEXT RESEARCH

SITE ENVIRONMENT

DEFINE FRAME

ITERATION PROCESS

FINAL DESIGN

SUSTAINABLE CONSTRUCTION PROCESS

STEP 1: The project is a multi-story residential building with a focus on sustainability and community.

STEP 2: The building is designed to be energy-efficient and to use sustainable materials.

STEP 3: The building is constructed using a sustainable construction process.

STEP 4: The building is completed and ready for occupancy.

SUN PATH ANALYSIS

SOLAR ENERGY UTILIZATION

ANNUAL WIND ROSE

PASSIVE VENTILATION

APARTMENT DESIGN

SUSTAINABLE COMMUNITY

SUSTAINABLE COMMUNITY

Jiayi Liu, ESALA (Edinburgh)



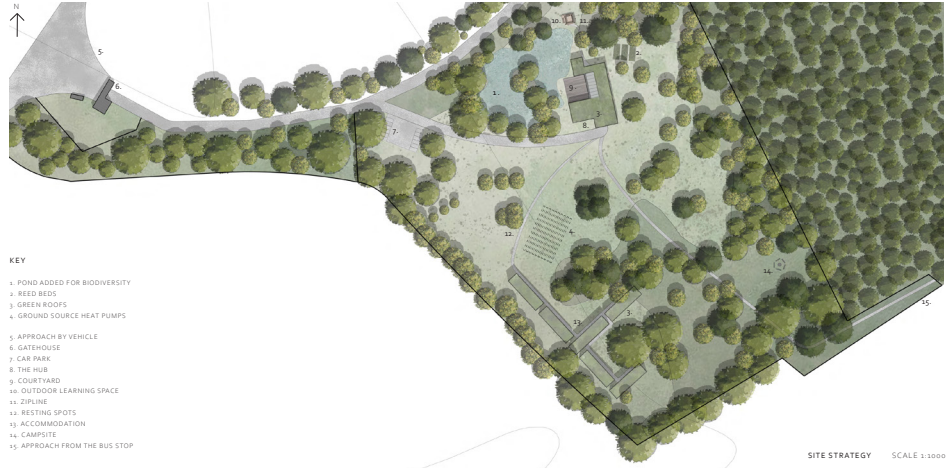
Located near the village of Mearns, the Belmont site for the Scottish Outdoor Education Centres (SOEC). The SOEC is a charity that aims to create educational spaces which allow school groups to have easy access to nature and the outdoors. To help facilitate this, a new central hub is required. This hub will function as an indoor educational space and dining area. Alongside this there is a requirement for spaces where people can gather, all while having a strong connection to the surrounding nature.

The design is created so that, when entering the hub, the transition from the grounds into the space is blurred, with a central skylight opening to the sky and glazing giving constant views back into nature. This is the central spine and the key element of the design. This space is intended to be full of activity, with spaces for meetings, gatherings, and creativity. The central spine is also the primary circulation, with every other space branching off it. Connected to the spine is the dining area and indoor learning space; these key spaces have been positioned to receive south light while simultaneously having views out over the pond and surrounding trees.

The pond is a new addition to the site. Not only does it function as a new space for activities and learning opportunities, this new habitat also helps improve the biodiversity of the site. The pond is not the only way in which biodiversity is being improved on site; new habitats are introduced through green roofs and reed beds too. The reed beds also function as a water filtration system to help sustainably treat wastewater. Rainwater harvesting is used to minimise water wastage.

The structure is timber, with large columns sitting tall in the landscape, similar to the existing trees. This timber structure is sustainable, every part of the structure and the larch cladding will be sourced locally in Scotland.

Sustainability is also a focus in the temperature control of the design, by using a combination of measures to effectively manage the temperature of the space. The warm roof construction efficiently insulates the design, with wet underfloor heating, fuelled by ground source heat pumps, providing additional heating and cooling when necessary. Passive ventilation is also used throughout the entirety of the building to naturally manage the airflow.



SCOTTISH OUTDOOR EDUCATION CENTRE
SELINA SODE UNIVERSITY OF DUNDEE

SECTION AA' SCALE 1:200

Selina Sode, University of Dundee

SOCIAL CONDENSER AND A WAREHOUSE: THE BO'NESS LIBRARY

1. REPAIRS
2. RECEPTION
3. READING ROOM
4. STUDY
5. OFFICE
6. STORAGE
7. LOBBY
8. OUTDOOR LEARNING SPACE
9. CAMPSITE
10. APPROACH FROM THE BUS STOP

1. REPAIRS
2. RECEPTION
3. READING ROOM
4. STUDY
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Stefans Pavlovskis, Glasgow School of Art

SEDA Conference 2022 - A Meeting of Minds

Professor Sandy Liddell CEng MCIBSE FWES HonFRIAS HonFRIBA

Following COP26, SEDA committed to action on a range of subjects related to mitigating climate change. Our origins in ecological design mean that we retain commitment to biodiversity, pollution avoidance, health, well-being and meeting the needs of communities. It is important these stay at the forefront of our thinking - across all disciplines - and align our actions to best support those pursuing ecological design in agriculture, engineering, architecture, fashion, IT, creative arts, education, sport, habitat and the rest. For us to have relevant impact we need to decide where to focus time and energy, but also how to do this in ways that have real impacts and add value and enjoyment to busy lives and to Scotland.

Prior to COVID19 SEDA was thriving and interconnected. Links to ecology of food, fashion and transport were strengthening – although we are still too built environment based. As a people-to-people organisation lockdown was bad for our health. Membership remained high but the **active** membership shrank considerably, though SEDA Land and SEDA Solar have provided continuity as well as new life.

Ecology teaches us is that everything is evolving. It is therefore a responsibility for organisations to develop or die, so in 2022, SEDA has been actively engaged in reflecting on our purpose, priorities and community. Revitalising gatherings identified a need to increase participation,

reach out to others with shared values and consider our demographic alongside some core themes. The overarching and sub-themes of the conference, outlined here, are the product. The meeting of minds brings together Education, Planning & Land Use, Retrofit & Repurposing, Health & Wellbeing, Materials and Degrowth.

Education

Scott McAulay presented his powerful 3-year initiative, the Anthropocene Architecture School. This has itself evolved from a plea for teaching climate literacy to become a promoter of agency for architecture students overwhelmingly dissatisfied at lack of preparedness for world, desperate for climate justice. Scott invoked the transition movement as a fundamental grounding in design for other species as well as humankind. Introductions from Edinburgh University Architecture department and Edinburgh Napier, described worthy initiatives: net zero curriculum, making with learning, designing with nature. These did, however, seem abstract and remote from the demands of architecture students which Scott described. We do need to avoid out-moded language and describing interdisciplinary activities in boxes. The subsequent discussion and the call to teach the teachers was a reflection on the broader malaise. Nevertheless the four finalists in the Kristina Johnson Award - see separate report - demonstrated a serious upskilling over previous years with Jonathan Lynn's (Strathclyde) project the outstanding contribution.

Materials

The consideration of lighting was inspired. The mountain of bulbs grows globally as we upgrade to improve efficiency and reduce cost. The WEEE regulations, in place for decades, fail to address the resource, loss, waste and pollution resulting from inability to close the loop or fundamentally redesign these ubiquitous fittings. An individual initiative to build a zero-energy house for COP26 and its subsequent dismantling was a testament to personal initiative. The ensuing discussion raised issues of statutory regulation for materials arising, material passports and re-use of pre-loved materials by weight, cost or anything. Everything must go somewhere – including this discussion-unresolved for far too long. The proposal that industry “step up”, as property values rise, makes the need for statutory intervention more pressing.

Retrofit & Repurpose

“We are Sustainable Strathclyde” discussed using accommodation more effectively within a retrofit strategy but Dr Roddy Yarr's self-proclaimed “*could do better*” drew much agreement from the audience. The passion for a Glasgow Living Wall was largely met with a sympathetic “*awwwwh*”. Living walls tend to die. Better to make space on the ground and let light in. It was hard not to draw comparison with Tübingen or Delft - University Cities that have delivered vibrant streets. Edinburgh

Climate Forum's Charlie Wright gave an upbeat Can Do talk about building capacity, demonstrating leadership and empowering locally. It highlighted the lack of Government strategy for the scale of delivering the 2045 challenge.

Health & Wellbeing

The proven benefits to mental health, cognitive behaviours, social cohesion, healing and stress reduction makes quality blue and green space and people places a no brainer. Add in prevention of flooding and carbon capture and it begs the question "how do we get regenerative design including biodiversity net gain and congregational space into project briefs rather than as an add-on?" Lynn Hill's presentation covered examples such as QMUC and Kirkcaldy's infrastructure masterplan. Time for a dedicated SEDA event on Urban Food Street and the 30% rule?

Planning / Land Use

Community Land Scotland's Carey Doyle highlighted its role in Land reform and our rights and responsibilities as caretakers. Experience of radical land and property ownership based on geographic and community land buyouts remains rare. The talk took in power and ownership – extensive in rural Scotland and fragmented but no less destructive in urban environments; also sub-optimal in climate resilience and biodiversity. Chris D-Agorne of Ecosulis talked about rewilding based on ecological restoration and designed disturbance of

Images: Below: EGG lighting, Brian_O_Reilly - materials from LED Bottom:EGG Lighting, Brian O Reilly - remanufacture fittings process

Recycle?



- Design inconsistency & wide range of materials
- Traditional shredding-based recycling cannot achieve the 80% recycling rate set by WEEE directives*
- Shredding-based recycling, without prior careful separation and disassembly, largely loses most of the minor quantity precious metals, which constitute the highest value fractions**

Remanufacturing?

- Preserves "added value" the labour, machinery and energy invested to turn raw material into a product.
- Improves upon original functionality
- Best for designers
- It should cost less than new
- Provides Jobs
- Closes the loop, locally!
- Products are certified



Images:

Below: Kalkbreite Housing, Zurich - designed for one planet living

a 3.5 acre trial in Somerset to improve the connectivity between ecosystems and create biodiversity net gain. The local development of Lauriston Farm, on Edinburgh's eastern fringe, into one-hundred acre agro-ecology coop began with a 25 year lease and business plan and a biodiversity survey. Lisa Howston explained that it now embraces vast tree planting, community group allotments and many pathways to encourage participation. The subsequent heartfelt conversation embraced the essential role of humans as agents of change not stagnation in landscape management and the legal rights of nature and non-human entities. A contributor noted that SEDA Land wants the natural robustness and resilience, that make our planet work, integrated into our work, homes and play so that we self-identify as part of nature.

Degrowth

May's SEDA Assembly involved brainstorming important issues. I clustered the post-it notes to create discussion lines. One of my stickers sat alone. Degrowth. I included it anyway and a small group embraced it enthusiastically. The sticky stuck.

Enough.Scot's Mike Small advocates an energy reduction plan – sadly absent from current political thinking – and de-escalation of the economy to avoid environmental destruction. Schumacher (see RIAS Autumn 2022 – Creation is a process) identified growth on a finite planet as impossible and clearly growth

has not delivered jobs, security or avoided poverty. Trickle down doesn't. Onto the Well-being economy alliance, with Lukas Hardt of WEALL Scotland, calling for redesigning economic systems to look beyond financial value to what we value- Dignity, Purpose, Participation, Fairness and Nature. We have ways to measure real development - SDG's, the EU happiness index, child mortality/ life expectancy/ pollution. The ensuing debate embraced what green growth or degrowth offers to climate justice. The idea that humans have the wrong business model is profoundly exciting and a SEDA event on Sufficiency beckons.

Summary

The Meeting of Minds was evidence of the shared values of those from diverse organisations and professions. Apologies from some about their imposter non-ecologist status was roundly silenced by a plea for more variety in the room, not less!! The conference was productive and affirming. SEDA offers holism and emerges stronger and more able to meet our individual and collective priorities.

Organisers

The conference was the result of many willing hands but special thanks go to the following.

Chairperson, Catherine Cosgrove and Joanne McClelland pulled together the day's programme. The two Davids, Somervell and Seel, dealt with the IT and

the fractious communications. Gloria Lo arranged printing and mounting. Particular thanks go to Jim Johnson whose generous funding and judging has seen the relaunch of the Kristina Johnson Award. Thanks also to Chris Stewart and Tom Morton, as well as Catherine, for chairing the event, the many fascinating contributors whose presentations sparked the day's discussions. ■



SEDA Events Proposals

Following on from the SEDA Conference, here are some of Sandy's ideas for future SEDA events - working titles, possible dates and potential contributors. Your views are welcome.

Teach the teachers (December 2022) Organised by Anthropocene Architecture

Children and the Energy Crisis (soon) with Children's Commissioner for Scotland, Children's Parliament, The Good Law Project. Organised by: Climate Action Forum

Energy Saving: Handy Hints and Tips (soon) Organised by: Steven Downie with Sandy Halliday

Challenge HEAT (soon) house energy insulation scheme using toxic materials that undermine building health. Organised by: ZWS

The Social, Economic and Environmental impact of Gardening (Spring 2023) Organised by: Lynn Hill with Sandy Halliday

EcoMax 6 (Feb 2023) Schumacher and the Ecology of Money; Climate Justice: Degrowth Or Sufficiency; a Business Model for the Planet; a film... Organised by: Sandy Halliday

Lighting and Resources (2023) Organised by: CIBSE/ ZWS/ Sport Scotland

Towards a Net Zero: Upfront and Operational Standard (2023) Organised by: Sandy Halliday, ZWS, Superuse Studios, benign insulation manufacturers

SEDA also aim to restart Green Drinks, with both Glasgow and Edinburgh members looking for venues and speakers. Why not organise a Green Drinks get together in your town? If you need help, contact info@seda.uk.net

SEDA Conference Tours

Despite late night discussions following the Conference, Saturday saw over a dozen people turn up at 10.00am to visit three great projects, two led by campaigning community groups in Edinburgh city, and a little visited, innovatively built and beautiful child-centred building.

Astley Ainslie Hospital Site

The first was Astley Ainslie Hospital site, Morningside. This is a potential Community Asset Transfer of a much loved greenspace, by the Astley Ainslie Community Trust <https://www.aact.scot/feasibility-study>. Stuart Buchanan guided the visitors through the site and their ambitions.

Arcadia Nursery, Kings Buildings

Then there was Arcadia Nursery, Kings Buildings, near Blackford Hill; a CLT gem by Fraser/Livingstone Architects <https://fraserlivingstone.com/work/arcadia-nusery-edinburgh-university>, where architect, Malcolm Fraser, showed us round.

Leith Community Croft

Finally we turned up at Leith Community Croft, Croft Pavilion <https://www.earth-in-common.org/leith-community-croft> to be shown round by Jenny Humphries of Simpson & Brown Architects and Evie Murray of Earth in Common. Graeme Hadden of Ashwood Construction organised the visit and explained the build.

SEDA thanks all the clients, designers and site managers who took the time to allow us to attend and to explain their projects, it was a great day with some inspiring projects.

Images:
Below: Arcadia Nursery, Malcolm Fraser Architects - Angus Bremner
Bottom, left: Leith Community Croft, Sketch, Simpson & Brown
Bottom, right: Leith Community Croft, SEDA Visit



Nail Laminated Timber (NLT) - a low-tech sustainable construction solution

Peter Wilson, architect and founding Director of the Mass Timber Academy Ltd

Nail Laminated Timber may not sound as enticing as its mass timber siblings, but its properties undoubtedly merit investigation by SEDA members. In its simplest form it is a non-glued, one-way spanning system in which dimensional timber planks are stacked and nailed board-on-board to the required panel size. Its manufacture ranges from very low-tech (essentially a jig and a nail gun) to factory-based robotic fabrication. UK examples to date have tended to be relatively small-scale projects, whilst much larger, more sophisticated buildings are to be found in Europe and North America.

US construction

NLT's modern origins are to be found on the latter continent: in the early 1800s the invention of the iron nail moved building with timber from traditional joint and peg connections into what became a standard industrial method of construction. Known then as heavy timber or mill/warehouse decking with deep boards nailed into place one at a time, it was a relatively slow but cost-effective solution with good structural, fire and acoustic performance. Whilst most nailing is perpendicular to the stacked boards, diagonal nailing is also used to give improved panel rigidity and, in some cases, to allow for cantilevers to be formed. Plywood sheathing to one panel side is commonly used to create a structural diaphragm.

The switch to steel/concrete construction in the early 20th century saw the method fall out of favour, but it is now being looked at again in North America, where this

fabrication method has never been removed from the buildings codes. So much so that some remarkable NLT buildings have been completed in recent years, not least being the seven-storey 'T3 Minneapolis' office block by Vancouver-based Michael Green Architects and manufacturer Structurecraft in which NLT is used for the floor and roof structures atop Glulam beams.

Scottish solutions

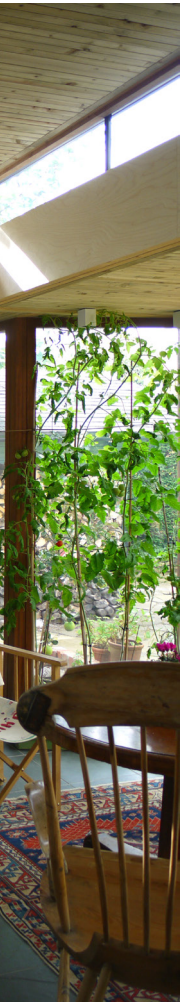
In Europe, the largest manufacturer is MHM (Massiv-Holz-Mauer) who produce cross laminated NLT panels as well as board-on-board options, the latter often employing alternating board depths to deliver excellent acoustic performance. The use of aluminium nails facilitates CNC machining of the panels. More recently at BE-ST (formerly the Construction Scotland Innovation Centre), wooden nails have been used to create acoustic ceiling panels for home-grown mass timber modules displayed during COP26. This is not the first exploration of NLT in Scotland though: for over 12 years, Edinburgh Napier University's Centre for Offsite Construction and Innovative Structures (COCIS) has been researching and testing NLT made from Scottish-grown timber, with initial manufacture by Fife-based Living Solutions and Makar in Inverness for domestic projects by David Blaikie Architects, the first of which contained a NLT service and structural core in a house built for the 2010 Housing Expo at Milton of Leys.

Aside from simplicity of manufacture and the avoidance of adhesives, a key

benefit of NLT is the high level of carbon sequestration it offers - some 1655kg of aCO₂ per tonne. It also doesn't need to be imported: as low-tech sustainable building solutions go, the opportunities offered by locally fabricated NLT are hard to beat. ■



Images:
Overleaf: Exposed underside of NLT roof panels inhouse extension, by David Blaikie Architects
Below: Exposed NLT soffits in T3 Minneapolis office interior



Images:

Below: T3 Minneapolis' office block by Vancouver-based Michael Green Architects

Bottom, left: Tsingtao Pearl Visitor Centre, Qingdao, China - 39 roof panels fabricated on site using nail-laminated dimensional timber

Bottom, right: Diagram of stacked board-on-board Nail Laminated Timber



Sustainable renovation in Scotland turns to the internet

Sandy Patience Dip Arch RIBA director [Green Spec](#)

As they walked through the door on the first day of architecture school, few, if any, students will have had their ambitions fired by the prospect of retrofitting and refurbishment the nation's housing stock. Yet here we are facing a challenge that only a few years ago few could have anticipated. As climate change approaches any number of tipping points, the need to rid ourselves of our fossil fuel habit fast is acute. The contribution the built environment can make to carbon reduction is significant - the Climate Change Committee reported that the operational carbon emissions of all buildings made up **18%** of the UK's total emissions in 2019. From this total the University of Edinburgh estimates that some **2.6 million** Scottish homes need fabric retrofitting and non-gas energy system installations to make any inroads to meeting the UK's overall targets.

Unique skills

This all makes for sobering reading. Many of us will be looking for holes in the sand or to bury our heads in. But here is our call to duty; an opportunity to use our unique skills in developing solutions to this massive problem. It's not unsurmountable, and though a huge undertaking, it just takes knowledge together with the economic will of government to make it work. We, at least, can provide one of those elements.

A lot of groundwork has been done in developing technical strategies that are designed towards retrofitting our housing stock. One such strategy has been

researched and applied through the work of Chris Morgan of John Gilbert Architects whose book *'Sustainable Renovation: improving homes for energy health and the environment'* was published in 2018 was sponsored by the charity The Pebble Trust along with the endorsement of SEDA. The Pebble Trust realised the potential for developing a web-based version.

Ecorefurb Scotland

GreenSpec took up the offer of further funding from the Pebble Trust to build the website. Currently under development, <http://www.ecorefurbscotland.co.uk/>, reproduces much of Chris Morgan's work and is designed to be a simple and readily accessible source of information alongside the 'drawing board'.

We hope that building designers will feel comfortable with easily accessible construction details and background building science that will deliver better building performance. SEDA's (downloadable) Sustainable Renovation version is referred to for further reading.

The website will reflect the increasing recognition of the importance of embodied energy as well as a need to move towards resource-efficient and non-toxic materials in our homes. In line with Sustainable Renovation, we promote such materials in more detail. For example we look at the remarkable qualities of wood fibre insulation. Whilst being a good breathing-wall insulator, its ability to buffer summer heat over several hours also addresses the

overheating difficulties experienced using conventional materials.

Unfortunately very few constructors are aware, let alone skilled, in the use of such materials and techniques. This is part of a wider problem that we hope Ecorefurb can help to address. ■



Material Scotland

Gail Halvorsen: SEDA Land convenor, architect

Scotland should be making more use of its natural materials. The UK is the second-largest importer of timber in the world. 85% of our construction timber is imported, even though we have enough trees to be self-sufficient in it. One Scot consumes 1 m³ of timber per year yet we produce more than that in Scotland. Scotland's Forestry Strategy 2019-29 commits to increasing forest and woodland cover to 21% of the total surface area of Scotland by 2032; an increase equivalent to the size of the whole of Aberdeenshire (at present we have 18% of woodland and forest cover).

No ambition?

But the problem is not the number of trees but what we do with them. We are not ambitious enough. Over the past 10 years, it has been possible to make exciting, new, sophisticated materials from wood – massive timber panels for high-rise buildings and wood-fibre insulation rather than toxic plastic polyurethane alternatives – but we don't do any of this in Scotland. Such materials are almost exclusively imported from Europe, which seems ridiculous when you think we could be adding value to our timber by manufacturing sophisticated materials at home. These are bulky, heavy materials which make no sense to import.

Why do we need to do this? Scotland needs to transition away from fossil fuels to meet its “net zero” carbon emissions target by 2045. 40% of all greenhouse gas emissions come from the built environment – more than aviation, refrigeration, or cars. In Scotland 50% of all materials go into

buildings. We should be using timber based or other biogenic materials such as [hemp](#) and flax to help meet this target.

We also need to do this to create long-term, highly-skilled and well-paid jobs in rural communities as part of a wider bioeconomy, which could otherwise be overly dependent on low-paid unskilled and seasonal work in sectors such as tourism and hospitality.

Your health

But there is another reason – living and working in buildings made from natural products is much healthier. They create a [comfortable environment](#) that moderates temperature and humidity without any harmful or toxic materials. [Research](#) shows that living in such buildings reduces the incidence of many conditions such as asthma and cancer.

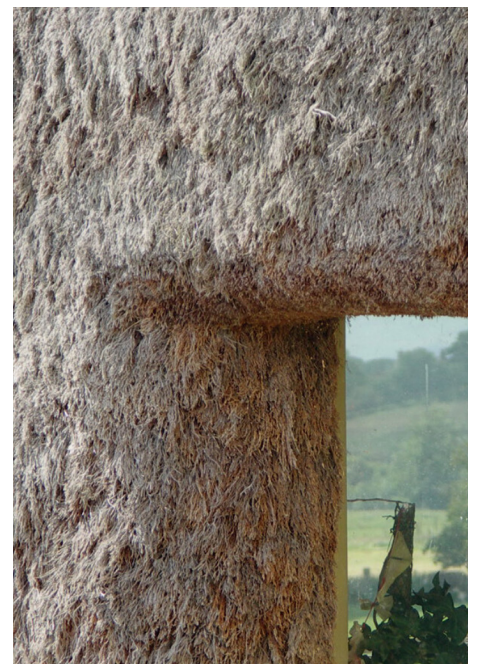
These are all observations by Gary Newman of [Wood Knowledge Wales](#) and Neil Sutherland of [Makar Ltd.](#) who spoke at the recent SEDA Land “[Imagining Bioproducts](#)” SEDA Land Conversation held in The Gordon Schools, Huntly, Aberdeenshire.

Bioproducts are products made from natural and renewable resources and should be an important part of the revitalisation of rural Scotland. They have the potential to replace all fossil fuel-based products, and will have to become much more widespread if we are to meet our net zero targets. Scotland is ideally placed to have a thriving bioeconomy

thanks to our abundant natural resources and renewable energy.

We need to invest quickly to bring our industries in line with those in Europe. This will need the wholehearted support from the Scottish Government, and investment from the Scottish National Investment Bank, and the private-sector.

See also SEDA Magazine articles Winter 2021 Spring, Summer and this edition et seq. by Peter Wilson of the Mass Timber Academy; Autumn 2020 “Hempcrete” by Tom Wooley; Autumn 2021 “SEDA HEMAC Guide” review by Bill Bordas. ■



Images:
Facing: Building with Nature – Arc Architects
Below: Geanaisean-Makar
Bottom: Norbu-Makar



Large Scale Inter-Seasonal Use of Solar Thermal for Solar Heat Networks - Can it Work in Scotland? - SEDA Solar Spring 3

Colin Porteous & Glo Lo

The last of the spring 2022 SEDA Solar seminars looks at present and past work of our European neighbours in order to explore potential opportunities and challenges for Scotland.

Netherlands Perspective

Leo de Rijke, technical commercial advisor for G2 Energy – manufacturer and supplier of solar energy heating systems – began with smallish building-integrated examples, before moving to large industrial-scale installations for greenhouses. The first category included a 400m² drain-back array over a farm's calf-shed with a 25m³ thermal store, and a 100m² twin-array for a swimming pool with a 1-2-day storage buffer tank. Leo then introduced large systems with aquifers, or ≈1,200m³ seasonal thermal store. He showed a 9,300m² array for 4 hectares of greenhouses with 5 aquifers and 1MW heat pump, delivering at 80m³/h, thus enabling annual heat production of 4,791MWh at 60°C. He also talked of doubling such systems in the future with heat pump increasing to 1.8MW.

Questioned about material for buffer storage tanks, Leo confirmed steel insulated with 'rockwool'; also that sheep grazing was viable in field-based solar arrays, and that large rooftop-solar on mass housing was another option. Responding to a query as to whether aquifers were a more economic proposition than storage tanks, Leo confirmed that this depended on site conditions. He finally noted that

with gas prices currently up nearly tenfold, subsidies for solar projects were likely to reduce due to shorter payback periods.

Swedish Perspective

Prof. Jan-Olof Dalenback of Chalmers University of Technology, Gothenburg, has been well known to the former Scottish Solar Energy Group (SSEG) since its first North Sun Conference in Edinburgh, 1984, where he presented 'Swedish Solar Heating Plants with Seasonal Storage'. 38 years later, at SEDA-Solar's meeting, Jan-Olof stressed that he wished to focus on such systems in combination with biomass generation, usually from wood chips/pellets. He informed that Sweden constructed its first solar heating plants in the 1970s, including the largest in the world by 2000; summarising 35 greater than 500m² from 1978-2016, most still operating – e.g. 5,500m² with 1,100m³ seasonal water store at Falkenberg, monitored by Chalmers University 1990-92, average yield 1.53GWh annually.

He showed a map of district heating in West Sweden, with 1.6m inhabitants (66 people/km²) and 49 municipalities; this region contains more than 110 heating plants >1MW, 40 with wood chip, 35 with wood pellets, and 10 with wood briquettes. He cited one at Ellös, northwest of Gothenburg with ≈1,000m² solar thermal collector, 4MW wood-chip heat generation and 200m³ water tank; noting that up to 30MW wood-chip boilers are feasible, and that the ratio of biomass boiler capacity to area of solar

array (say >1MW to 1,400m²) depended on appropriate site and orientation. Jan-Olof then presented three out of five case studies:

a) Borensberg (between Gothenburg and Stockholm), using a 4.5MW wood-chip boiler, yielding ≈16,000MWh/annum, with a bio-oil boiler to augment in coldest weather, and no solar yet due to difficult site.

b) Hemse (on Gotland, island south of Stockholm), a 3.5MW wood-chip boiler, 3,000m² solar array, and 300m³ storage yielding 11,500MWh/a, noting that boiler was too large.

c) Vara (northeast of Gothenburg), suitable solar site with 2 woodchip boilers, 10MW (35,000MWh/annum), noting large August heat demand from crop drying.

Jan-Olof concluded that although "the sun shines and the woods grow", solar needs large collector areas (3,000-5,000m²) to be cost-effective; e.g. solar typically costs 45-50€/MWh compared to 25-30€/MWh for 'typical' woodchip systems (chips dried naturally and very cheap), and so you need the right conditions and right client.

Danish Perspective

Per Alex Sorensen, who heads solar engineering consultancy Plan Energi, based in Skorpning, northern Jutland, commenced with a reminder of their 1994 project for co-housing at nearby Ottrupgård; visited by SSEG in 1996, it

Images:
Below: Sweden-Falkenberg 5,500m² flat-plate collectors (visited by SSEG 1996)



involved 560m² flat-plate solar collectors and a 1,500m³ seasonal water store with a floating insulated 'lid' and 85cm clay lining (see illustrations for schematic). Per then moved on to projects in 2003, 2011-12, 2013, 2014-15 and 2017, with water stores ranging from 10,000-85,000m³; the 'Sunstore' concept to realise flexible energy systems with large solar thermal arrays. He illustrated one at Marstal (on an island south of Odense) with 33,000m² solar array and a 75,000m³ store, augmented by a wood-chip boiler as at Ottrupgård; and another at Dronningland (northeast of Aalborg) with a 37,000m² solar array and a 60,000m³ store. He commented that solar district heating had exploded after 2007 in Denmark, but then since 2019 there had been stagnation, partly due to cheap heat pumps with coefficients of performance (COP) of more than 3.5; cost down by a factor of four from 2011-2022. Hence solar plants have to be very big – 20-30,000m², although rising energy prices might change this situation and there would be further potential from combined heat and power (CHP) with solar included.

Per confirmed that polypropylene liners were now the common membrane for water stores, with covers that enable water vapour to pass through multiple layers; also that storage can provide adequate heat for 45/50% up to 80% of time depending on size, etc. Payback periods from 2010-2020 could vary from 14 years without subsidies, or 10 years with them.

Austrian Perspective

Dr Christian Holter of SOLID Solar Energy Systems (installation and design) again has provenance that touched on past SSEG participation such as EuroSun2010 in Graz. SOLID was formed in 1992 and is now a 'trendsetter' for solar thermal systems. Christian's R&D role often involved Power/Heat Purchase Agreements (PPAs, HPAs) –e.g.initial 1,584m² solar system for AVL, Graz, yielding 550MWh/annum, saving 240 tonnes of CO₂ annually, with second phase of 3,627m² solar plus storage with 660kW absorption heat pump.

Sweden had supported Austrian development from late 1990s; with two roof-mounted examples and a more recent solar field: 1997 – 1,240m² collectors and 105m³ storage; 2012 – 1,200m² collectors and 70m³ storage; 2019 – 1,170m² collectors and 3x80m³ storage; 2019– comparative demonstration of flat-plate, vacuum-tube and parabolic-trough collectors in Graz, totalling 8,427m² and yielding 1,100GWh/year.

Christian also showed a project in Müzzschlag, population 8,500, with 5,043m² solar array (2,000m² more in 2022) and 180m³ storage, with 2,400MWh/year expected. Finally, he talked of cooperation with Plan Energi in Denmark and the 2015 Big Solar case study in Graz with a target 450,000m² collector field and 1,800,000m³ store to meet 25% of the city's demand.

Overall Q&A

There was affirmation of potential for such systems in Scotland, with Austria's progress helped by good public awareness and appropriate political programmes. Per also added that high tax on fossil fuels gave Denmark added impetus alongside new innovations. Asked about competition from heat pumps, the response was yes, but not so much for large installations (note Leo's use of solar + heat pumps); Per added that wind power in Denmark represented renewable competition in heating water electrically. Further detailed questions and discussion generally revealed that obstacles for the transference of such large-sale solar and biomass heat projects to Scotland were likely to lie with vagaries of politics and markets, including governmental incentives, rather than the underpinning technology. ■

Images:

Bottom: Denmark-Per Alex Sorensen, 1996, Ottrupgård co-housing schematic and data

Her bygger

Ottrupgård Fjernvarme a.m.b.a.

1528 m³ damvarmelager og 562,5 m² solfangere

Projektets formål
 er at udvikle et lertætnet damvarmelager til sæsonlagring af varmt vand samt at opvarme damvarmelageret ved hjælp af solvarme. Om sommeren leverer solvarmeanlægget via en varmeveksler varmt vand i damvarmelageret. Det varme vand anvendes i løbet af efteråret og vinteren til forsyning af Ottrupgårds 21 boliger og fælleshus. Er vandet ikke varmt nok efteropvarmes med Ottrupgårds kedler.

Projektledeelse, styring og måleprogram	Skørping	Tlf. 98 39 24 00
Projektering og tilsyn	Aalborg	Tlf. 98 18 13 44
Bygningsentreprisen	Svenstrup	Tlf. 98 38 18 88
Lågentreprisen	Kolding	Tlf. 75 53 33 66
Solvarmeanlæg	Skørping	Tlf. 98 39 14 77
Styre- og målesystem	Process, Århus	Tlf. 86 11 87 00
Forbindelsesledninger	A/S	Tlf. 75 95 02 22
Elarbejde	Skørping	Tlf. 98 39 11 16
VVS, Varmecentral	Aalborg	Tlf. 98 18 48 00



Thoughts from the Chair...

Catherine Cosgrove, SEDA Chairperson

Our annual conference is a key part of the SEDA year and we try to choose speakers that give us insight on a wide range of environmental subjects. This year our focus was on six of the topics that were raised as priorities by the attendees at the SEDA Gathering in May: education; planning & land use; retrofit & re-purposing; health & wellbeing; materials; and sufficiency & de-growth. These are not simple subjects and we could easily have picked one and built the whole conference around it. But bringing together the knowledge and the experiences of the speakers was key for us. We wanted to bring people together who would not normally have met up, who would inspire us with their example and show us that there is more to ecological design than energy efficiency and embodied carbon.

On that level, the conference was a success. The Q&A sessions generated a lot of interesting debate and many attendees continued those conversations throughout the day; in some cases, late into the night in the post-conference pub session. That was another of our aims. Our conferences are as much about the social side as the educational one and I know that many people attending this year really enjoyed that aspect. Hopefully these conversations will lead onto other things, such as swapping information, connecting with other organisations and working together.

We were less successful with the IT and audio side of the conference. A complex series of problems occurred throughout the day, not helped by the internet connection dropping out several times. We apologise to those who were affected, especially Jim Johnson who could not announce the winner of the Kristina Johnson Award due to the sound dropping out. We have already held several reviews into what went wrong and how to prevent it happening again. This is all part of us learning how to hold blended events, with online and in person attendees.

Looking forward, we invite the wider SEDA membership to get involved in the groups we are setting up, which are based on the conference topics.

We would like volunteers who have a keen interest in them to take that one step further.

Tell us what you think we need to know and help us spread it through our SEDA network. We can do this in a lot of ways: through Green Drinks nights; by hosting seminars and conferences; in creating design guides and publications; through our website and social media; by passing it onto to other groups and organisations who we work with; and by campaigning for change. We have a strong track record in these areas and are keen to expand our reach further. But to do this we need your help. Please think about it, and if you think you could contribute, get in touch with us at info@seda.uk.net.