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Humans and Planetary Boundaries: Where is the Wisdom?

Planet Earth is in crisis. According to Climate Emergency Declaration, (2025), since 2016 over 2,366 jurisdictions from 40 countries worldwide have announced emergency climate declarations. Though these declarations are a positive first step in acknowledging the destruction ravaging the planet, there are positive actions that can be taken on a smaller scale within willing communities and companies. In this essay, I will explore the wisdom of planetary boundaries and how the western world would greatly benefit from learning from the teachings and practises of indigenous communities. Though there is much to learn from these communities, my focus will be on the wisdom of implementing sustainable housing in the western world, inspired by those built by indigenous cultures, to promote humanity to remain within planetary boundaries.

In 2009, Rockström *et al.* (2009) proposed a framework built upon parameters that they named 'planetary boundaries.' Within their work, they emphasise that, "these boundaries define the safe operating space for humanity with respect to the Earth system and are associated with the planet's biophysical subsystems or processes." Inspired by the concept of planetary boundaries, economist Kate Raworth drafted the outline of what she dubbed 'doughnut economics' (2017 a.) Raworth defines her work as a "compass for guiding humanity in this century" (Raworth, 2017 b., p. 44). She goes on to explain that:

Below the Doughnut's social foundation lie shortfalls in human well-being, faced by those who lack life's essentials such as food, education and housing. Beyond the ecological ceiling lies an overshoot of pressure on Earth's life-giving systems, such as through climate change, ocean acidification and chemical pollution. But between these two sets of boundaries lies a sweet spot – shaped unmistakably like a doughnut – that is both an ecologically safe and socially just space for humanity (Raworth, 2017 b., p. 45).

Though the concept of planetary boundaries is a relatively new one for most of the western world, indigenous people have worked within these same boundaries for centuries. The World Economic Forum [hereafter WEF], (2023), has lauded them as essential to the survival of the planet. They argue that "although they make up 6% of the global population, Indigenous people protect 80% of Earth's remaining biodiversity." That isn't all. Indigenous people have knowledge passed down from past generations on how to conserve their native land and protect the environment.

"We are the forest. We breathe the forest," says Jupta Itoewaki, an indigenous woman from the Wayana tribe in southern Suriname. "We are the protectors of the forests. It is because of *us* that the world has any forests left to protect" (Itoewaki,

2023). It is essential that humanity listens to the wisdom of indigenous people and learns from them, working with the environment, and readily available materials, instead of against it. Thankfully, in parts of America and Europe, this has already begun.

Housing and shelter are essential for humanity's comfort and survival, with Raworth (2017) classing housing amongst the primary social foundation subgroups of her doughnut schema. Despite its necessity the UK has a shortage of housing for its citizens. The National Housing Federation estimates that around 85 million people in England alone cannot access the required housing (National Housing Federation, 2025). The houses that are available are small, cramped and not suited to dramatic temperature shifts. And yet, indigenous people across the world do not have to contend with such a crisis, or inadequate buildings. They build from materials sourced from the local area, and the houses they create are suitable for their environments. These vernacular building styles have been used by humans for centuries, even within western society before mass production and consumerism became mainstream.

An example of this style of building in Britain is the Welsh folk tradition of the Tŷ Unnos (One night house). This tradition declared that any house built from local stone in one night on common land, with a fire burning in the hearth by morning, would then belong to the builder as a freehold. They would then be able to expand their land in any direction as far as they could throw an axe from each of the four corners of the building (Prior, 2020). Building vernacularly is the traditional way of living from rammed-earth houses in Morocco to Mundari homesteads in South Sudan. This building method benefits the ecosystem by not over-taxing it by mass producing and only using what is required.

In various places across the northern Americas and Europe, people are beginning to recognise the wisdom of their ancestors and indigenous peoples. Hogue, a researcher in performative inquiry, advises that by observing the native way of living we can better understand them and ourselves. He expresses that:

This methodology dovetails nicely with aboriginal ways of knowing and learning, which are pedagogically based on relationships and inter-relationships, as well as with the experimental method of science, which continually makes adjustments to the parameters of an experiment to understand how it works (Hogue, 2013, p.7)

Indeed, sustainable, eco-friendly housing, with an emphasis on self-reliance has been increasing in popularity since the 1990s. Michael Reynolds, founder of the concept of the 'Earthship', became intrigued when watching news stories about the increasing lack of affordable housing, the state of the ecosystem and the amount of waste produced by humanity (Earthship Biotecture, 2024). Based in New Mexico, he became inspired to build houses out of these waste products. Early designs of these houses had 'bricks' made from tin cans and discarded steel. As designs became

more refined, Reynolds moved to discarded tyres – a waste product which is both damaging to the environment when left to rot and freely available.

Much like the rammed earth construction preferred in the Draa Valley, the tyres become giant rammed earth 'bricks', forming the basic structure of the house. Due to the strength of the tyres, no foundation is required. In his book on the building of one's own Earthship, Reynolds asserts that "The Earthship must, by virtue of the way it interfaces with the existing natural phenomena, provide a compartment that maintains its own levels of comfort." He goes on to expand on this, stating, "The Earthship itself must be a heating and cooling system" (Reynolds, 1990, p. 10). Such buildings are designed with their own natural self-regulating heating and cooling systems, food production and water collecting systems, gas and electrical systems. Much like indigenous houses, they also blend seamlessly into the landscape, using the earth itself to keep cool and retain heat. Reynolds emphasises that the design of the Earthships "is not meant to resist the earth, but to join it" (Reynolds, 1990, p. 37).

Earthships are not just limited to the Americas. There has been a surge of interest in this type of ecological building in Europe. Hewitt and Telfer studied the Earthships built in Europe in 2010, recording their thermal performance and overall efficiency. Like the community building projects in Namibia, they identify that "Earthships are generally individualistic buildings, even if their construction often involves a great deal of communal effort; yet they claim to deliver benefits for the wider environment" (Hewitt and Telfer, 2007, p.ix). Though they cannot deny the effectiveness of the Earthship, and its benefit to the environment, both Hewitt and Telfer agree that in temperate European climates, the Earthship is not reaching a peak thermal performance (Hewitt and Telfer, 2007). They state that to perfect the building, European Earthship builders should look to compliment the building style with other more 'professional' approaches.

It is prudent to remember that ecological architecture is not only limited to Earthships. There has also been a shift towards cob buildings in both America and Europe, with some claiming them to be a more reliable resource than the Earthships. Using raw materials such as earth, clay and straw, the house can last for generations without degrading or rotting. It also uses up far less resources. In 'The Hand Sculpted House', the authors state that "Seventy-five percent of all trees cut down in north America are used in construction" (Evans, Smith and Smiley, 2002, p. 20). By building with earth, this will decrease substantially, allowing forests and woodlands to regenerate.

Wind-resistant, durable and working where other earthen techniques could not (for example, Britain would be too cool and damp for adobe), Cob houses are a better choice for building renewable housing in northern Europe (Evans, Smith and Smiley, 2002, p. 20). Timber frame is also another good option, though not as recommended due to mass consumerism, shortage of timber and its life span.

As well as building their own vernacular buildings, people are also looking to change their lives to a more sustainable way of living in other ways. With an increase of

people learning to live 'off grid', it is not uncommon to hear of people researching alternate forms of energy. Daniek defines alternative energy as "fast growing biomass fuels such as rape, hemp and coppiced willow; heaters using insulated storage tanks; solar cars; wind and water energy. Last but not least is photo voltaic energy for producing solar electricity" (Daniek, 2011, p. 12). Though, we know better when it comes to the use of certain mass-produced crops, Daniek and others have the right sort of idea, and its only improving with time.

There are, however, problems when it comes to biomass energy. According to Forest Research (2025), "System suitability and fuel supply, storage and delivery are important issues that must be considered." The system itself is not always suitable for the application it is being used for. It also required continuous feeding, using up valuable resources and therefore not being sustainable or suitable for longevity. The supplying of the fuel itself also comes into question, as most of it revolves around wood chips from timber – a resource the planet is quickly becoming deficient in.

There will be trial and error when it comes to humanity attempting to stay within planetary boundaries, whilst still meeting their own needs. Some of this will come with time, but it is also essential that these lessons are given to upcoming generations. Not just on the importance of ecological-friendly living, but how to live in such a way. Some schools and organisations have begun to include Environmental Science lessons within the curriculum. Others, such as Think Earth Foundation (2002) offer free lessons and activities for preschoolers and beyond.

Consumerism has become a vast part of 'civilised' life, promoted because it brings a select few at the top more money than they could ever spend. A solution for this problem should be sought, and further research into this aspect should be undertaken.

In conclusion, it is a given that there is much wisdom in planetary boundaries and attempting to live within them. Humanity owes the world in which they live a chance at healing itself. Indigenous peoples, though only comprising of 6.2% of the entire world's entire population, have understood the benefits of living vernacularly from the start (WorldBankGroup, 2025). The Western world needs to heed their wisdom and begin to follow their examples before it is too late. In the harrowing words credited to Sitting Bull, though its origins are unclear and could be attributed to a Cree proverb and other movements within indigenous cultures, "Only after the last tree has been cut down and the last river poisoned, only after the last fish has been caught, will you realise that you cannot eat money" (Quote Investigator, 2011).

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