In Our Hands: Nepali Nature inspired climate solutions in the Anthropocene

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The Abstract

This paper considers material based making practices as found in the traditional handicraft, contemporary crafts practices and design innovation communities in Nepal. Using case studies from the *Road to COP26 Innovation Programme* and *In Our Hands projects* supported by the British Council in Nepal, which took place between 2020 and 2024, the paper considers how the 'radical indigenism' of these craft practices can be situated in context of the Anthropocene, a concept from the Earth sciences which has been adopted by academia at large and the arts and humanities in particular. It is a useful framework to explore the role of the human in our contemporary predicament of the twin crises of climate change and biodiversity collapse.

The paper places these craft practices within circular design disciplines operating within the safe space of a doughnut economy, that proposes a closed loop design that can be found in these Nepali craft practices. It introduces the Quintuple Bottom Line (profit, people, planet purpose and place) framework which emanated from these projects to support narratives of a Green or Net Zero Economy which dominate international policymaking to help contextualise the 'antropos' in this bioregional approach to economic craft development. The work offers insights that can be applied beyond craft practices, demonstrating the interlink of the hyper-local (materials use), to mutually benefit and build regenerative practices that speak of provenance and bioregionalism in a global context.

Craft, Indigenous, Anthropocene, Quintuple Bottom Line, Doughnut Economics, Bioregional, Nature Inspired Climate Solutions

1. Introduction

This paper takes a case study approach highlighting examples of nature inspired climate solutions from the traditional handicraft, contemporary crafts practices and design innovation communities in Nepal. These case studies were informed by several Nepali projects where indigenous traditional making knowledge was critical to responding to the conditions of the Anthropocene: the contingencies and uncertainties of climate change. These include reflections on projects instigated by *the British Council* in Nepal to harness 'nature inspired climate solutions' through programmes such as *Road to COP26* (2020-2021) and *In Our Hands* (2022-2024) but placed into context of larger discussions of radical indigenism which has reclaimed its place in the Anthropocene as a means to empower and enable Ecological Citizenship. The term 'green creative economy' has been adopted by Nepali policymakers and third sector agencies to define the role the creative sector can play in delivering climate action.

2. Radical Citizenship of Craftmakers in the Anthropocene

2.1. Craft

The traditions of craft were collated by Glenn Adamson (2010). He defined craft as "the application of skill and material-based knowledge to relatively small-scale production' (pp. 2–3,) a process" that exists in motion, in the doing and making, and a "material experience" (Adamson, 2007, p.4). This Western definition of craft extends the scope of craft making beyond making with traditional materials such as clay, wood and fibres into ceramics, furniture and textiles, and manmade materials such as glass and metal. Craft includes bookbinding, boatbuilding, brickmaking, architecture, maintenance and repair, gardening and cooking. Craftsmanship "allow[s] knowledge to grow from the crucible of our practical and observational engagements with the beings and things around us" (Dormer 1994 and Adamson 2007 in: Ingold, 2010, p.6). Craftsmanship "simply means workmanship using any kind of technique or apparatus in which the quality of the result is not predetermined, but depends on the judgement, dexterity and care which the maker exercise as he works" (Pye, 1968 in: Adamson, 2010, p.342).

We draw on Richard Sennett's (2008) consideration of craftsmanship, not only in terms of skills, commitment and judgement made in the intimate connection between hand and mind, but when he invokes the philosopher Hannah Ahrendt who argued in *The Human Condition* (1958) that any maker of material things is not the master of [their] own house, but rather politics, and that politics - standing above labour - should ultimately provide guidance. The political and economic context in which a crafts person operates thus needs to be considered together. The ongoing global COP climate summits (organised by the U.N.) provide some of the political context required but has to this date remained relatively ineffectual. In this paper we argue that policy needs to support Ecological Citizenship through a creative green economy, and we make this case through case studies from Nepal.

In Nepal craft is often defined as "handicraft" or "Fine Art", a distinction not made in the West. *The Federation of Handicraft Associations of Nepal* (FHAN) has defined "handicraft industry" as "an industry that manufactures a product reflecting the country's tradition, art and culture, and/or uses labor intensive specialized skills, and/or uses indigenous raw material and/or resources" (Statute of Handicraft Association of Nepal (HAN), article 1.4 (i) in: Shakya, 2018)). Conversely, the Nepal Fine Arts Academy Act (2008) "Fine Arts means painting, sculpture, folk art, handicrafts, crafts, architecture and other creative arts" (Law Commission Nepal, 2008).

'World craft' as defined by UNESCO (Ela, 1988) outlines folk arts, crafts and design in relation to industrialisation. As such, folk and traditional arts are associated with pre-industrial societies, production craft with early industrial economies, designer crafts with mature industrialised economies and craft art in post-industrial economies. It is questionable whether this definition still stands in 2024 when many emerging economies are arguably 'leap frogging' into a post-industrial economy, enabled by digital technologies of the Fourth Industrial Revolution (Lee, 2021). We consider these craft practices in the political and economic context of the Anthropocene, which we argue demands a different economic response.

2.2. The Anthropocene

Adamson sees craft under the conditions of Modernity (2007, p.7), or the "workmanship of certainty" as Pye puts it, that comes with mechanisation and industrialisation. We are instead seeing craft under the conditions of the Anthropocene[1]. This concept from the Earth Sciences (Crutzen and Stoermer, 2000a and b) posits that the impact of human activity on the Earth's systems can be clearly observed and measured in climatic changes and geological findings and a steep decline in biodiversity (58%) in the last four decades. This has led scientists to call it the Sixth Extinction (Kolbert, 2014). The concomitant exponential rise in socio-economic and biophysical metrics of Earth systems is also referred to as *The Trajectory of The Anthropocene: The Great Acceleration* (Steffen *et al.*, 2015). The Anthropocene has thus provided a philosophical and conceptual framework that has enabled a wide-ranging discourse to unfold, from earth sciences to the arts and humanities, on the impact of human activity on the planet and its ecosystems. Nature and Culture are conceptualised as intrinsically enmeshed. This in turn has prompted a review of Modernity, and its associated focus on progress where the dualism of Nature and Culture prevailed.

The pursuit of scientific knowledge driven by Western Enlightenment values of the seventeenth and eighteenth centuries, and attendant 'improvement' of the social and natural world, gave birth to the Industrial Revolution. Whilst Modernity led to a general improvement of (some) human ecosystems, it coincided with an expansion of colonial rule. The extractive nature of both the industrial revolution and colonialism came at the cost of systematic destruction of human and non-human habitats, decimation of many other species, and decline in the quality of the Earth's ecosystems (Ghosh, 2020). Scholars from feminist, gender and race theory have thus argued for more nuanced approaches and offered up alternative words to the Anthropocene: Gynecene (Pirici and Voinea, 2015), Capitalocene (Moore and Patel, 2017) or Chthulucene (Haraway, 2015). These alternatives challenge the human-centric concept of the term and critique its predominantly male, white Western, wealthy vantage point. However, despite these contestations, the term Anthropocene has been widely used and recognised as a word with which to describe the profound effects of humans on the planetary ecosystems (Lewis and Maslin, 2018).

2.3. Heterodox Economic Models

The current orthodox economic model of indefinite growth as evidenced in the Great Acceleration is unsustainable for planet and people. The orthodoxy of the linear growth model is arguably the anomaly. Heterodox economic models such as the circular economy (Pearce and Turner, 1990; Ellen Macarthur Foundation) and doughnut economics (Raworth, 2017) offer alternatives. The Circular Economy (CE) is based on an "ideological agenda dominated by technical and economic accounts" (Corvellec, Stowell and Johannsson, 2022, p.421). It concerns the process and safeguarding of materials, reducing waste and negative material use. The circular economy model considers the life cycle of material goods and examines its journey from cradle to cradle, which "tries to put human

1 The word 'Anthropocene' comes from the two ancient Greek words 'athropos' meaning 'human' and 'cene' meaning 'recent' or 'now'. The epoch of stable climate of the last 12,000 years in which most of human history takes place and which coincides with the emergence of agriculture is called the 'holocene'.

beings in the same 'species' picture as other living things" (Braungart and McDonough, 2002, p.1). The Ellen Macarthur Foundation (EMF) argued for "an industrial economy that is restorative or regenerative by design and aims", even if these terms have not been readily defined in the context of a circular economy (Morseletto, 2020).

The ethos of a CE was arguably common pre-industrialisation. CEs remain operational in different cultures, where waste is not really an option and material is endlessly re-used, as we will expand on in our case studies from Nepal. It proposes a different age for materiality and the importance of repair culture. It demonstrates the criticality of practices like 'kintsugi' (Keulemans, 2020, p.88), the traditional Japanese craft of repairing broken ceramics with gold and celebrating its visible mending. The CE is arguably then, an ancient way of working which has found new traction.

Doughnut economics expands on CE to include the safe space for humanity to operate in, and is rooted in feminist, gender, race and environmental theory. Doughnut economics puts economic prosperity and social and environmental wellbeing as key metrics for success. Its ecological limits are based on nine planetary boundaries (Röckstrom *et al*, 2009) which must not be exceeded if planetary ecosystems are to remain stable and correlate to the Great Acceleration. There is now a large body of empirical research that finds diminishing returns in social performance as resource use increases across indicators such as life satisfaction and life expectancy. Despite improved social thresholds over time, this is generally counterbalanced by an overshoot of ecological boundaries. Many 'developing' countries, such as Nepal, have capacity to increase their resource use and not cross their biophysical boundaries, but with an attendant need to accelerate improvements in social performance to avoid critical human deprivation (Fanning, 2021, p.31). In short, no country has yet met the safe space for human development that operates between ecological ceilings and social boundaries.

We use the framing of the Quintuple Bottom Line (QBL) (Panneels, 2023) to consider the importance of 'place' within the context of a doughnut economy, where economic output is not only measured by financial profitability (Profit), social responsibility (People) and environmental sustainability (Planet), buy also guided by ethics (Purpose) and informed by the local ecosystems in which it operates (Place). Here we see it not only navigating materiality, but its contextual use and deployment with expertise of a full holistic picture of designed proposals. This includes empathy of, and to surrounding environments, material use, regenerative potential, economics and subsequently negative impacts. Crafts businesses which embed the QBL principles, can unite maker(s) and communities across cultural and socio-political boundaries, evoking connectedness. The language(s) of craft can be empowering and should not only benefit humans but regenerate economic structures, and more importantly multi-species perspectives.

2.4. Radical Indigenism

These western conceptions of craft need to be put into context of other understandings of craft and craftmanship. It is worth here then, to consider the writings of the African writer Amadou Hâpaté Bâ, who, when writing for UNESCO in 1976, observed the systematic destruction of the traditional craft centres through the colonial policy of "effacing systems of values and indigenous customs in order to replace them by its own" (1976, p.384) together with the promotion of imported goods by chambers of commerce, continued after independence with the spread of imported customs and ideologies from abroad and the "invasion of values based on money". As he presciently noted:

> *"We live in a very curious age. The amazing development of science and technology goes hand in hand contrary to all expectations, with a worsening of living conditions. Along with the conquest of space has come a sort of shrinking of our world which has been reduced to its materials and visible dimensions alone, whereas the traditional craftsman, who had never moved from his little village has the feeling of participating in a world of indefinite dimensions and being linked with the whole of the living universe" (Amadou Hâmpaté Bâ, 1976. p.385).*

Bâ' observed that prior to colonisation, traditional African crafted objects were often 'spiritually loaded' and functioned as mediators between invisible worlds and everyday life. Since the colonial

era secular arts and crafts developed, which severed the original purpose and meaning of these handmade objects. Thus, modernity and its process of globalisation had profound implications not only on the loss of traditional knowledge and practices, but also on the social values they embodied.

The Anthropocene has shifted the lens back onto alternatives offered by traditional, indigenous, or artisanal approaches, which often preceded industrialization (Haraway, 2015). The Great Acceleration accelerated the demise of traditional ways of knowing and doing and their concomitant social values. Much knowledge has been lost in the intervening decades, but the concept of the Anthropocene has refocused attention on traditional ways of doing and making. The local Traditional Ecological Knowledge or 'lo-TEK' (Watson, 2020) understanding of materials, and ecosystems that works with Nature, draws on living knowledge of indigenous people from cultures around the globe who work in unison with Nature, rather than try to conquer it. Watson, a white Australian, argues that once hybridised and scaled, these indigenous technologies could offer a new path "to exponentially shrink the ecological footprint of humankind and mitigate the forecast collapse" (2020, p.18). The term *radical indigenism* as the re-assertion and rebuilding of knowledge from the root of indigenous culture rather than from the root of the dominant culture's misunderstanding and subordination of indigenous knowledge was first defined by First Nation American Eva Marie Garoutte (2018) and uses the Latin derivation of the word 'radical', radix, meaning root. Bâ had argued back in the 1970s that the treasure of knowledge, "patiently handed down for thousands of years" could still then be retrieved and rescued (p.384). The Anthropocene has opened up discourses that place renewed value on these old practices. More importantly, the space at the intersection of indigenous knowledge and innovation has emerged out of necessity of those living at the frontline of climate change (Vince, 2014).

2.5. Ecological Citizenship

Finally, we frame 'radical indigenism' as appropriate traditional knowledge, that is invaluable for Ecological Citizen navigation (Hayward, 2006: Phillips, *et al.*, 2023). A contextual example is an *Ice Stupa* (Anon, 2024), a glacier grafting technique creating artificial glaciers in Nepal, used for storing winter water in conical ice heaps. During summer, with water scarcity, the ice melts increasing water supply for crops and animals. This ingenious technique is a nature-based solution, carefully crafted with the local environment. Traditionally design practice is seen as the creation of artefacts for retail, economies and preservation. The authors' lens of seeing the *Ice Stupa* demonstrates the Ecological Citizenship (EC) required within this field of practice (Phillips, *et al.*, 2023). EC defines accessible activities and skills which establish sustainable practice(s) and/or address ecological inequalities. Our human existence is intertwined with our environment; we live in and are 'citizens' of our environment (Phillips, *et al.*, 2023). The *Ice Stupa* contributes to: wider indigenous societies, local ecologies, crafts practice, material knowledge, skill in materiality and the regeneration of the local environment. This application is symbiotic with its environment and a grounded contextual example of nature inspired climate solutions in the Anthropocene.

3. Case Studies

We use the framings of the Anthropocene, Heterodox Economic Models, Radical Indigenism and Ecological Citizenship to contextualise the two case studies presented in this paper. This stance holds value reviewing how; materiality, craft, regenerative design and place-based economies can be leveraged to support new sustainable practices in a Green Creative Economy. Craft is a universal language inviting collective appreciation and understanding. It builds on *The Quintuple Bottom Line* (profit, people, planet purpose and place) (Panneels, 2023). Nature's importance for business, let alone the biosphere, is interlinked and paramount (Murray, 2023).

Nepal has a long tradition of lo-TEK. The blacksmiths of Baglung in west Nepal built bridges before their livelihood was replaced by steel cables, the Gorkhali Khukuri knife and copper pots were mined with almost zero impact on nature, the wood for charcoal making was harvested without damaging the forests.

"The raw iron ore brought from the mine was finely chopped. The furnace for melting iron, firewood, round, kettle were all prepared, the only thing left was some rituals that had to be performed. No one else was allowed to see the ritual that had to be performed before setting fire to the furnace. [ ] Such a sacrifice was made for the gods of the forest and the gods of the mines so that they would not be angry or disloyal" (Dhakal, 2024).

The Bote community made dugout canoes, wove nets to catch fish and help people cross the rivers across Nepal before bridges replaced them. The Nepali cap, Bhadgaule and Dhaka (Fig.1), was once compulsory at all government offices as was handmade Lokta paper.

Fig. 1: Dhaka or Nepali top is a typical head wear from Nepal worn by men and refers to the fine cloth from which it is made, which hails from the Dhaka region of current Bangladesh. Part of the Nepali national dress, it is still worn by officials or worn during festivals, when they are often gifted. Photo: Inge Panneels

Bamboo craft and clay utensils are still an integral part of Nepali lives to this day. Nepal's cultural calendar, embedded in the notion of sacredness, has helped preserve some of these beautiful arts and crafts (Dhakal, 2024). There is an inherent link between seasonality, material/biodiversity knowledge and the natural world… all working in unison.

These examples have underlying features making them unique, worth preserving and help an understanding of what nature-based solutions, or lo-TEK, might support both aspirations to Ecological Citizenship and planetary stewardship. Each of the above arts and crafts are fundamentally inspired and supported by nature and its ability to regenerate. Nothing went to landfill sites because at the end of their natural life, each product, went back to the soil or to repair shops, and return to 'good as new'. Each was crafted in the most efficient, cost-effective methods, ensuring they met local demand and also the price points of the user. Each provided the craftsmen and women the needed benefits, incentives that explore new economies.

Below we outline two case studies supported through the British Council (BC) in Nepal. We acknowledge that the BC can arguably be seen as a colonial instrument and accept critique (Leichtweis, 2023) that the underlying development agenda refrains from tackling the capitalist roots of unsustainable development. However, we collate here some case studies that speak of a creative green economy, which we argue, has some value in helping re-asserting both local knowledge and innovation. The case studies open new contexts of 'good practices', and the importance of contextual, cultural and appropriate review. Especially within the creative context of craft, design and making it is imperative that we constantly re-question what is good and how can transition to better practices more appropriate to our current times: the Anthropocene.

3.1. Case Study 1: Pyangaun: Heritage and Innovation in Reviving Traditional Bamboo Craft

The interconnectivity of local, natural resources and their concomitant crafts practices are embodied in the traditional bamboo baskets of Pyangaun, a village in Chapagaon in the Lalitpur district south of Kathmandu. The village became synonymous with the artisanship of 'pyang', meaning bamboo [pā] craft in the Newar language, and the meticulous craft of creating traditional cylindrical containers made from bamboo sheets, specifically designed for measuring grains. The art of extracting 'hapa', flexible material from bamboo, to fold into sheets is the main feature of this craft, which requires innate knowledge of when, and where to harvest the best suitable bamboo. The hapa is woven and stitched together (inner and outer skin) (Shahi, 2020). This unique expertise not only distinguishes Pyangaun but historically played a pivotal role in establishing standardized units for regional trade, a tradition which goes back centuries. Its bamboo containers used to be exported to Japan but stopped in 1994 when the pyang artisans could not meet the finishing requested by its Japanese clients, and led to steep decline. Man Bahadur Maharjan is one of the last remaining master craftsman preserving the ancestral art of crafting pyang, echoing broader challenges faced by traditional artisans (Fig. 2). Modern challenges, exemplified by the prevalence of plastic products representing the encroachment of the 'new community,' pose a stark conflict between preserving tradition and succumbing to immediate economic gains. It underscores the urgency for initiatives breathing new life into traditional craftsmanship, ensuring the enduring cultural heritage and identity of places like Pyangaun.

Fig. 2: Man Bahadur Maharjan is the last remaining crafts master in Pyangaun. His legacy has been captured in the Storycycle project and Pyangaun. Photo: Aman Shahi

Engaging the younger generation, coupled with widespread awareness and support, emerges as essential strategies in preserving the invaluable cultural legacy embodied in crafts like pyang-making. The changes wrought by Modernity on this Newar community have been documented by French anthropologist Gérard Toffin (1977) since the 1970s with noted improvements in living standards, where the incorporation of contemporary modern living, from electrification to digitisation, has taken hold. Yet, traditional social norms still prevail, with “binding communal rules”, and “strict organisation of labour”, with “an annual calendar of festivals and ceremonies” (Toffin, 2023) along patrilineal kinship lines. Toffin notably observed that women are organising themselves to become more financially independent and that notably, young people are trying to revive the craft of making *pyang*, the typical bamboo containers for which the community is known (Shahi, 2020). This dynamic interplay between 'new and old communities' underscores the critical importance of environmental sustainability, cultural preservation, and innovative solutions. It encapsulates Nepal's struggle to

balance its cultural heritage with the demands of a changing world. Below we outline two initiatives which have supported entrepreneurship to preserve and encourage innovation in the pyang making community.

In 2020, a collaboration with Story Cycle, Acme College and British Council endeavoured to preserve Pyangaun's rich cultural history of "Pyang" by collecting stories online. Through Story Camp (https://dreamcities.org/works/capturing-historical-pyangaun/) Story Camp, a hands-on initiative, students and Pyangaun community members learn digital mapping and storytelling techniques, capturing the essence of their culture, people, products, and the village.

The Road to COP26 6 (https://www.britishcouncil.org.np/road-cop26-innovation-grant-programme) (R2COP26) initiative (2021) by the British Council supported youth entrepreneurship in the run up to international UN climate summit, COP26 held in Glasgow, Scotland, UK, during the global pandemic. An Innovation Grant Programme supported young entrepreneurs with mentoring and funding to develop innovative sustainable business ideas, that harness nature-based and craft-related solutions promoting positive environmental impact and climate change resilience by empowering the most vulnerable people. The 'Pyangaun' project was led by two young entrepreneurs, students from Kathmandu University who had previously recorded and studied the craft of making pyang (Shahi, 2020) as an exemplar of folk art, that represents cultural, religious and geographical identities. The project undertook the upskilling of local women in the craft of pyang, providing alternative income streams and preserving local skills (Fig. 3).

Fig 3: Pyangaun project which is passing on the pyang craft skills to women and introducing new designs. Photo: Aman Shahi (2022)

The project's contribution brought design skills and digital marketing skills to this community to support them in expanding their traditional repertoire to include new models of containers that honour the traditional design (Fig.4).

Fig 4: Pyangaun examples of contemporary designs Road to COP26. Image: Aman Shahi

3.2. Case Study 2: Khoriya ko Kakaj: Innovation in Traditional Paper Making Through Ecological Thinking

The In Our Hands programme (https://www.britishcouncil.org.np/programmes/climate-change/in-our-hands) supported by the British Council expanded on the Road to COP26 initiative and continued to support youth entrepreneurship that championed Nepal's natural and cultural heritage: a creative green economy. The offer of mentoring and funding was retained and projects were selected on the basis of their ability to develop sustainable businesses which aligned with the Quadruple Bottom Line.

The Khoriya ko Kagaj project (https://www.youtube.com/watch?v=_Dmq5OIQYhQ&t=6s) combined the conservation and restoration efforts by the Chepang community to stop erosion through the planting of broom grasses bare hills of the Mahabharat mountains in central Nepal, with traditional paper making communities in Janakpur in the Kathmandu Valley (Fig. 5).

Fig 5: Screenshot from the short video of the Koriya ko Kagaj project, showcasing the planted broomgrass on the Mahabharat mountains in central Nepal to combat erosion, which was then developed into paper. The video can be viewed here: https://www.youtube.com/watch?v=_Dmq5OIQYhQ&t=6s (British Council, Nepal)

The social enterprise's co-founder delivered this conservation project, bringing a holistic approach to the restoration effort. The 'amliso', or broomgrass, is traditionally used to produce 'brooms' for the domestic market, generating income for this marginalised community. As only the flowers are used for the brooms, the stems were a waste product. The broom grass grows at an altitude where few other plants thrive, thus not supplanting other crops or resources. The proposal was to develop this waste item into a higher value product. This was achieved by collaborating with traditional paper making artisans developing a new, robust handmade paper from this waste material, generating new economies. The project has thus incentivised the Chepang community to restore the hills with broomgrass, stopping erosion and landslides and creating an income stream. Traditional Nepalese paper (kagaj) is made with the bark of the *daphne bholua* shrub, known vernacularly as 'lokta'. These bushes grow commonly on the southern slopes of the Himalayas. The resulting paper has a durability and pest resistance making it the preferred choice for recording important texts, religious materials or government documents. This traditional industry declined with the import of cheaper and smoother paper from India. Nepal's stringent, successful conservation and restoration efforts (through the creation of wildlife reserves / national parks) ensured the continued supply of this raw material previously used for an estimated 2,000 years to make paper. Tapping into this tradition of paper making but challenging the local artisans to develop a new technique to incorporate the broomgrass waste, thus spurred an innovation (Fig.6).

Fig 6: Screenshot from the short video of the Koriya ko Kagaj project, showcasing the broomgrass being developed into paper. The video can be viewed here: https://www.youtube.com/watch?v=_Dmq5OIQYhQ&t=6s (British Council, Nepal)

Traditional paper continues to be used in Nepali festival traditions, including prayer flags, book binding, wrapping paper for incense, spices, and stationery. The development of a new paper included experimentation with different pulp recipes and exploration of alternative machinery to support the refinement of the paper's quality. Remaining waste is composted but is being explored as a source of biowaste heating. The Chepang community is thus being incentivised to start production of the khoriya paper themselves. The impact of climate change manifests itself in the region through increased rainfall and resulting landslides which significantly disrupts life in the region. The project makes the case with local agencies and policymakers that incentivising the community to increase broom grass planting, minimises the erosion and offers added value through paper production generating income. Supporting increased (ethical) planting coalesces with increased profitability (Fig. 7).

Fig. 7: Examples of the broomgrass 'waste' and the resulting new paper developed by the Khorya ko Kagaj project. Photo; Inge Panneels.

4. Discussion

Unlike the Pyangaun, the Khoriya ko Kagaj project, started from an ecological perspective and included the social and cultural practices of artisanal paper making to support conservation efforts. Both projects use material based making practices, found in the traditional handicraft practices of Nepal and combine them with innovation methods. Both projects embed a circular economy ethos that develops a closed loop approach, using locally sourced materials which are actively regenerated. The Quintuple Bottom Line (profit, people, planet purpose and place) framework which emanated from these projects to support narratives of a Green or Net Zero Economy which dominate international policymaking, help contextualise the 'antropos' in this bioregional approach to economic craft development. The concept of the Anthropocene enables insights that can be applied beyond craft practices, demonstrating the interlink of the hyper-local (materials use), to mutually benefit and build regenerative practices that speak of provenance and bioregionalism in a global context.

An interesting consequence of the British Council collaboration with Kathmandu University (KU), who were a key partner in the *R2COP26* and *In Our Hands* delivery of the innovation programme and mentoring scheme, is the development of the new curriculum at KU. The model of education of KU is arguably a Western import, of a Bachelor and Masters programme of studio arts and design. The curriculum of the new four-year Bachelor of Craft and Design (BCDes) programme connects contemporary further education with this rich hinterland of traditions, skills and indigenous knowledge of lo-TEK. "The urgency to offer BCDes was also realised since the contribution of the craft sector would play an immense role in the development of different communities to address climate change and sustainability issues. Hence the course is developed to align ethnic and indigenous craft practices with innovation, design, technology and green economy" (Sujan Chitrakar, Associate Professor, Department of Art and Design, Kathmandu University).

"Furthermore, the course will emphasise the need to connect local craft practitioners' indigenous knowledge and intergenerational skills with the innovations and technological breakthroughs of designers and engineers" (Kathmandu University, course spec, Craft and Design).

It is arguably here that the impact of this more holistic approach, that is more inclusive and moves to a post-colonial space that acknowledges and values lo-TEK can be most felt. It is also an important move to offer opportunities to local talent to train and develop their skills locally and stop the current brain drain plaguing Nepal. Often activities are "shaped by civic habitus: the tacit collusion with socialised norms of power" (Pettit, 2016, p.89). The power dynamics should navigate designing 'with' citizens to attain autonomy over environmental challenges that impact; their lives, health, the wellbeing of their families and subsequently the environment(s) they occupy. This was clarified in each of the cases methodologies and is an important core value.

Our human existence is intertwined with our environment; we live in and are 'citizens' of our environment. EC fosters positive, ecological behaviours involving and benefiting communities through individual and collective action(s).

Within the UK, Heritage Crafts (2023), should not be 'nice to have' but as a means to build new approaches that are 'one health' identifying "the health of humans, animals and the viability of ecosystems are inextricably linked" (World Health Organization, 2022). It creates interconnections between the materials we use and how we use them. We (design practices) need to consider appropriate and bio-diverse positive propositions that are; place-based, non-colonial, regenerative and develop *Ecological Citizens* with autonomy over elements that impact them. The case studies represent rich connections that are only just being explored in common western locations. In projects like: *Gomi* (UK) (Gomi, 2024), harnessing a material economy, *Brompton Bikes* (UK) nurturing material developments in the dying skill of braising or *The Empowerment Plan* (USA) (Empowerment Plan, 2024), teaching skills and providing new employment opportunities something needed in Detroit's homeless communities (its place of origin).

5. Conclusion

This paper argues that these 'lo-TEK' traditional knowledge(s) remain mostly unrecorded and calls for an approach to record, articulate and harness them to support a Green Economy. In this paper we thus navigate a nuanced understanding of craft, from both Western and non-Western perspectives and contextualise their interwovenness through the concept of the Anthropocene which calls for a radical indigenism which we recognise as ecological citizenship that supports a doughnut economy. The cases hold complex nuances and there is no 'one size fits all' as outputs are contextual, locational and cultural.

Materiality, place-based propositions, craft skills, indigenous knowledge, economies and biodiversity impacts are all interrelated and constantly requiring new reflections on what 'good is'. As we desperately require non-Western perspectives to comprehend the wider richness of crafts practices. We are particularly interested in how these localised practices inform regenerative global design practices going forward by asking about location appropriateness.

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