

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

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Track 02: Non-Western Perspectives

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.

Keywords

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

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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 the 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.

Radical Citizenship of Craftmakers in the Anthropocene

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 Arendt 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.

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. 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 and 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).

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 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), but 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.

Radical Indigenism

These western conceptions of craft need to be put into context of other understandings of craft and craftsmanship. It is worth here then, to consider the writings of the African writer Amadou Hampaté 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 Hampaté 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).

Ecological Citizenship

Finally, we frame radical indigenism as contextually applied, appropriate traditional knowledge, that is invaluable (Magni, 2017) and open to development choice in view an act of Ecological Citizenship (Hayward, 2006: Phillips, *et al.*, 2023). A contextual example is an *Ice Stupa* (Anon, 2024), a glacier grafting technique creating artificial glaciers, 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 author's 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.

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) - appendix 1

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.

Case Study 1: Pyangaun: Balancing Heritage and Innovation in Reviving Traditional Bamboo Craft (765)

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) (<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 projects contribution bought 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

The story of Pyangaun is a poignant reminder of the delicate dance between tradition and progress, urging societies to safeguard their cultural roots in the face of modernisation. The adaptation of the traditional bamboo making techniques, its safeguarding and protection of provenance has relevance to other traditional artisanal communities. Crafts practice, materials, and traditional approaches form a tapestry woven with cultural significance, adaptable to diverse environments. This project focussed on the social and economic benefits of a circular green creative economy.

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) (<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 Kakaj project](https://www.youtube.com/watch?v=Dmq5OIQYhQ&t=6s) (<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) (see appendix 2)



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. 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 income streams. 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= Dmg5OIQYhQ&t=6s](https://www.youtube.com/watch?v=Dmg5OIQYhQ&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 supporting the refinement of the paper's quality. Remaining waste is composted but 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 Khoriya ko Kagaj project. Photo; Inge Pannells.

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.

The interesting consequence of British Council collaboration with *Kathmandu University*, 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 Kathmandu University (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). 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). The power dynamics should navigate designing ‘with’, not ‘for’ so citizens can attain autonomy over environmental challenges that impact; their lives, health, the wellbeing of their families and subsequently the environment(s) they occupy. Training and retaining young minds with old skills is thus paramount in the deployment of lo-TEK.

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. 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). 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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Dr. Inge Panneels is a maker by training and Lecturer in Digital Media at **Edinburgh Napier University** who previously taught at the Artists Designer Maker course at the University of Sunderland. Her research has focussed on the circular economy and creative green economy by looking at the role of creative practices in affecting culture change for climate change and conversely how creative businesses can embed sustainability.

Dr. Robert Philips is a product designer and Senior Lecturer at Royal College of Art, London. His expertise as a product designer includes how research into design and craft acts as an interface with government and commercial funders.

Anil Chitrakar is an engineer by training who is a social entrepreneur who was recognised as one of the 100 'Global Leaders of Tomorrow' at the World Economic forum in 1993 and has since been made Ashoka Fellow. His work in recovering and restoring the built and living heritage in the Kathmandu valley has been pioneering as well as his involvement with the National Conservation Strategy for Nepal which helped preserve its globally unique natural endowment.

Saurav Dhakal is a storyteller and sustainability campaigner at **Storycycle** in Nepal and USA. He was selected as International Climate Champion by the British council in 2010 for his storytelling work on the impact of climate change on people living in the Himalayan region.

Sujan Chitrakar is an artist and educator who is Associate Professor in the Department of Art and Design at Kathmandu University. He led on the development of the new curriculum of the Craft and Design course.

Appendix 1:

Social life of iron (ekantipur excerpt)

<https://ekantipur.com/koseli/2024/01/20/the-iron-ritual-of-the-lohakot-craftsman-03-51.html>

Translated from Nepali into English by Sujan Chitrakar

These were some of the examples of the social life of iron that came to be known during the study of my friend Suman. 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. After sunset, Jetha Kami took a bath and entered the place where the furnace was built, undressed with Chokhopani (pure water) and incense. No one else was allowed to see or see the ritual that had to be performed before setting fire to the furnace, which was built in the thick of the garden a few yards below the house. A ritual takes place the evening before lighting the furnace and starting iron processing, where a couple of chickens are also sacrificed. Such a sacrifice was made for the gods of the forest and the gods of the mines so that they would not be angry and would not be disloyal. After that, a separate rooster had to be sacrificed for the furnace. By sprinkling the blood of the sacrificed chicken in the furnace, they would plead saying, 'O hunting god, you ask for blood, I have offered this blood to you, do not harm us'. They believed that by doing this, there would be no accidents during iron processing. It was a Wednesday evening because according to tradition, iron smelting was done on Wednesdays.

Appendix 2:

Transcript from interview with Raziya, Koriga ka Kagaj – Kathmandu (23February 2023)

Is that it? Yeah, it's starting. So if you can briefly introduce yourself and the project and tell us about it in your own words, and then I'll ask you a question.

R2: [Speaks in native language].

R1: [Speaks in native language]

R2: So Raziya is the vice president of Bighnaharta Nepal, which was an NGO but now it's a social enterprise, is shifting to a social enterprise, to become sustainable. And they have been working for the past four years in the landslide-prone areas in the plains of Nepal to plant these amriso plants, so there's broom grass or tiger grass. Because not just that they can be used for making brooms, but they also help prevent landslides and those areas are really prone, and that's improving it and that's why they have been doing this. But they also realise that they are working with the indigenous community to make these brooms and the leftover stock was getting wasted. So that's why they thought what could

they do with these stocks? And then after doing submissions, they feel that maybe this could be used to make paper.

And so then they also started speaking to other paper factories, if they could use this to make more paper and they said yes. With British Council funding, what they could do is they could do intense [inaudible 00:04:00] where they could visit factories in [Jambhul 00:04:04], which are like big paper mills, to find out what quality of paper can be and they could also meet with other people who working in the arts and crafts sector to build that network. So this paper that they have delivered right now is a product which is a [experimental piece 00:04:25], but they still think that it can still be refined and they will continue to refine it as they go ahead. But they are happy with whatever else has happened so far.

R1: [Speaks in native language].

R2: So that's something that I guess your question will come up later about the 4x Ps and the 5x Ps. So to talk about how their whole project idea is a holistic approach to integrate the community, environment and economy and how they are using their power in the community, supporting the community. At the same time preventing a national disaster, like landslides, creating a product on bamboo, using the waste to make another product, a paper product. And again whatever waste is remaining from that papermaking, also they'll use that to make biomass. They're saying it's going to be a completely [inaudible 00:06:05] supporting that and supporting and addressing climate change as an issue.

I: That was exactly the word I was thinking, holistic. It's very much so. So maybe a question to ask then. When you did the incubation, the incubator programme, what to you were the most useful things you might have learned or were introduced to that were useful to your project? Because clearly you were already thinking in that way before you came. So what was it that you...? Was there something that you learned or found useful from that?

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So addressing your question, they had done some literature review that this material can be used to make paper and that was a theoretical knowledge they had but they hadn't had an opportunity to do it practically. To do the intense research of testing the issues, proportions

and know how it actually works. So that is something that this programme definitely supported them.

I: The prototyping?

R2: Yes, the prototyping. And the other thing was also around the market research, so there was an component that we did for them to do the market research. They had a concept that this paper can be supplied to just the corporate sector, but then through their market research, they realised that actually it has a bigger market, that the arts and craft and e-crafts has a bigger market which would like to have this material used. So now they are considering that this not just be used to make the good books and papers but also like wrapping papers and could have a really good export market and their export market is quite used.

So they are trying to explore that in the future and now, through this project, it has had them visualise everything and so they can see how the papermaking process works, see what they should do in the future, how to market it later. So that practical approach was something that was really powerful to the project.

I: Okay, good. So I guess that partially answers my second. The next question was, what's the short-term aim of the project? So would that be the export or are there other aims that you're thinking about.

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So the immediate short term plan would not be to export because they think that the quality of the paper would be really important to restock export market. So for now, they want to focus on refining the paper quality, and for that they will be exploring different machines. So [inaudible 00:12:32] is also supporting them to figure out, and then there are so many other factory people who are supporting them. So that is their immediate plan, that they will actually try and refine and make it even better. But after a bit of time, then they want to set up a small scale factory in the community itself, from where they are getting the volunteers, because they are working in the plains of Nepal, so bringing that [inaudible 00:13:00] in Kathmandu and then making a product. It not have the community visualise what is happening. So what they want to do is they want to make the community able to see that they are producing a raw material that can be turned into a product with their own eyes so that

they feel the ownership of the project. And even if they are not there in the longer run, the community can [inaudible 00:13:24] to take it forward.

I: Okay, that leads me then very nicely to the next question. Thinking about the 5x Ps, so the P for profit, and then related to that, the P for purpose. From what you're telling me, the purpose and the profit are closely related. Could you maybe speak about that? What's the purpose of your business, ultimately?

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So this is continuing to do what she was talking about earlier around mobilising the community itself to produce these kind of papers. She really cares for the community that she's working with, it's part of Nepal. But then to make it sustainable and to make it profitable, she thinks it would be necessary to make them stakeholders so that they feel that they have a role to play and they have that, I need to do something to make it profitable. And then the idea would be to do mass production because the moment they will go for the mass production, it will become cost effective. So that's why they think if they can encourage these community people to plant more of these plants and then go for larger scale production, and then be a part of the profit that is coming up, that will encourage them to contribute towards the national economy as well.

So she brought up a very interesting point, saying that these are an indigenous community and have not been paying taxes to the community, don't understand this whole process. So now, if they are going to bring them into this system, they will be contributing towards the national economy as well and will be seen as contributors, and that will also help their livelihood as well.

I: And so could you maybe explain how the papermaking relates to the...? Because I think the planting of the broom grass really was to stop the erosion in the first place. So if you are encouraging the community to plant more grass because you want them to make more paper, does that then also solve the erosion problem? Or have they become two separate things, or are they part of the same big project, if you like? So what's the correlation between the papermaking and the planting of the grass to solve an environmental problem?

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So the [inaudible 00:19:42] and landslides is correlated with products and profit, because, interestingly, these communities do have a lot of these natural disasters which is why they are traumatised. And they can't think beyond: how do I stop my life being this or how do I make sure that I get to eat and I get to live?

I: Yeah, they're on survival mode.

R2: They are on survival mode and that is more important than anything else. So thinking about these bigger things is not really their agenda. And at the same time, because of these landslides, the market it reaches is also disrupted, because even if they are making something, for example, taking this bamboo, so the products can't reach the market because there are so much landslides happening in these regions. So that's why their initial idea was to support these communities, to come out of that trauma by planting the plants, amriso plants. But if there is a bigger purpose, if they can find a bigger purpose than just planting trees, if they can utilise it to increase the production and then increase the profit, then it all gets correlated and there is a bigger purpose coming out here.

And that could be in a policy to even throw to the government, like the local government, and the village development communities, to see that there is an opportunity here and they could support them, these indigenous communities, in the longer term for these initiatives.

I: Okay. I guess I have one final question then. Is there then a risk that if the papermaking becomes successful that they're going to harvest more of the grass than the environment can sustain? All the grasses that they've planted to stop the erosion, is there a risk of do you think that can be managed?

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So this indigenous community, they don't have their own land, so they have been actually living in the land that is provided by the government to them for 40 years of lease. So that's why there's a limited area that they can use and that limited area cannot have anything that's produced. So it can't be used for like rice crops or something else, to plant these other supplies. And also there is a limited [inaudible 00:24:47] with the altitude of which these plants can grow. So in those lands which

are not government owned and belong to people, they don't fall into the altitude of [2900 to 3900 00:25:00] metres, which is why they won't lose from planting these trees, these plants.

So that's why I see that there isn't a lot of risk here. Obviously after 40 years, what will happen is something that they haven't thought of yet, but immediately they think it should not be a risk, producing more paper will lead to more planting which is not resource stable. And also, interestingly, that these altitudes, apart from amriso, apart from this plant, they can also grow opium and marijuana, but both of these are illegal in Nepal. So they can't really do that, so they don't have any other option other than to leave it barren, or plant these trees and get profit out of it.

I: Okay, so there's no risk of it being supplanted by another crop, but I guess my question was more, is there a risk of them overharvesting? Because they might need, I don't know, let's say 100 kilos and the field on the yield is 80 kilos, so they might cut more than the system might support, if you know what I mean, because they need more material? That's maybe the risk I was talking about. Although the risk of being supplanted by other plants is a good one.

R2: [Speaks in native language].

R1: [Speaks in native language].

R2: So interestingly, it can't be harvested whenever they want to, so it happens only once in a year, or like eight or nine months is the minimum. So that's why when we do the time for it to be harvested, you have these things that make [roo 00:28:13], and that is when they can harvest. So even if they want to harvest it more, that is not possible. So for the first time when they plant it, it will take one and a half years to two years for it to be able to be [at a stage 00:28:30] when it can be harvested, and then after that every year you can harvest, so once a year. So they have to follow the natural cycle.

I: So whatever the capacity is?

R2: Yes.

I: That's been brilliant, thank you.

R2: Thank you so much

End of transcript

/end