



Nature-based Solution Self-assessment Report on HSBC Rural Sustainability based on the IUCN Global Standard

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This report is part of the e-study 'Nature-based Solutions for Major Societal Challenges' published by the Centre for Civil Society and Governance, The University of Hong Kong. The e-study introduces the concept of NbS and illustrates its application through some examples around the world. URL of the e-study: <https://ccsg.hku.hk/ruralsd/en/pages/nature-based-solutions-for-major-societal-challenges>



Scan to read
the NbS e-study

Hong Kong is a hustle-and-bustle city. While discussion on sustainable development have largely focused on urban development – such as reducing air and water pollution and developing green building protocols – three-quarters of its land area is rural, where hundreds of villages have been being neglected and left idle amid rapid urbanisation. Lai Chi Wo (LCW) in north-eastern Hong Kong is one of such forgotten villages and was completely depopulated in the 1990s. Surrounded by the Plover Cove Country Park, Yan Chau Tong Marine Park, and Hong Kong UNESCO Geopark, LCW houses diversified habitats, including Fengshui forests, mangroves, freshwater streams, and agricultural wetlands. With the belief that a genuine sustainability agenda for cities should place due importance to maintaining and enhancing its natural and socio-cultural capitals, the Centre for Civil Society and Governance at The University of Hong Kong (HKU-CCSG) initiated the ‘Sustainable Lai Chi Wo’ programme (2013-2017) and the subsequent phase ‘HSBC Rural Sustainability’ programme (2017-2022) (hereafter collectively referred to as the LCW Programme) as a holistic attempt to revitalising villages’ roles and functions for the attainment of a sustainable society. The LCW Programme was a collaboration between the University, local communities as well as a number of non-profits and received support from The Hongkong Bank Foundation. Through revitalisation activities such as farmland revitalisation, ecological conservation, community building, and rural green economy development, LCW’s village community has been rebuilt, the ecosystem services are harnessed and enhanced, and its socio-economic activities are revived.

The LCW Programme was the first initiative of its kind in Hong Kong to revitalise an Indigenous village. The rural revitalisation experience has opened new possibilities for urban-rural partnership in sustainable development. The LCW Programme demonstrates strong adherence to the IUCN Global Standard for Nature-based Solutions (NbS-GS) and serves as an exemplar of how NbS can be used to tackle rural decay and urban social challenges, setting a new urban-rural sustainability agenda for Hong Kong and beyond. Building on the LCW experience, HKU-CCSG continues to carry out rural revitalisation projects with a view to contributing to global sustainable development.



Aerial photo of Lai Chi Wo Village in 2026



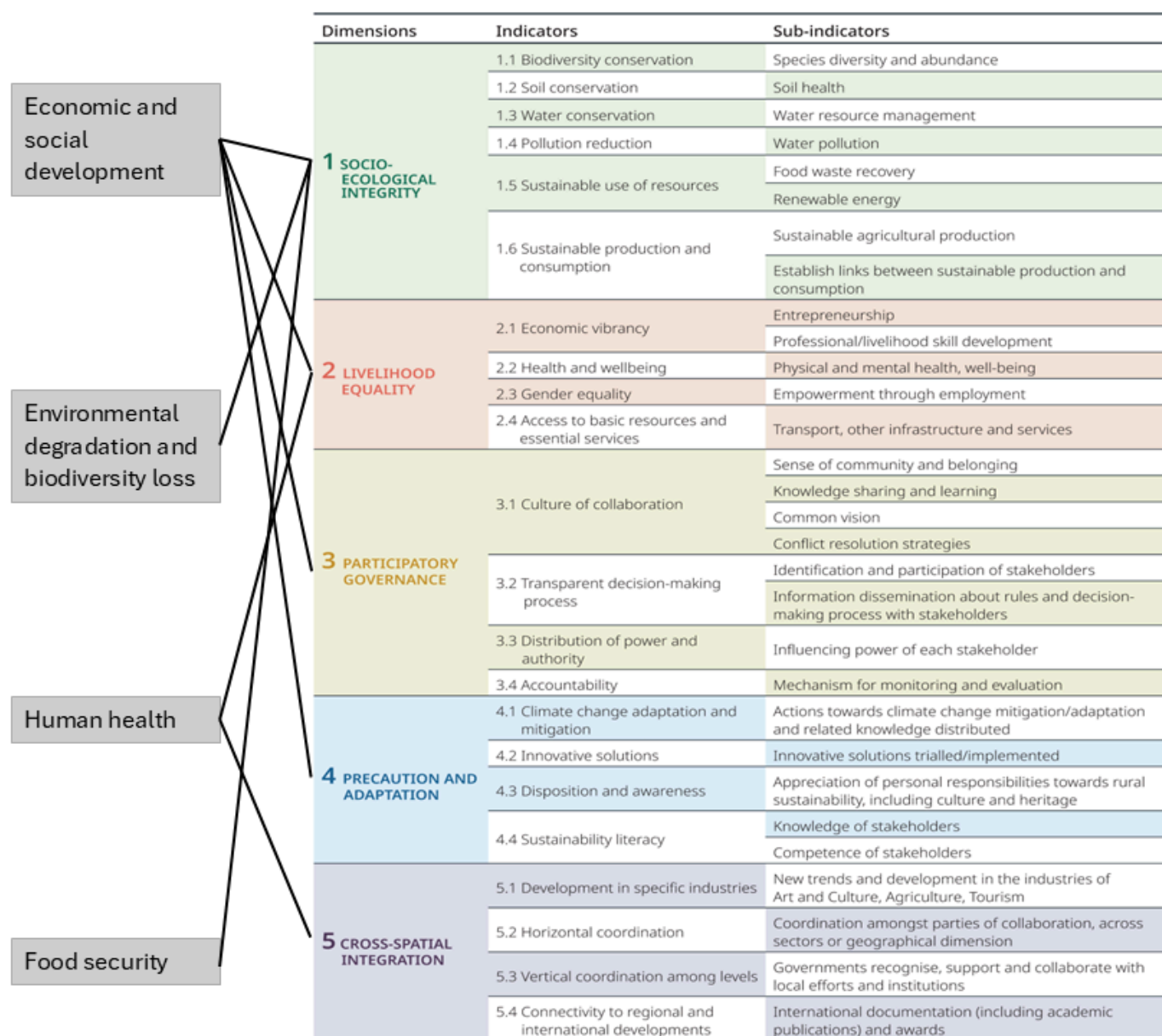
Self-assessment results based on the IUCN Global Standard for Nature-based Solutions demonstrate the LCW Programme's strong adherence to the standard.

NbS-GS Criterion 1: NbS effectively address societal challenges

The following societal challenges were identified, studied and prioritised for the LCW Programme after multiple rounds of discussions with Indigenous villagers, university professors, members of NPOs, private sector, the government and volunteers at the planning stage as well as during the course of the LCW Programme:

- Economic and social development: the urban-biased economic and social development over the past decades has led to the decline of the social-ecological systems in rural area in Hong Kong, particularly affecting many remote villages situated within the enclave areas of the country park system. LCW exemplifies this trend, being a typical example of a depopulated historic village in Hong Kong. The rich social, cultural, and environmental resources of these areas have been neglected for decades.
- Environmental degradation and biodiversity loss: Many enclave areas, including LCW, are ecological hotspots in Hong Kong. Their rich ecological resources are a result of the long-term relationship between the Indigenous Hakka community and the natural environment. There is a need for sustainable management of ecological resources in privately owned lands in remote villages Hong Kong that would allow the natural landscape to be productive again while the ecological value is enhanced.
- Human health: Hong Kong is one of the most stressful cities in the world. With a high population density, the city needs more accessible green spaces for urban residents' physical, mental and spiritual health and wellbeing.
- Food security: Although Hong Kong has over 4,000 ha of arable farmland reserves, only about 700 ha are actively managed, and less than 2% of vegetables are self-supplied. This weak local production capacity and heavy reliance on imports make the food system vulnerable, contributing to rising food prices and increasing the burden on local food security and food system sustainability, especially during challenging periods such as pandemics.

To evaluate Programme outcomes and impact and inform adaptive management, a comprehensive sustainability assessment framework with five dimensions and a set of associated indicators was developed. The figure below illustrates how the assessment framework is relevant to the societal challenges prioritised. The indicators were developed through consulting expert-developed indicators from literature and pre-Programme engagement with stakeholders. They can draw upon both quantitative and qualitative information. Data collection methods for the assessment mainly include focus group meetings, interviews, questionnaire surveys and Programme records. The assessment was done through before-and-after comparisons wherever feasible. Assessment results indicated that the LCW Programme contributed to all five dimensions (Chu, Lam, Law, & Yiu, 2023).



The LCW Programme’s sustainability assessment framework in relation to the societal challenges
 Image adapted from *Sustainability impact assessment: Framework and report on HSBC Rural Sustainability* (p.13),
 by Chu, Lam, Law, and Yiu, 2023, Centre for Civil Society and Governance, The University of Hong Kong.

NbS-GS Criterion 2:

NbS incorporate an ecological, economic, social and cultural systems perspective

The LCW Programme adopted a cultural landscape and whole catchment management approach, recognising the group of neighbouring villages as an interconnected cluster and emphasising the intrinsic link between human society and the ecological environment as a unified 'social-ecological system'.



The LCW Programme is developed based on recognising the interconnectedness between human society and the ecological environment as an integrated social-ecological system.

Image from *A Nine-year journey of HSBC Rural Sustainability* (p.12),

by Chick and Yiu, 2023, Centre for Civil Society and Governance, The University of Hong Kong.

Five major action strategies have been adopted under the LCW Programme:



1

Rehabilitating the agricultural landscape through a co-management approach



2

Reviving the rural community through network development and capacity building



3

Strengthening village governance and management structures for community and cultural inheritance



4

Building a creative and self-sustaining community economy



5

Re-branding rural heritage

The LCW Programme's five major action strategies

Image from *A nine-year journey of HSBC Rural Sustainability* (p.19),

by Chick and Yiu, 2023, Centre for Civil Society and Governance, The University of Hong Kong.

Given the area's rich ecological resources and the long-standing farming traditions of the Hakka community, the LCW Programme placed strong emphasis on agricultural revitalisation, community development, natural and cultural heritage management, and the incubation of rural socio-economic models. It promoted collaboration between villages as well as between urban and rural areas and experimented with various socio-economic initiatives, such as developing farming-processing-product value chains and supporting community co-creation projects and rural startups. Understanding that large-scale agricultural development often risks peri-urban ecosystems, the LCW Programme paid specific attention to maintaining ecosystem services while increasing food production through sustainable land management. Throughout different phases of the LCW Programme, a variety of activities were discussed, implemented and evaluated to foster consensus among different stakeholders and adapt to the changes over time. The LCW Programme also bridged Indigenous communities, new settlers, scientists, artists and other interested parties together to facilitate knowledge sharing, discussions and collaboration. New community groups of farming area and village management have been formed and regular meetings are conducted.

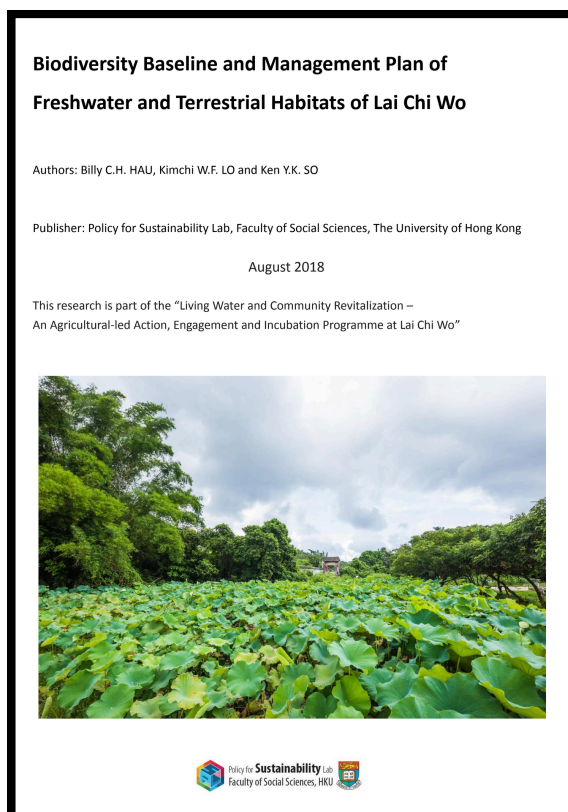
After years of revitalisation efforts, many breakthroughs have been achieved; several projects and initiatives by different organisations including local NGOs and village-based social enterprise have been evolved from the LCW Programme and contribute to the village revitalisation efforts. Different effective communication platforms and channels have been set up and HKU-CCSG and these organisations would on and off inform each other of their project initiatives to make concerted revitalisation efforts. The government supported the revitalisation through improving LCW's accessibility and connectivity, building more tourism infrastructure, and providing funding to support more rural revitalisation initiatives in Hong Kong. With government funding support, HKU-CCSG extended the interventions to LCW's neighboring villages Mui Tsz Lam and Kop Tong through the scale up project 'Forest Village' that promotes sustainability and environmental stewardship of forest village ecosystem.

The LCW Programme brought together scientists, local and regional experts, Indigenous villagers, and farmers to facilitate knowledge sharing and meaningful discussions. Intervention strategies were continuously reviewed and adapted to prevent or mitigate unintended negative impacts, such as measures implemented to prevent soil erosion resulting from farming resumption, as well as addressing external challenges like increased tourism impacts. Local knowledge and insights were gathered through regular communication, co-design workshops, and oral history sessions. Traditional knowledge played a particularly vital role in spatial planning of agricultural revitalisation, and also provided valuable inspiration for management strategies and the development of socio-economic models.

NbS-GS Criterion 3:

NbS result in positive change in the state of biodiversity and enhanced ecosystem integrity, including connectivity

The LCW Programme adopted a comprehensive whole catchment approach covering an area of 113.3 ha of the LCW landscape that comprises a mosaic of land uses and habitats, including streams, Fengshui forests, farmlands, marshlands, secondary forests, village-built areas, and coastal zones. These areas were systematically monitored, and careful design and management measures were proposed to protect the ecological integrity of the region. An extensive biodiversity baseline assessment was conducted at the outset of the LCW Programme. Potential drivers of ecosystem degradation associated with the implementation of interventions were identified and incorporated into the agricultural habitat management plan (Hau et al., 2018). Eco-farming community practices and agroforestry methods were designed and adopted to safeguard the local agricultural ecosystem. An eco-agriculture study was conducted and a set of criteria for developing eco-agriculture standards for Hong Kong was proposed. Ecological monitoring of plants, birds, butterflies, dragonflies, amphibians, reptiles, mammals, freshwater fish, and invertebrates has been carried out regularly since 2014 and continues through other ongoing initiatives. Local ecological and agricultural knowledge was also collected through interactions with villagers and farmers. The updated ecological data were shared within the community and among scientists, feedbacking on management strategies. Protected species, such as water ferns and rare, large trees, have been identified and are actively conserved. Specific management actions, including the reintroduction of paddy rice cultivation and Rice Fish (*Oryzias curvinotus*), have been implemented. Additionally, the LCW Programme proactively restored and improved the village's irrigation and drainage systems to reconnect freshwater streams, wetlands, and farmland habitats, as well as to enhance flood management. The subsequent Forest Village project further strengthened ecosystem connectivity between LCW and its neighbouring villages.



A biodiversity baseline assessment was conducted and a habitat management plan was formulated.

NbS-GS Criterion 4: **NbS are financially feasible and economically justified**

With initial funding support from The Hongkong Bank Foundation, the 9-year Programme created incubation platforms to boost community-based economic activities, especially in food and tourism. It created around 80 new green jobs and supported over 30 sustainable enterprises. It has also developed a range of socio-economic models and activities, some of which have gradually become self-sustained, and are now managed independently by individual villagers and other NPOs and social ventures. The longer-term ones include a shared kitchen called 'LoCoKITCHEN' in Sha Tau Kok and 'Experimental Farm for Sustainable Agriculture' at LCW. The LCW Programme has facilitated the formation of a new social enterprise, FarmShare, to provide venture support for the local agro-food development under the kitchen and the experimental farm. Cost-effectiveness study was conducted to prepare for the long-term operation of the kitchen and the experimental farm beyond the LCW Programme timeframe.

After the LCW Programme's funding period ended, the LCW Programme team has been actively discussing the business and finance model with the government and the corporate sector and has been mobilising various sectors for urban-rural collaboration. The LCW Programme team was commissioned by the government to formulate a sustainable village revitalisation model for the wider Yan Chau Tong area. Some of the key actions proposed include developing YCT as a destination for study tour tourism, engaging corporates with ESG objectives to advance village revitalisation, supporting the development of a business venture for the promotion and delivery of rural products and services, and providing seed grants for NGOs, social ventures and start-ups to conduct work in the YCT area.



The 'LoCoKITCHEN' in Sha Tau Kok and the 'Experimental Farm for Sustainable Agriculture' at LCW are long-term initiatives to boost community-based rural economic development.

NbS-GS Criterion 5:

NbS are based on inclusive, transparent and empowering governance processes

The LCW Programme employs a collaborative governance approach, engaging multiple stakeholders—including the local community (Indigenous villagers and new settlers), academics, NGOs, creative communities, volunteers, the private sector, and government agencies at various stages. Among these, the Indigenous community plays a crucial role as rights-holders, major beneficiaries, and active collaborators. To foster trust and build consensus, the LCW Programme team organised multiple early-stage meetings to communicate revitalisation plans directly with the Indigenous community. The LCW Programme design also helped connect the Indigenous community with the broader community, forming a community of interest around rural sustainability and encouraging joint planning, implementation, and management of Programme activities.

Various forums and engagement meetings were held to facilitate dialogue and gather feedback from stakeholders. Multiple decision-making platforms, such as regular meetings among farmers and villagers—including Indigenous, non-Indigenous, and organisation representatives—were established to collaboratively develop and refine rules, share resources, resolve disputes, and plan joint marketing and promotional activities. Additionally, WhatsApp groups were created to enable immediate communication among community members, allowing everyone to participate actively in discussions. The traditional village management committee, 'Pui Shing Tong,' was also revived during the LCW Programme, becoming the primary communication bridge between the LCW Programme team and the overseas Indigenous community. These strengthened social infrastructures have enhanced the LCW Programme's ability to gather community feedback and address concerns effectively.

Furthermore, recognising that women have traditionally held subordinate roles in Chinese village structures, the LCW Programme actively addressed gender inequalities by designing activities that encourage women's participation in decision-making processes. A notable example is a returned Indigenous woman who actively participated in the LCW Programme and was elected as the Resident Representative of LCW, marking her as the first female village leader in the community.



The LCW Programme employs a collaborative governance approach, engaging multiple stakeholders to work together.

Image adapted from *A nine-year journey of HSBC Rural Sustainability* (p.13),
by Chick and Yiu, 2023, Centre for Civil Society and Governance, The University of Hong Kong.

NbS-GS Criterion 6:

NbS seek to equitably reconcile the achievement of their primary goal(s) with any intended and unintended impacts on the continued provision of multiple benefits

The LCW Programme was the first initiative of its kind in Hong Kong to revitalise an Indigenous village. While the LCW Programme had clear mission and vision statements, the team and the Indigenous community leaders worked collaboratively to ensure careful design and management aimed at minimising potential unknown or unintended negative impacts. The Indigenous community expressed concerns about the potential infringement on their traditional rights, especially if government conservation policies were implemented without adequate consultation. In response, the LCW Programme team facilitated understanding of policy intentions and assisted the community in articulating their concerns to relevant government agencies through various engagements.

Initial engagement meetings proved invaluable in identifying potential risks. During these early stages, environmental groups raised concerns about the possible ecological impacts of farmland restoration and farming resumption, such as vegetation loss and pollution. To address these issues, the LCW Programme team collaborated with farmers, community members, and scientists to develop vegetation, soil, and hydrological management strategies, along with eco-farming guidelines. The community adopted organic farming practices through the 'Three Dous' community farming scheme, with all members mutually agreeing to sustainable methods. Baseline environmental assessments and continuous monitoring were conducted to track impacts and inform conservation actions. Additionally, overtourism was recognised as a potential risk, prompting the development of a tourism charter and consensus with the LCW community to promote sustainable tourism.

A steering committee comprising Indigenous representatives, academics, NGO leaders, and prominent societal figures was established to oversee the LCW Programme's implementation and development. Regular community meetings provided platforms for discussing the LCW Programme's progress as well as village management issues. Furthermore, WhatsApp groups facilitated real-time communication, allowing community members to alert each other of local issues and coordinate timely responses. Annual meetings were also organised to engage less involved Indigenous villagers and stakeholders, providing opportunities for updates, concerns, and feedback to be shared and addressed collaboratively.

NbS-GS Criterion 7: NbS are managed adaptively, based on evidence

The LCW Programme is developed based on an understanding of the interconnectedness between human society and the ecological environment as an integrated 'social-ecological system'. This complex system involves multiple actors with diverse values, interests, and knowledge, requiring adaptive, inclusive, and participatory strategies to address various types and levels of challenges. It is assumed that the LCW Programme will evolve over time, therefore, the LCW Programme's design allows for flexibility to accommodate its evolution, through interactions among different stakeholders and in response to changing socio-economic conditions.

The rural revitalisation strategies within the LCW Programme are grounded in various scientific and academic frameworks and involve a diverse range of local experts and professionals from fields such as social sciences, biological sciences, agriculture, and engineering. Indigenous communities are continuously engaged in discussions with these experts, providing local perspectives and traditional knowledge to inform the LCW Programme. Additionally, knowledge exchange events are organised to involve external experts and professionals, facilitating ongoing learning for the LCW Programme team, local communities, and broader stakeholder groups. Continuous ecological monitoring and sustainability impact assessments are carried out throughout the LCW Programme, enabling evaluation and providing feedback to the project team and stakeholders. This iterative process allows for strategic adjustments based on evidence collected, ensuring the LCW Programme remains responsive and effective.

Examples of adaptive management implementation in the LCW Programme

- Urban dwellers and youth were engaged in the farming revitalisation from an early stage to overcome the challenge of farm labour shortage. Its effectiveness inspired other urban-rural collaborations of the LCW Programme, such as rural start-ups, artistic co-creation projects, and the shared kitchen.
- The LCW Programme started mainly with the reintroduction of rice farming, but later a diversity of other crops (including ginger, wax gourd, radish, and coffee, etc.) were introduced considering factors such as the remote location of the village, the micro-climate change, and the profit margin. With successful farming rehabilitation in Phase I, the focus of Phase II was shifted to experimenting with various socio-economic models.
- The sustainability impact assessment enabled the LCW Programme team to identify strengths and weaknesses of the LCW Programme. One of the weaknesses is that both Indigenous and non-Indigenous community members felt a limited accountability in village governance and a lack of mechanisms for monitoring and evaluating decisions made regarding village affairs (Chu, Lam, Law, & Yiu, 2023). Such experience is important for planning future rural revitalisation projects.

NbS-GS Criterion 8:

NbS contribute to the enhancement of the enabling conditions for their implementation, sustainability and mainstreaming

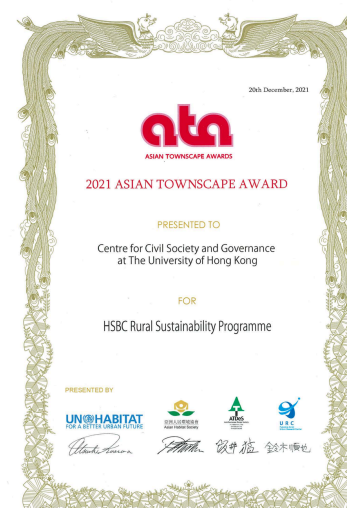
The LCW Programme has developed a sustainable model for rural revitalisation and living heritage conservation within a metropolitan context, promoting socio-economic and environmental well-being. The knowledge and experience gained throughout the LCW Programme have been documented and disseminated through various publications, including newsletters, documentaries, manuals, and academic papers. Additionally, the LCW Programme integrates data, local knowledge, and scientific expertise, successfully transforming these insights into diverse events—such as local and international conferences and seminars—as well as learning courses and tools. These efforts aim to nurture more sustainable talents. In 2018, the Academy for Sustainable Communities was established under the LCW Programme, becoming the first academic institute in Hong Kong that focuses on sustainable communities. The HKU-CCSG has further consolidated and shared the LCW rural revitalisation experience through the scale-up project AIRI, which built an Asia-Pacific consortium for regional knowledge exchange, collaborative research, and co-incubation of rural sustainability change-makers (Law & Yiu, 2025).

Academic publications related to the LCW Programme

- Chu, V. H. Y., Lam, W. F., & Williams, J. M. (2023). Building robustness for rural revitalization: A social-ecological system perspective. *Journal of Rural Studies*, 101, Article 103042. <https://doi.org/10.1016/j.jrurstud.2023.103042>
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- Lu, Y., Chen, J., Xu, Q., Han, Z., Peart, M., Ng, C.-N., Lee, F. Y. S., Hau, B. C. H., & Law, W. W. Y. (2023). Spatiotemporal variations of river water turbidity in responding to rainstorm-streamflow processes and farming activities in a mountainous catchment, Lai Chi Wo, Hong Kong, China. *The Science of the Total Environment*, 863, Article 160759. <https://doi.org/10.1016/j.scitotenv.2022.160759>
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Not only has the LCW Programme successfully revived LCW, but it has also expanded its positive impact to wider society. It aligns with China’s National Rural Revitalization Strategy and its green development plan, as well as the China National Biodiversity Strategy and Action Plan (2023-2030). It also contributes to the Kunming-Montreal Global Biodiversity Framework targets for 2030. Locally, after the success of the first four years of revitalisation efforts, in 2017, LCW became the second enclave site joining the Management Agreement (MA) Scheme (the first one was Sai Wan, which was once an enclave but had already been incorporated into the Sai Kung East Country Park). While the Management Agreement Scheme adopts a standardised framework with nature conservation as its primary objective, our Programme’s NbS approach—grounded in strong enabling collaborative governance—offers valuable insights and has become an important standard-setting reference for other MA projects. The 2017 Policy Address by Hong Kong’s Chief Executive highlighted LCW’s success as a model for rural revitalisation, allocating HK\$1 billion to establish the Countryside Conservation Office to coordinate cross-departmental rural conservation efforts (Government of the Hong Kong Special Administrative Region, 2017). The government has also adopted ‘urban-rural integration’ as a development principle for the Northern Metropolis (The Government of the Hong Kong Special Administrative Region of the People’s Republic of China, 2021). In the Hong Kong Biodiversity Strategy and Action Plan 2035 (BSAP 2035), revitalising remote countryside and conserving ecologically important sites under private ownership is listed among the priority actions for nature conservation (Environment and Ecology Bureau, The Government of the Hong Kong Special Administrative Region of the People’s Republic of China, 2025).

Internationally, the LCW Programme has actively sought recognition to raise societal awareness and garner support. The LCW community was a finalist for the UNDP Equator Prize in 2019. The LCW Programme received Special Recognition for Sustainable Development at the 2020 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation. Its successful approach has been widely acknowledged and commended by numerous local and international organisations. The model has become a benchmark for Hong Kong and serves as an inspiration beyond.



The LCW Programme’s contributions to sustainable development gained international recognition and awards.

Unpacking NbS—Some Reflections

The IUCN Guidelines provide a useful starting point for identifying NbS and helping to guide practical understandings. Such guidance is important as recent scholarship has cautioned that the concept can become too broad if it is applied to almost any project involving nature or greenery. The simplicity and breadth of the NbS concept have contributed to confusion over what should genuinely count as an NbS (Seddon et al., 2021). Equally, the centrality of assessing whether interventions truly work through ecosystem processes to address societal challenges is often overlooked or diluted amongst other metrics (Seddon et al., 2020). This is particularly problematic when considering engineering-based approaches, where the boundaries between an engineering solution and a genuine NbS are often blurred, risking greenwashing and inequities (Seddon et al., 2020; Sowińska-Świerkosz & García, 2022). Seddon et al. (2021) warn that NbS can be misused when they are reduced to simplified tree-planting schemes, treated as carbon-offset instruments, or framed in ways that neglect biodiversity and local rights.

Against these concerns, the significance of the LCW Programme lies in the way it goes beyond satisfying a broad definition of NbS and more closely reflects the deeper characteristics identified in the literature as central to a robust NbS. It uses the restoration and management of a biodiverse social-ecological landscape to address interconnected societal challenges through participatory and adaptive processes (Seddon et al., 2020; Seddon et al., 2021; Sowińska-Świerkosz & García, 2022).

Multifunctionality and social solutions orientated

NbS are characterised by multifunctionality, being particularly valuable when they address interdependent challenges such as ecosystem degradation, declining livelihoods, and reduced adaptive capacity together (Seddon et al., 2020; Dorst et al., 2019). They also are explicitly orientated to addressing complex social problems. This is important because the literature warns against calling interventions NbS where the societal challenge is vague or secondary (Hanson et al., 2020; Sowińska-Świerkosz & García, 2022). Well-designed NbS should build synergies across biodiversity, development, and climate-related goals (Seddon et al., 2021).

The LCW Programme is a multifunctional intervention where social and ecological revitalisation are mutually reinforcing. It addresses clearly defined societal challenges through the stewardship and revitalisation of a functioning social-ecological system. The social purpose was explicit from the outset and shaped through continued dialogue with relevant stakeholders. Ecological restoration was combined with community rebuilding, heritage conservation, local enterprise incubation, food production, environmental education, and new urban-rural relationships.

Ecosystems at the heart of NbS

A genuine NbS must be ecosystem-based in both design and outcome (Sowińska-Świerkosz & García, 2022) and biodiversity should not be treated as an optional co-benefit of NbS but as a foundation for long-term ecosystem functioning and resilience (Seddon et al., 2021). The increase in hybrid solutions, those employing engineering solutions or grey infrastructure alongside ecological elements, being classed as NbS has caused concerns about the NbS concept becoming diluted or compromised (Liu et al. 2021; Sowińska-Świerkosz & García, 2022). These hybrid approaches can shift focus from functioning ecosystems and biodiversity, potentially undermining the foundational principles of NbS (Seddon et al., 2021).

Rather than relying on superficial greening or symbolic landscape enhancement, the LCW Programme is strongly grounded in ecosystem processes and ecological integrity as reflected through its whole-catchment and cultural landscape approach, restoration of hydrological and agricultural linkages, species reintroduction and protection, and eco-farming and agroforestry practices.

Social justice and genuine participation

Successful NbS should be implemented with the meaningful engagement and consent of local communities and should respect cultural and ecological rights (Seddon et al., 2021). There can be, however, difficulty in determining when engagement is meaningful, risking tokenistic or shallow participation and entrenching inequalities (Kiss et al., 2021; Puskás et al., 2021; Wolff et al., 2022). One of the recurring criticisms in the literature is that NbS language can be attached to top-down projects that marginalise local voices.

The LCW Programme aligns closely with the literature’s emphasis on participatory, place-based, and context-sensitive governance, and embeds governance in dialogue, co-management, and shared decision-making. It evolved through repeated engagement with the Indigenous community, new settlers, farmers, researchers, NGOs, and other actors. Villagers’ concerns over land, rights, heritage, and livelihoods were integrated into the design and management of interventions.

Adaptive management and continued learning

Finally, NbS should be designed with an awareness of synergies, trade-offs, and changing social-ecological conditions (Seddon et al., 2021), making adaptation and dynamism in management essential (Seddon et al., 2020). Recent scholarship presents adaptive management and long-term learning as another core element of genuine NbS. Despite this, in major frameworks and practice it is often only partially or weakly recognised (Cohen-Shacham et al., 2019).

The LCW Programme’s strategies shifted over time in response to ecological monitoring, community feedback, labour constraints, and emerging opportunities. Crop choices changed, new socio-economic models were tested, and later phases expanded from farming rehabilitation to broader community economy development and neighbouring village revitalisation. This capacity for iteration and adjustment strengthens the case for the LCW Programme as a robust NbS, rather than a static project retrospectively given NbS language.

The LCW Programme as a Robust NbS

NbS Core Element	How the LCW Programme Performs
Specific societal challenge addressed	Clearly addresses rural decay, biodiversity risk, human health, and food security through concrete actions
Ecosystem services as primary mechanism	Benefits delivered through agroecology, irrigation restoration, habitat management, and whole-catchment stewardship
Biodiversity gains / ecosystem integrity	Baseline assessment, habitat management plan, long-term monitoring, species protection, improved connectivity
Equity, participation, safeguards	Indigenous engagement, revived village governance, regular meetings, inclusive platforms, women participation
Adaptive management	Monitoring, impact assessment, strategy adjustment, response to labour, crop and tourism pressures

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