From Knowledge to Action:
Strengthening Environmental Education for Hong Kong's Green Transformation

Summary for Policy and Practice

思匯 CIVIC EXCHANGE

HONG KONG 2050 IS NOW

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About Hong Kong 2050 is Now: Hong Kong 2050 is Now is a flagship programme under Civic Exchange, and was established jointly with the World Resources Institute, ADM Capital Foundation, and RS Group in 2019, with the aim of mobilising action to transition Hong Kong towards long term carbon neutrality by mid-century. For more information, please visit: hk2050isnow.org

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The full technical report provides the detailed research methodology, curriculum analysis, survey findings, stakeholder insights, and complete case studies.

Foreword

Professor
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Core Team Member, UNEP's Overshoot Report
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We need an urgent reality check—one that requires us all to do more!

At current rates, human-induced warming will reach 1.5°C around 2030. This does not mean we should give up on the long-term temperature goal agreed to in Paris in 2015. What is necessary is that the world rapidly gets onto an 'overshoot, peak, and decline' pathway that holds temperature rise to the lowest level possible, then brings it down by the end of the century, all while taking adaptation actions that reduce vulnerability to the current or expected impacts of climate change. This is by no means an acceptable or preferred pathway; it is simply the best remaining option. An overshoot pathway has profound implications for today's young people. The higher and longer the exceedance and peak stages of overshoot, the greater the risks to people and ecosystems, the more difficult adaptation becomes, and the greater the possibility of irreversible loss and adaptation limits being exceeded.

The decline stage that will help us keep 1.5°C in reach by the end of the century requires not only immediate and deep emissions reductions but also the removal of already emitted greenhouse gases. This means that societies must become better prepared to navigate increasing climate risks, complex trade-offs, and decisions under uncertainty. Education has an essential role in building that capacity.

Education must not be used to transfer responsibility for today's choices onto the next generation. It should, however, equip young people to understand the changing and complex world they are inheriting, evaluate evidence and possible responses, question decisions, participate meaningfully in shaping their communities as well as contribute to bold and ambitious action.

This report makes a valuable contribution by looking beyond the amount of environmental content taught in schools and asking how learning can be better connected and applied. Its emphasis on learning across subjects, repeated practical experience, and sustained support for teachers recognises that climate change and biodiversity loss do not fit neatly within conventional subject boundaries.

Hong Kong's dense, coastal, and subtropical environment provides an immediate setting in which students can investigate heat, extreme rainfall, biodiversity, and the relationship between urban development and natural systems. Nature-based Solutions offer one practical example of how students might examine a local challenge, understand ecological processes, assess competing priorities, and monitor the results of a response, allowing them to begin to understand how context-relevant action can contribute to global goals.

In an era of escalating climate risk, the ability to connect knowledge with judgement and action will be fundamental to growing society's adaptive capacity. I hope this report helps Hong Kong's educators, policymakers, and environmental organisations create the conditions in which young people can develop that ability and contribute confidently and responsibly to the difficult choices that lie ahead in an overshoot world. It is only by educating ourselves about the challenges that we can turn from bystanders into champions for change.

Professor
Wong Kam-sing, GBS, JP

Former Secretary for the Environment,
Hong Kong SAR Government (2012-2022)

During my tenure as Secretary for the Environment, I had the privilege of overseeing the development of climate action plans in Hong Kong after the Paris Agreement, including Hong Kong's Climate Action Plan 2030+ and Hong Kong's Climate Action Plan 2050 launched in 2017 and 2021, respectively. After my ten-year service as the 'environment minister', I am carrying on advocating climate action from various perspectives. This experience has reinforced my belief that policy and technology alone are not enough. A more successful green transformation also depends on people who understand the challenges, recognise their responsibilities, and are equipped to act.

This report asks an important question: how can environmental education help students translate knowledge into informed and responsible action? Its three priorities—strengthening curriculum integration, providing continuous and meaningful experiential learning, and strengthening support for teachers and schools—offer a practical way forward. I particularly welcome its emphasis on connecting and applying what is already taught, rather than simply adding more content to an already demanding curriculum.

Although I am no longer in a position to endorse the report's specific recommendations, I support its central direction. As Hong Kong advances its climate and biodiversity commitments, education and empowerment must remain at the heart of our efforts.

I hope this report encourages policymakers, educators, schools, environmental organisations, and communities to work together to equip young people with the knowledge, values, skills, and confidence to help build a carbon-neutral, climate-resilient, and nature-positive Hong Kong.

Abbreviation

CES	Citizenship, Economics, and Society
EDB	Education Bureau
ESD	Education for Sustainable Development
IUCN	International Union for Conservation of Nature
NbS	Nature-based Solutions
NSE	National Security Education
STEAM	Science, Technology, Engineering, the Arts, and Mathematics

Glossary

Education for Sustainable Development	An interdisciplinary approach promoted by UNESCO to empower people with knowledge, skills, values, and behaviours needed to support a sustainable future, like tackling topics such as climate change and biodiversity loss[1].
Environmental education	Learning that develops environmental knowledge, values, competencies, and opportunities for informed and responsible action[2].
Experiential learning	Learning through investigation, practical experience, reflection, and application in authentic contexts[3].
Interdisciplinary enquiry	Investigating real-world environmental issues across different subjects[4].
KEL network	An existing network that brings together environmental education organisations and committed teachers to exchange knowledge, resources, and effective practice[10].
Knowledge-to-action gap	The difference between knowing about an environmental issue and having the confidence, competencies, and opportunities to respond meaningfully[5].
National Security Education	Education promoted by the Hong Kong SAR Government on Hong Kong schools to help students to understand the importance and different domains of national security, which include ecological, resource security, and their related civic responsibilities[6].
Nature-based Solutions	Actions that protect, sustainably manage, or restore natural or modified ecosystems while addressing societal challenges and delivering benefits for both people and biodiversity[7].
Values Education	An integral part of whole person education that fosters positive values and attitudes through the curriculum and authentic learning experiences. It develops students' ability to identify and evaluate values, make informed and ethical judgements, and act responsibly when addressing real-world issues and future challenges[8].
Whole-school approach	An approach that connects sustainability values with curriculum, school leadership, campus management, student participation, and external partnerships[9].

Executive Summary

Hong Kong has strong foundations on which to advance education for sustainable development (ESD). Climate change, biodiversity conservation, and sustainable development already appear across the junior secondary curriculum. The city also benefits from an experienced teaching profession, established ESD programmes, and distinctive natural and urban environments that can serve as living classrooms. Education for sustainable development is also increasingly important for students' career development: as Hong Kong advances its green transformation, young people will need environmental knowledge, interdisciplinary problem-solving skills, and practical experience across a growing range of industries and professions.

The central challenge is therefore not simply a lack of environmental content. It is ensuring that students can connect what they learn across subjects, relate that knowledge to their values and responsibilities, and apply it through meaningful action.

This report asks:
How can education for sustainable development better equip students to translate knowledge into informed and responsible action?

What the Evidence Shows

This report draws on a review of junior secondary curricula and policy documents, teacher and stakeholder engagement, a student survey, selected school visits, and local and international case studies.

The evidence identifies three main challenges.

First, environmental content is present across Science, Geography, Citizenship, Economics, and Society (CES), Values Education, and National Security Education (NSE), but it remains dispersed. Connections among climate change, biodiversity, resource use, sustainable consumption, ecological security, and civic responsibility are not always made explicit.

Second, teachers value fieldwork, outdoor learning, interdisciplinary projects, and engagement with real environmental issues. However, limited curriculum time, insufficient practical resources, uneven professional capacity, and difficulties accessing sustained external support prevent schools from providing these experiences consistently.

Third, participating students generally valued environmental protection and preferred hands-on learning, but many did not feel adequately prepared to respond to future environmental challenges.

The findings of a survey of 156 students are as follows:

Average self-rating of understanding of climate change	**5.4 out of 10**
Average rating of the importance of protecting Hong Kong's biodiversity	**7.57 out of 10**
Students rating biodiversity protection at 7 or above	**79%**
Average rating of the richness of Hong Kong's biodiversity	**6.1 out of 10**
Students selecting hands-on activities as the most effective way to learn	**51%**
Students selecting school campaigns	**8.3%**
Students rating their preparedness for future climate challenges at 8 or above	**16%**
Students reporting a moderate level of preparedness	**54.5%**
Students rating of the influence of school environmental education on their own behaviour	**5.8 out of 10**

The survey was not designed to represent every secondary student in Hong Kong. Nevertheless, its findings, together with the curriculum review and teacher engagement, indicate a recurring gap between environmental awareness and students' confidence, competencies, and opportunities to act.

Three Priorities for Hong Kong

The following three system-wide priorities provide a practical bridge between the continued enhancement of basic education and Hong Kong's wider transition towards green living, ecological conservation, and urban resilience during the 2026–2030 planning cycle:

1. **Strengthen curriculum integration** by connecting existing environmental topics across subjects, values, and real-world challenges.

2. **Provide continuous and meaningful experiential learning** through effective instructional design, field enquiry, citizen science, service learning, interdisciplinary projects, and whole-school initiatives.

3. **Strengthen support for teachers and schools** through practical professional development, curriculum-linked resources, whole-school coordination, and sustained external partnerships.

These priorities do not require a new standalone environmental education subject. They focus on making better use of what already exists.

Learning from Existing Practice

Experience in Hong Kong and overseas suggests that environmental education is most effective when it is sustained, connected to the curriculum, and supported by interdisciplinary and outdoor enquiry, reflection, student participation, teacher development, whole-school coordination, and long-term partnerships.

The cases suggest that environmental education is most effective when it extends beyond one-off activities and is supported by curriculum links, structured reflection, technical expertise, and meaningful student participation.

Schools can apply these principles through many forms of environmental action. Solar panels, water-saving devices, recycling systems, and reductions in single-use product usage become meaningful learning opportunities when students investigate the underlying problem, participate in decisions, and monitor results. These established approaches remain important.

Education for sustainable development also contributes to Hong Kong's wider green transformation by preparing young people with the environmental understanding, competencies, and values needed to participate in an increasingly low-carbon, resource-efficient, and innovation-driven economy, including through emerging green career development.

Nature-based Solutions as a Potential Application

Within this wider range of approaches, this report highlights Nature-based Solutions (NbS) because they offer a distinctive opportunity to reconnect students with nature and demonstrate how healthy ecosystems support biodiversity, climate resilience and human wellbeing.

School-based NbS should be a sustained cycle of enquiry, action, and evaluation—not simply a planting activity. Students could collect baseline evidence, identify a challenge such as excessive heat, surface runoff, or habitat degradation, assess possible responses across subjects, and help design, implement, and maintain an intervention. Repeated measurements would allow them to evaluate benefits, identify trade-offs, and adapt the project over time.

Projects could enhance terrestrial, freshwater, or other habitats through shade trees, rain gardens, pond or wetland restoration, native planting, or pollinator habitats. This process brings the three priorities together through integrated learning, repeated practical experience, and sustained whole-school and technical support. It also complements established energy-, water-, and waste-related initiatives.

In 2025, Civic Exchange and the Education Bureau piloted Hong Kong's first small-scale NbS Campus Challenge. Early experience highlighted the need for greater technical guidance and implementation support. Further implementation and evaluation are required before conclusions can be drawn about its educational value, environmental performance, feasibility, or scalability.

Hong Kong does not primarily need more environmental curriculum content. It needs stronger connections between what students know, the responsibilities they recognise, and the actions they are equipped to take.

1. Why This Report?

Climate change, biodiversity loss, and environmental degradation require more than policy, technology, and infrastructure. They also require people who can understand complex environmental issues, evaluate possible responses, and contribute to practical solutions. Additionally, demand also grows for green skills across sectors, students require not only environmental knowledge but also systems thinking, collaboration, problem solving, and the ability to respond to emerging sustainability challenges. Education therefore plays an important role in equipping young people to support Hong Kong's green transformation while preparing them for further study and emerging green career opportunities[11].

This report has been prepared at the outset of Hong Kong's 2026 to 2030 planning cycle. The consultation document for Hong Kong's first Five-Year Plan[12] identifies the continued enhancement of basic education, including science, STEAM, national education, and Values Education, and the advancement of green living, a green and low-carbon transition, ecological conservation, biodiversity protection, and urban resilience as priorities. The recommendations in this report provide a practical bridge between these agendas by connecting existing curriculum content, giving students repeated opportunities to apply their learning, and strengthening the capacity of teachers and schools.

The recommendations are also consistent with national priorities under the 15th Five-Year Plan period, including high-quality education, practical learning, and ecological civilisation education. They further support the implementation of Hong Kong BSAP 2035[13] by promoting biodiversity knowledge, capacity building, and community participation.

In 2025, Civic Exchange published *Learning for a Greener Future: Accelerating Climate and Biodiversity Action Through Education and Empowerment*[14]. That report reviewed **482** publicly available **secondary school development plans** and found that only **27%** referred to sustainable development, climate, or biodiversity.

These findings suggested that environmental issues were not consistently reflected in school-level planning and strategic priorities.

They also raised a more fundamental question: **are students missing education for sustainable development, or is relevant content already present but insufficiently connected, applied, and translated into meaningful experiences?**

This follow-up report examines what students are expected to learn, how education for sustainable development is implemented, and whether students feel equipped to apply their knowledge.

How the Research Was Conducted

The report used a mixed-methods approach combining:

- a review of junior secondary curricula and policy documents;
- focus groups and other engagement with teachers, environmental educators, and stakeholders;
- a survey of 156 secondary school students;
- visits to six selected schools; and
- a review of local and international case studies.

The findings are intended to identify recurring patterns, barriers, and opportunities. The student survey was not based on a representative territory-wide sample, while participating teachers, stakeholders, and schools may have had a stronger-than-average interest in environmental education.

The research does not establish a causal relationship between school education and student behaviour or measure lasting behaviour change. It instead examines students' knowledge, sense of responsibility, confidence, competencies, and opportunities for informed action.

2. What the Evidence Shows

Environmental Content Is Present, but Learning Remains Fragmented

Junior secondary curricula were selected for review because they are undertaken by all students, whereas subject choices at the senior secondary level vary according to individual interests and are more strongly influenced by the Hong Kong Diploma of Secondary Education examination syllabus.

Our curriculum review finds that students encounter climate change, biodiversity conservation, ecosystems, natural hazards, resource management, sustainable consumption, and sustainable development across the junior secondary curricula.

Science, Geography, and CES provide an important knowledge base. Values Education and NSE also offer opportunities to connect environmental knowledge with stewardship, ecological security, responsible citizenship, and societal wellbeing.

However, these topics are often taught from separate disciplinary perspectives. Students might study ecosystems in Science, climate adaptation in Geography, and responsible consumption in CES without being explicitly supported to understand how these issues relate to one another.

Environmental challenges are inherently interconnected. Responding to climate change, biodiversity loss, and resource insecurity requires students to consider scientific, environmental, social, economic, and ethical dimensions together.

Subject	Environmental topics contained
Geography	1. Climate and Weather
	2. Sustainable Development
	3. Water Resources
	4. New Energy Vehicle (NEV)
	5. Forest Restoration
	6. Concepts of Climate Change
	7. Climate Policy
Science	1. Renewable Energy Sources
	2. Ecosystem
	3. Biodiversity and Conservation
	4. Carbon Cycle
	5. Low Carbon Living
	6. Acid Rain and Ocean Acidification
	7. Carbon Removal
CES	1. Green Consumption
	2. Civic Responsibility
	3. International Climate Agreements

No connection across subjects

Students learn different **pieces** but rarely connect them

The curriculum challenge is therefore not primarily an absence of content. It is limited integration and application.

Key finding:
Environmental content is already present, but students may not experience it as a coherent understanding of sustainability.

Table 1.

Illustrative four-theme cross-curricular mapping identified through the curriculum review

Common environmental theme	Existing curriculum entry points	Illustrative cross-curricular connection
Climate change and decarbonisation	**Geography:** climate change, sustainable cities, and industrial development; **Science:** fossil fuels, the carbon cycle, energy saving, and carbon removal; **CES:** green consumption, international cooperation, and future employment	Students could connect climate science with urban development, consumer choices, green industries, and collective responses to climate change.
Nature, biodiversity, and NbS	**Geography:** ecological conservation, natural hazards, and sustainable development; **Science:** ecosystems, biodiversity, and climate mitigation; **CES:** public finance and citizens' participation	Students could investigate how ecosystems help address challenges such as heat, flooding, or habitat loss, while considering ecological benefits, public choices, and trade-offs.
Sustainable consumption and resource use	**Geography:** water management and sustainable agriculture; **Science:** freshwater, renewable energy, and crude oil; **CES:** needs and wants, green consumption, and citizens' responsibilities	Students could examine the environmental and social impacts of food, water, energy, or consumer products across their life cycles and compare possible choices.
Waste reduction, management, and circularity	**Geography:** sustainable development and industry; **Science:** plastics and the environmental effects of materials; **CES:** waste reduction, resource conservation, employment, and innovation	Students could conduct a school waste audit, examine the causes and impacts of waste, and design and evaluate possible circular solutions.

Note: This table provides an illustrative synthesis rather than a complete account of curriculum content. The detailed curriculum mapping is provided in Appendix 3 of the technical report.

Teachers Value Experiential Learning but Face Practical Barriers

Participating teachers consistently emphasised the value of:

- field-based and outdoor learning;
- project-based and interdisciplinary learning;
- interactive workshops;
- investigation of real-world environmental issues; and
- opportunities for students to participate in environmental action.

Teachers believed these approaches could make education for sustainable development more relevant and help students apply classroom knowledge.

However, they also identified significant barriers, including:

- limited curriculum time;
- insufficient practical and curriculum-linked resources;
- limited professional-development opportunities;
- difficulties coordinating across subjects;
- dependence on committed individual teachers or school leaders; and
- difficulties accessing sustained external expertise and implementation support.

Teachers were not primarily asking for more environmental content. They were asking for the conditions needed to help students understand existing knowledge in context, connect it across subjects and with real-world issues, and consolidate their learning through practical application.

Key finding:
Teachers value experiential and action-oriented learning, but practical constraints prevent schools from providing it consistently.

Students Care about the Environment but Do Not Always Feel Prepared to Act

The student survey indicates that participating students generally held positive environmental values.

The importance of protecting Hong Kong's biodiversity received an average rating of 7.57 out of 10, and 79% of students rated its importance at 7 or above.

However, students rated the richness of Hong Kong's biodiversity at an average of only 6.1 out of 10. They also rated their understanding of climate change at an average of 5.4 out of 10. This suggests that support for environmental protection may not always be accompanied by a strong understanding of local biodiversity or environmental challenges.

Students showed a clear preference for experiential learning. When asked which approach they considered most effective, 51% selected hands-on activities such as field trips and project-based learning. A further 8.3% selected school campaigns.

Positive attitudes did not always translate into preparedness. Only 16% rated their preparedness to respond to future climate-related challenges at 8 or above, while 54.5% reported only a moderate level of preparedness.

Approximately 64% said that school education had exerted only a moderate influence on their environmental behaviour. These findings do not prove that school education directly determines student behaviour. Also, it shows exposure to environmental content and positive attitudes do not necessarily translate into confidence, competence, or regular action.

Key finding:
Participating students valued the environment and preferred experiential learning, but many did not feel adequately prepared to respond to future challenges.

3. The Knowledge-to-Action Gap

Taken together, the evidence points towards a shared knowledge-to-action gap:

- environmental knowledge is present but not always connected across subjects;
- teachers and students value experiential learning, but these opportunities are not consistently available, connected to the curriculum, or sustained over time;
- positive environmental attitudes do not necessarily translate into confidence or competence; and
- students may have insufficient opportunities to apply and reinforce their learning in authentic contexts.

Environmental education should therefore be understood as a progression:

Knowledge
Students understand climate change, biodiversity, ecosystem services, and sustainable development.

↓

Responsibility
Students develop stewardship, civic responsibility, and an understanding of their role in responding to environmental challenges.

↓

Action
Students investigate problems, assess possible responses, and apply their learning through projects and real-world action.

Knowledge remains essential, but knowledge alone does not prescribe a particular pro-environmental behaviour. Students need to examine evidence, consider different perspectives, understand competing priorities, and evaluate the consequences of different responses. Where programmes aim to support specific day-to-day behaviours, they should also draw on environmental psychology by identifying and removing barriers and using appropriate measures, such as voluntary commitments, prompts, feedback, incentives, and supportive community norms, to help students translate their intentions into sustained action[15].

The educational objective is to help students:

- understand why environmental issues matter;
- recognise individual, collective, and institutional responsibilities;
- believe that they can contribute to positive outcomes; and
- develop the competencies and confidence required for informed action.

4. Three Priorities for Hong Kong

Priority 1: Strengthen Curriculum Integration

Hong Kong should **connect existing environmental content more coherently rather than add substantial new material** to an already demanding curriculum.

Curriculum guidance should identify common themes across Science, Geography, CES, Values Education, NSE, and relevant STEAM learning. It should provide cross-references among related learning outcomes, shared enquiry questions, and examples of interdisciplinary activities.

However, stronger curriculum guidance alone will not overcome established subject silos. The Education Bureau should pilot a clear whole-school expectation for cross-curricular ESD education, supported by school leadership, designated coordination responsibilities, sufficient time and resources, and school-level accountability. Progress should be assessed collectively at the school level, not through the performance of individual teachers, and should focus on the quality, continuity, and real-world application of learning rather than the number of activities delivered.

Curriculum guidance should support teachers from different subjects to jointly design coherent, project-based learning journeys around shared real-world challenges, rather than simply identify links among separate learning outcomes.

For example, teachers could develop an integrated project on urban heat in which students measure and map temperatures around their school or neighbourhood, investigate how buildings, land use, and vegetation influence heat, examine the effects on health, wellbeing, and different communities, and design and evaluate possible responses. Although the project would draw on knowledge and methods from Science, Geography, CES, Values Education, and STEAM, students would experience it as one holistic enquiry rather than a series of separate subject-based tasks.

Values Education can help students consider why environmental protection matters and what responsibilities are held by individuals, communities, businesses, and governments.

National Security Education can connect education for sustainable development with ecological security, resource security, food security, and societal resilience. These connections should complement, not replace, the scientific, geographic, and social foundations of environmental education.

Priority Actions

Hong Kong should:

- build on the four common environmental themes identified through this curriculum review, as shown in Table 1, to make connections across relevant subjects and learning areas more explicit;
- make connections among related curriculum outcomes more explicit;
- develop shared enquiry questions and interdisciplinary teaching examples;
- make environmental responsibility an explicit learning objective where appropriate;
- use local and national examples to connect environmental protection with sustainable development and societal resilience; and
- pilot a school-level planning and accountability mechanism requiring schools to set measurable whole-school objectives for cross-curricular ESD, allocate leadership and resources, and report progress through existing school planning and evaluation processes.

Hong Kong does not need substantially more environmental content. It needs stronger connections among existing subjects, values, and real-world challenges.

Priority 2: Provide Continuous and Meaningful Experiential Learning

One field trip, campaign, or workshop is unlikely to develop lasting competence or confidence. Students need continuous opportunities to investigate environmental challenges, consider possible responses, participate in action, and reflect on the results.

- repeated across the junior secondary years;
- progressively challenging;
- interdisciplinary where appropriate;
- linked to authentic questions or visible outcomes; and
- accompanied by structured, intentional reflection.

Experiential learning should be:

- connected to defined curriculum outcomes;
- incorporated into normal curriculum time where possible;

Schools could organise experiences around three complementary dimensions:

Dimension	Purpose	Examples
Research	Investigate environmental conditions and interpret evidence	Field enquiry, experiments, biodiversity surveys, environmental monitoring, and data analysis
Ecosystems	Develop direct understanding of nature and ecological processes	Outdoor learning, habitat observation, ecosystem restoration, and campus biodiversity projects
Action	Design, implement, and evaluate informed responses	Waste reduction, sustainable-consumption projects, citizen science, community conservation, and NbS

Students should experience a six-stage learning cycle:

These approaches also complement the Education Bureau's Digital Education agenda, as environmental sensors, data analysis, and citizen-science platforms give students authentic ways to apply digital and data skills.

The revised Geography Curriculum Framework[16] provides a useful foundation by requiring at least one enquiry-based fieldwork activity each year for S1–S3 students from the 2027/28 school year. This creates an opportunity to connect Geography fieldwork with Science, CES, STEAM, and Values Education.

Around 40% of Hong Kong's land area is protected as country parks[17], with wetlands, mangroves, geoparks, urban parks, and other natural habitats providing diverse outdoor learning environments. This close integration of urban and natural environments provides accessible settings for studying biodiversity, ecosystem services, climate adaptation, and sustainable development.

Priority Actions

Hong Kong should:

- develop an experiential learning framework that defines clear learning objectives, curriculum links, progression, standards for quality, structured reflection, and evaluation;
- provide junior secondary students with sustained, curriculum-linked environmental experiences grounded in current, credible evidence and, where appropriate, professional expertise;
- prioritise the depth, quality, and continuity of learning over the number of activities or breadth of topics covered;
- connect fieldwork and school projects across subjects through integrated, project-based learning;
- use campuses and nearby natural areas as learning environments;

- pilot flexible approaches before establishing any territory-wide requirement; and
- evaluate students' contextual understanding, knowledge, skills, reflection, confidence, and quality of participation—not participation or activity numbers alone.

Experiential learning should develop competence and confidence, not simply increase the number of environmental activities.

Priority 3: Strengthen Support for Teachers and Schools

Curriculum guidance and experiential-learning expectations will have limited effect unless teachers and schools receive sustained practical support.

Professional development should help teachers:
- connect environmental themes across subjects;
- plan safe and purposeful fieldwork;
- facilitate enquiry and project-based learning;
- use local environmental data and case studies;
- guide student reflection and assess learning;
- have an understanding of conservation psychology;
- design appropriate experiential learning activities; and
- work effectively with external specialists.

Schools also need adaptable resources that clearly identify curriculum links, suitable year levels, time and material requirements, assessment approaches, and options for different school contexts.

Whole-school leadership is important. **School management can provide time, allocate resources, facilitate cross-subject collaboration**, and ensure that environmental initiatives do not depend entirely on one committed teacher.

These measures have been mentioned before, yet implementation on the ground remains patchy and highly dependent on individual enthusiasts. Hong Kong could address this by **recognising cross-curricular ESD delivery within the existing School Development and Accountability (SDA) framework**[18], alongside Values Education and NSE, so that schools as a whole, not individual teachers, have a clear institutional reason to protect time and coordination for it.

The existing KEL network provides an important foundation for exchanging experience, teaching resources, and effective practice. **The KEL Catalogue can also help schools identify external environmental education programmes and opportunities.**

Universities, environmental NGOs, government departments, and industry practitioners can provide technical expertise, field sites, teaching resources, and exposure to relevant knowledge and careers. These partnerships should build the capacity of teachers and schools rather than substitute for them.

Priority Actions

Hong Kong should:
- provide practical, implementation-focused professional development;
- develop adaptable, curriculum-linked resources;
- strengthen the existing KEL network and teacher learning circles;
- support whole-school coordination and leadership;
- recognise cross-curricular ESD delivery within school self-evaluation and planning, assessed at school level by EDB;
- promote platforms such as the KEL Catalogue to improve access to credible external partners and programmes;
- provide technical guidance for ecologically sound campus projects;
- offer targeted support for schools with different facilities and capacities; and
- use pilots to identify workload, resource, and implementation requirements before wider adoption.

Environmental education cannot depend on individual commitment alone. Teachers and schools need sustained institutional incentives, and professional and technical support.

5. Learning from Practice: Case Studies

The case studies reviewed for this report prioritise programmes involving secondary-aged students or approaches directly relevant to junior secondary education. Where a primary-school example is included, it is used only to illustrate a transferable aspect of practice, such as sustained outdoor learning, teacher support, or whole-school coordination, and not as a direct comparison or evidence of effectiveness at junior secondary level.

The cases offer practical lessons for curriculum integration, experiential learning, and teacher support. Any application in Hong Kong would need to reflect junior secondary curriculum objectives, students' developmental stage, school timetables, and assessment requirements.

Hong Kong Experience

Case study	Lead organisation	Approach	Main lesson	Subjects and areas integrated
Hiking Kei Chun Programme (山野生蹤)[19]	CCC Kei Chun Primary School	Progressive outdoor experiences connect different subjects with Hong Kong's landscapes and ecosystems.	Regular experiences that increase in depth and include reflection can build a lasting bond with nature than one-off outings.	Science, Geography, History, Chinese Language, Physical Education, Values Education
DLPK Soybean Exploration Journey[20]	Soyvestors, HKMA David Li Kwok Po College	Students participate in the soybean-growing cycle while examining soil health, biodiversity, climate change, food systems, and sustainable agriculture.	Learn how NbS connects several subjects with real-world environmental questions.	Science, Geography, STEAM, Values Education, CES
Nature Education Integrated Multiple Intelligences Programme[21]	Little Woods Nature Education	Nurtures gifted students with strong naturalist intelligence to becoming 'naturalist leaders' and share their knowledge with peers.	A peer to peer, train the trainer model builds a self-sustaining cycle of nature learning that does not depend only on teachers.	Biology and ecology, STEAM, Species identification, Peer teaching design
Nature-based Eco-literate Experiential Education Programme[22]	Kadoorie Farm and Botanic Garden	Partners with schools to co-design curriculum integrated, nature- based experiential learning, and teacher professional development to build eco literacy.	Long term partnerships, supported by curriculum resources and teacher capacity building, can embed experiential learning into everyday teaching and create lasting impacts.	Science, Values Education, STEAM, outdoor and inquiry-based learning, biodiversity, sustainability, teacher professional development

These cases demonstrate the value of:
- connecting activities with curriculum outcomes;
- sustaining engagement over time;
- providing meaningful roles for students;
- incorporating reflection and knowledge sharing;
- supporting teachers with practical resources; and
- maintaining partnerships with organisations that can provide relevant expertise.

They are illustrative examples rather than a representative assessment of environmental education across Hong Kong. More detailed descriptions are provided in the full technical report.

International Experience

International examples provide further lessons about the institutional conditions needed to sustain environmental education.

Example	Approach	Relevance to Hong Kong
Singapore Eco Stewardship Programme[23]	Connects curriculum, campus, culture, and community through a whole-school framework.	Sustainability can be strengthened through existing subjects and school operations without creating a separate subject.
Eco-Schools Programme in Wales[24]	Uses student-led committees, environmental reviews, action plans, and monitoring to maintain long-term participation.	Formal school structures can help initiatives continue beyond individual teachers or one-off activities.
Finland's Phenomenon-based Learning[25]	Provides opportunities for students to investigate real-world issues across subject boundaries.	Interdisciplinary learning can be introduced without redesigning the entire subject-based curriculum.
Paris OASIS Schoolyards Programme[26]	Transforms schoolyards into greener, climate-resilient spaces through student participation and NbS.	Campus improvements can support climate adaptation, biodiversity, outdoor learning, and community wellbeing simultaneously.

These international approaches should be adapted to Hong Kong's curriculum, school environments, and institutional context rather than copied directly.

The common lesson is that effective environmental education requires curriculum connections, student participation, teacher support, and institutional continuity.

6. NbS as a Potential Whole-School Application

NbS illustrate how the three priorities could work together in practice; they are not proposed as a separate system-wide priority.

Depending on the campus, possible applications could include native plant nurseries linked to habitat creation, shade tree planting to reduce urban heat, or rain gardens to manage surface runoff. These activities could allow students to investigate environmental challenges, apply knowledge from different subjects, and participate in designing and monitoring practical responses.

However, an initiative should not be considered an NbS simply because it involves plants or campus greening. A credible project should respond to an identified challenge, use ecological processes, benefit both people and biodiversity, involve students in design and monitoring, and consider feasibility, safety, maintenance, and possible trade-offs. Age-appropriate principles from the IUCN Global Standard for NbS could inform project design without turning the Standard into a school certification exercise.

In 2025, Civic Exchange and the Education Bureau piloted Hong Kong's first small-scale NbS Campus Challenge with four schools. Early experience indicated that schools need greater technical guidance and implementation support to translate ideas into ecologically sound, feasible, and maintainable projects.

If appropriately designed and supported, school-based NbS could serve as a living learning environment that connects curriculum knowledge with repeated practical action. Students could collect baseline data on campus heat, surface runoff, habitat quality, or resource use; identify a problem; help design and maintain an intervention; and measure whether it works. For example, shade trees could connect temperature monitoring and natural cooling with classroom energy-saving practices; rain gardens could link rainfall, runoff, and soil moisture with water-use audits and more efficient irrigation; and using compost in habitat enhancement could connect nutrient cycles with food-waste separation and waste reduction.

However, installing an NbS project alone will not necessarily change students' behaviour. The learning journey should include clear educational and behavioural objectives, meaningful student decision-making, repeated practice, feedback on measurable results, and structured reflection on how the same principles can be applied at school, at home, and in the community. Such projects could also improve campus habitats and biodiversity and, over time, contribute to a more connected network of ecological spaces across Hong Kong. Further supported implementation and evaluation are needed to determine whether this approach strengthens contextual understanding, encourages sustained day-to-day pro-environmental behaviour, delivers environmental benefits, and can be scaled effectively.

Possible school-based applications could include:

Local challenge	Possible application
Limited habitat and biodiversity	Native planting and plant nurseries, pollinator habitats, or small aquatic habitats
Urban heat	Shade trees, layered vegetation, or technically suitable green roofs and walls
Heavy rainfall and surface runoff	Rain gardens, bioswales, or permeable planting areas
Poor soil condition	Composting, mulching, food-growing systems, or soil restoration
Weak connection with local nature	Biodiversity trails, ecological monitoring, and citizen science

7. From Recommendations to Implementation: A 2026–2030 Pathway

Implementation should proceed progressively across the 2026–2030 planning period, with clear responsibilities, outputs, measures, and decision points. The three system-wide priorities should remain the central focus. School-based NbS should be treated as one potential application through which further evidence can be developed.

The final Hong Kong Five-Year Plan should recognise environmental education as a cross-cutting mechanism connecting the continued enhancement of basic education with the city's green and low-carbon transition.

Phase 1: Strengthen the Foundations (2026–27)

The first phase should:

- develop and test an integrated implementation model that defines a realistic set of learning objectives and aligns them with available curriculum time, teacher staffing, workload, and readiness, with differentiated support for schools at different starting points;
- prepare adaptable, curriculum-linked teaching resources;
- establish an experiential-learning framework;
- expand practical teacher professional development;
- strengthen the existing KEL network;
- improve partnerships with universities and NGOs working on environmental education;
- consolidate the early learning from the NbS Campus Challenge; and
- evaluate educational value, curriculum-time implications, teacher workload and readiness, staffing needs, and implementation support before determining what should be adopted more widely.

Phase 2: Apply and Support (2027–29)

The second phase should:

- apply interdisciplinary and experiential approaches in different school contexts;
- provide students with repeated opportunities for education for sustainable development;
- strengthen whole-school coordination;
- improve partnerships with universities, NGOs and other external organisations;
- where appropriate, provide schools with the technical and implementation support required to develop and maintain credible school-based NbS projects; and
- evaluate educational value, teacher workload, and implementation requirements.

Phase 3: Review and Decide (2029–30)

The third phase should:

- evaluate educational value, teacher workload, and implementation requirements;
- share effective practice through the KEL network;
- refine curriculum guidance, resources, and professional development;
- support schools in adapting approaches shown to be effective; and
- identify effective approaches, including school-based NbS, for continuation and expansion.

Indicative Action Framework

The following framework is indicative. Responsibilities, outputs, and measures should be refined with the relevant stakeholders before implementation.

Action	Indicative lead and partners	Principal output	Indicative measure	Decision point	Phase
Establish a coordinated implementation and reporting mechanism	Education Bureau, with the Environment and Ecology Bureau, AFCD, schools and relevant partners	A 2026–2030 workplan connecting environmental education with Hong Kong's green transition	Responsibilities, milestones, and reporting arrangements agreed	Are authority, resources, and accountability sufficient for implementation?	1
Translate the four-theme curriculum mapping into cross-curricular guidance	Education Bureau, subject specialists, and teachers	Guidance connecting relevant subjects and learning areas	Curriculum connections are made explicit and used by participating schools	Is the guidance practical across different subjects and school contexts?	1
Develop practical teaching resources	Education Bureau with teachers, universities, and NGOs	Adaptable, curriculum-linked resources	Teacher use, reported usefulness, and reduced preparation barriers	Which resources should be refined or adopted more widely?	1
Establish an experiential learning framework	Education Bureau with schools and external partners	Framework for repeated, curriculum-linked learning	Frequency, continuity, and quality of student experiences	Does the framework support meaningful progression across year levels?	1-2
Develop the evidence base for school-based NbS	Civic Exchange, Education Bureau, participating schools, and technical partners	Supported projects, implementation learning, and evaluation	Curriculum fit, student learning, technical feasibility, maintenance, and environmental outcomes	Is there sufficient evidence of value and feasibility to justify continuation or wider adoption?	1-2
Provide repeated and meaningful experiential learning opportunities	Participating schools	Students participate in progressive, curriculum-linked experiential learning experiences	Frequency and continuity of experiential learning opportunities	Is there evidence of increased environmental knowledge, stewardship, and actions?	1-3
Strengthen teacher support and the KEL network	Education Bureau, KEL network, and partners	Professional development and stronger peer exchange	Teacher confidence, practical application and network participation	Is support reaching schools with different levels of capacity?	1-3
Strengthen whole-school implementation	Participating schools with relevant partners	Leadership and cross-subject coordination arrangements	Continuity beyond individual teachers or one-off activities	What institutional support is required for sustained delivery?	2
Share learning and support wider adoption	Education Bureau, schools, KEL network, and partners	Shared resources, cases, and implementation lessons	Additional schools adapt approaches supported by evidence	Which approaches should be expanded, adapted or discontinued?	3

Monitoring should assess more than participation numbers. It should examine:

- curriculum connections;
- frequency and continuity of experiential learning;
- student understanding, competencies, confidence, and stewardship;
- teacher confidence and practical application;
- whole-school leadership and coordination;
- access to credible external expertise;
- educational and environmental outcomes, where relevant; and
- whether effective approaches can be adapted across different school contexts.

Conclusion

This report began with a simple but important question:

How can education for sustainable development better equip students to translate knowledge into informed and responsible action?

Hong Kong already has a broad environmental knowledge base within its curriculum. Relevant concepts, including climate change, biodiversity conservation, and sustainable development appear across the junior secondary curriculum. Values Education and National Security Education provide further opportunities to connect environmental knowledge with responsibility, stewardship, ecological security, and societal resilience.

The challenge is not primarily the availability of curriculum content. It is ensuring that students can connect learning across subjects and apply it through meaningful actions.

The curriculum review, teacher engagement, student survey, and school visits point towards three priorities:

1. strengthen curriculum integration;
2. provide repeated and meaningful experiential learning; and
3. strengthen support for teachers and schools.

Existing case studies show that Hong Kong can build on outdoor-learning programmes, campus projects, student-leadership approaches, and partnerships with environmental organisations. These examples offer useful lessons without assuming that every school should adopt the same model.

NbS illustrate how the three priorities can work together in practice. Early learning from the 2025 NbS Campus Challenge suggests that schools need stronger technical guidance and implementation support to translate ideas into ecologically sound, feasible, and maintainable projects.

When thoughtfully designed and adequately supported, school-based NbS can integrate curriculum linked learning with tangible improvements to campus habitats and biodiversity, while providing students with opportunities to develop environmental knowledge, confidence, and action competence. However, further implementation and evidence are required before conclusions can be drawn about its effectiveness or scalability.

Taken forward through Hong Kong's 2026–2030 planning cycle, these measures would connect the continued enhancement of basic education with the city's wider goals for green living, biodiversity conservation, and climate resilience.

Ultimately, the next chapter of education for sustainable development in Hong Kong is not about teaching more. It is about connecting what is already taught and strengthening the pathways between knowledge, values, responsibility, and action.

The success of education for sustainable development should not be judged solely by what students know, but by what they are equipped and empowered to do.

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In an era of escalating climate risk, the ability to connect knowledge with judgement and action will be fundamental to growing society's adaptive capacity.

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