



ASIAN DEVELOPMENT BANK BUSINESS OPPORTUNITIES FAIR 2026

21-24 SEPTEMBER 2026 | ADB HEADQUARTERS, MANILA



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Social Infrastructure Innovation Session

PechaKucha

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Social Infrastructure & Climate Resilience

Andéol Cadin

Infrastructure design & delivery
Policy advisory
Capacity building

Integrated Climate Responsive Architecture



Small changes, systemic effect, impact at scale



Connect on the Ground



Physical Pilot



Knowledge Transfer



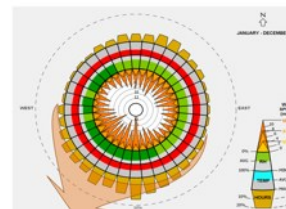
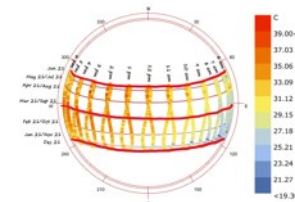
Vernacular Know-How

Vernacular climate response meets today's innovation

Cambodia passive cooling: knowledge built on what people already know.

Passive design in Cambodian architecture:

A look at past and current use of passive cooling strategies



Integrating local options in international methods

Local strategies, grounded in history, are collected and their principles (along examples) are integrated into methodological approaches used in today international best practices.

These have been organized following three categories according a passive design logical process:

- Site level
- Building level
- Material/Tech. level

TYPOLGY TECHNICAL ANALYSIS REPORT

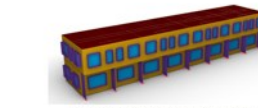
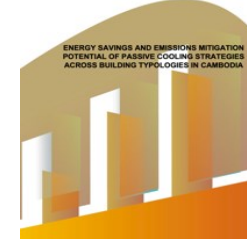


Figure 3 Building Energy Model: Affordable Housing Borey Type

The floor plans of the individual dwellings are shown in the figures below:

Building	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation
Borey Type	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N
	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N

Figure 4 Ground Floor Plan: Affordable Housing Borey Type

Building	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation
Borey Type	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N
	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N

Figure 5 First Floor Plan: Affordable Housing Borey Type



Figure 6 Results with Building Energy Model: Affordable Housing Borey Type

The floor plans of the individual dwellings are shown in the figures below:

Building	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation
Borey Type	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N
	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N

Figure 7 Results with Building Energy Model: Affordable Housing Borey Type

Building	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation
Borey Type	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N
	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N

Figure 8 Results with Building Energy Model: Affordable Housing Borey Type

Figure below:

Orientation

Performance Scenario

66 kWh/m²/year, Table 13

Table 13: Selection Matrix for Achieving High-Performance Scenario in Affordable Housing

Building	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation	Room	Area	Volume	Orientation
Borey Type	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N
	Living	12.00	36.00	N	Bedroom	10.00	30.00	N	Bathroom	4.00	12.00	N
	Kitchen	8.00	24.00	N	Dining	10.00	30.00	N	Storage	2.00	6.00	N

Passive Cooling Strategies =
Passive Design + Efficient Systems + NbS

Buildings Typologies Analysis
+ Integration of Vernacular Know-How

See it. Touch it. Access the Data.

*A real building, a real developer,
one full seasonal year of measurements.*

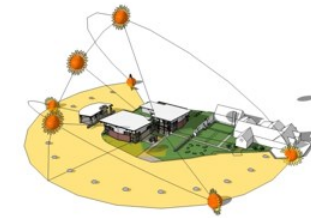


Physical Pilot - Local Data Record

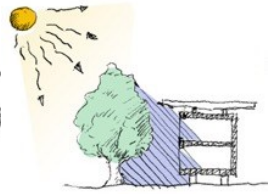
Real Cost-Benefits - Accessible Showcase

**Simple, affordable
design choices
combined, can often
deliver over half of
optimization
potential.**

*Missed at design
stage, they lock it
out: reaching
comfort then needs
more expensive
materials and
complex
technology.*



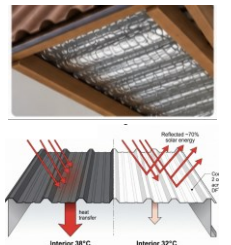
Building
Orientation



NbS
for Shading



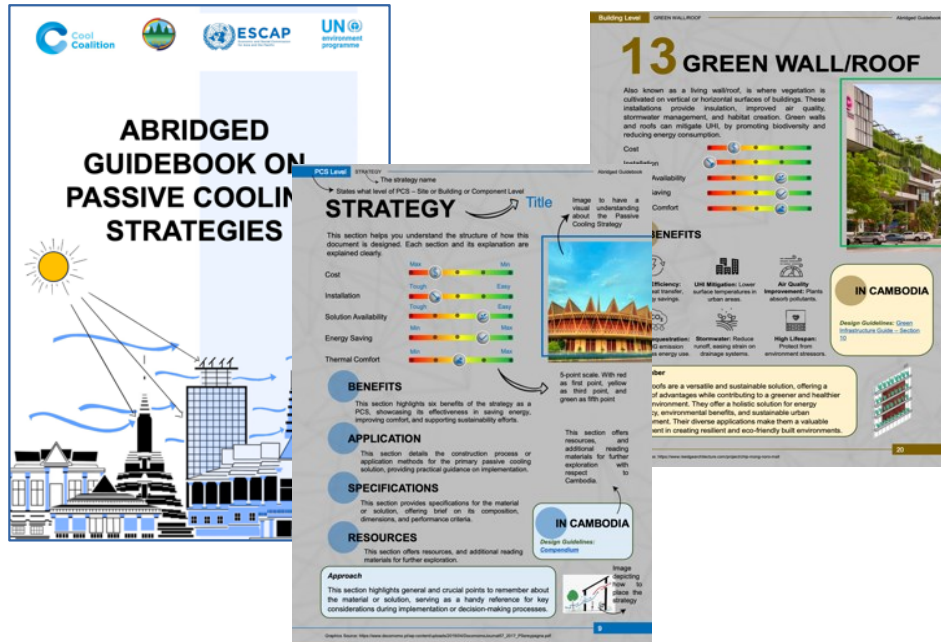
Attic heat
ventilation



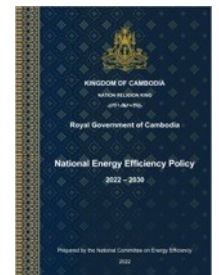
Roof
Simple Options

Evidence into policy, Tools and people.

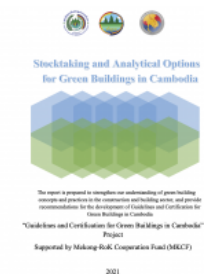
*Guidelines, practical handbook, trainings & ToT,
building code and NDC 3.0 integration*



NCAP



NEEP



GB-KH



NDC 3.0

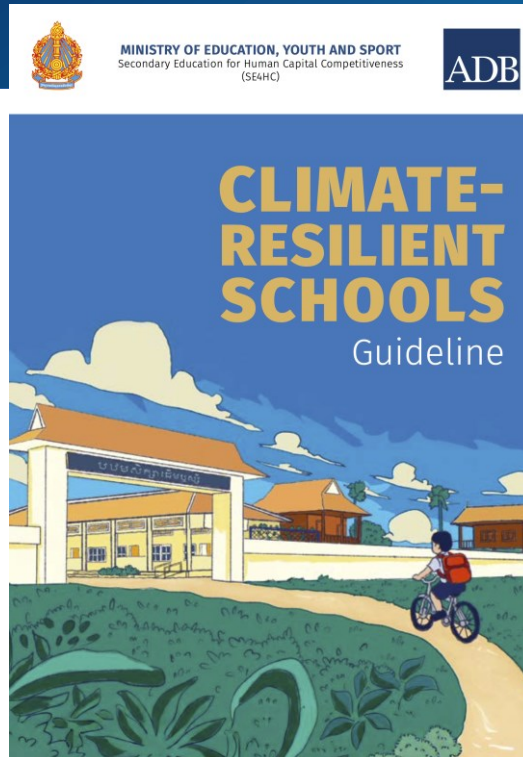
Handbook - Practitioners
Practical Daily-Work Tools

Technical training
ToT and CoP workshops

Policy integration
Documents issued

Minimum design requirements, For every school.

New & retrofit reach the same standards through the time -
Affordable, practical, upgradeable & scalable



Topic I
Site & Location



Topic VI
Water Management, WASH & Waste



Topic II
Building Envelope



Topic VII
Energy & Active Systems



Topic III
Natural Ventilation
& Indoor Environment



Topic VIII
Greening & Outdoor Environment



Topic IV
Structural Resilience



Topic IX
Safety & Accessibility



Topic V
Materials



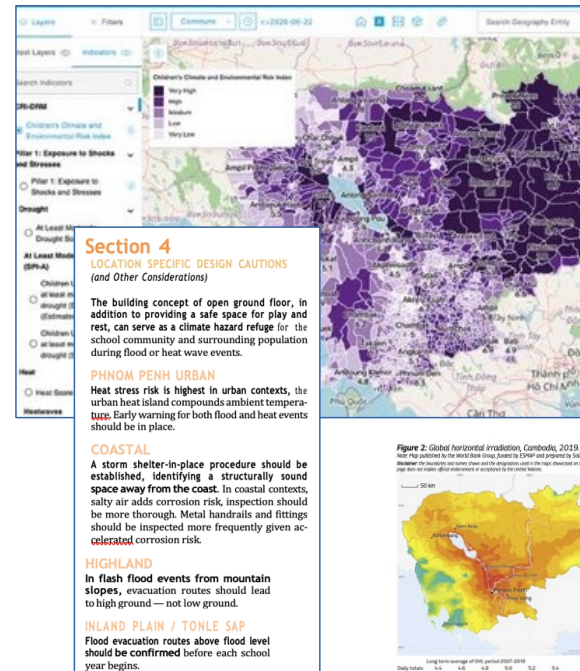
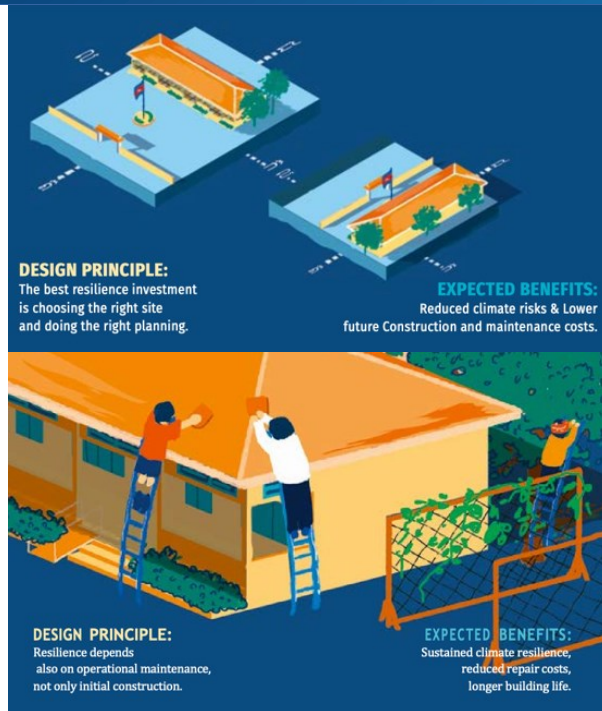
Topic X
Operations & Maintenance

Climate resilient schools Guidelines
Minimum baselines for all new schools built

10 Topics Guidance
10 clear chapters to master minimum baselines

Tools people Actually use.

Site selection, orientation, materials, inclusive design, check-lists, context cautions, hazard matrix connection



Section 3 MINIMUM DESIGN REQUIREMENTS

- Hazard screening completed before site confirmed.
- Sun path and wind analysis conducted before finalising compound layout.
- Long building walls oriented north-south where possible, while east-west orientation are addressed with shading integrated from the start.
- Wind corridors preserved between blocks.
- Ground cover on all non-built, non-circulation areas.
- Drainage channels covered on all circulation paths.
- Safe year-round access route confirmed.
- A long term master plan is defined & space is organized and reserved in compound plan for future expansion.

Gender-Inclusive / Safe Criteria	Technical Specification / Guidance	Status	Scoring Yes= 2 points Partially= 1 point No= 0 points
WASH & Menstrual Hygiene Management (MHM)			
1 Gender-Separated Entrance & Lockable Doors	Toilet blocks feature dedicated, separate entrances for boys and girls with fully functional lockable doors on all cabins for safety and privacy.	☐ Yes ☐ Partially ☐ No	
2 Menstrual Hygiene Disposal Bins	A covered, hygiene-dedicated disposal bin is installed in every girl's toilet cabin.	☐ Yes ☐ Partially ☐ No	
3 Girl-to-Toilet Cabin Ratio Parity	Minimum standard of 5 toilet cabins per 100 girls provided to maintain parity with boys' provision (2 latrines + 3 urinals per 100).	☐ Yes ☐ Partially ☐ No	
4 Accessible Latrines for Disability Inclusivity	Each cabin: 850mm+ door width, outward-opening door, internal maneuvering space, and grab rails on both sides.	☐ Yes ☐ Partially ☐ No	
5 Handwashing Stations & Accessibility	Handwashing point with continuous water and soap adjacent to every block. Easy-grip tap fittings for children with disabilities.	☐ Yes ☐ Partially ☐ No	

Evaluation Summary

- Total Points Earned: _____ / 30 Points
- Compliance Score (%): _____%
- Final GESI Rating:
 - [] Fully GESI-Compliant (85%–100%)
 - [] Partially GESI-Compliant (60%–84%)
 - [] Non-Compliant (<60%)

Grounded illustrations
for immediate understanding

Climate matrix
& context cautions

Minimum
requirements

Check-lists
MRV Tools

Grounded At every level.

*Site visits, consultations, local artist visuals,
regional expert endorsement.*



In the field

With local people
for local people



Grounded process

Local Artist - Architect original illustrations
Local stakeholders Consultations

No magic : honest collaboration on the ground, Step by step, up to scale.

Small, effective, practical, synchronized, grounded, replicable.



INDICATORS

Energy, asset lifespan, operational costs, student productivity, health recovery, community interaction

MEASURES

KPIs measured and verifiable, so finance can support (climate finance, ESG, Insurances...)





Climate Resilient Infrastructure Specialist

Thanks for your attention



Andeol Cadin
Consulting services
Integrated Climate Responsive Architecture



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VALUE FOR MONEY: DRIVING QUALITY INFRASTRUCTURE

Human and Social Development

Social Infrastructure Innovation Session

23 September 2026 | Auditorium Hall 1