SEAMEO CENTRES POLICY RESEARCH NETWORK (CPRN) SUMMIT 2025

Building Bridges to a Sustainable Future: Inclusive Collaboration and Innovation in Education, Science, and Culture

ADOPTION OF BIODIVERSITY INCLUSION STUDY: BASELINE DATA FOR SELECTED ASEAN COUNTRIES AND JAPAN

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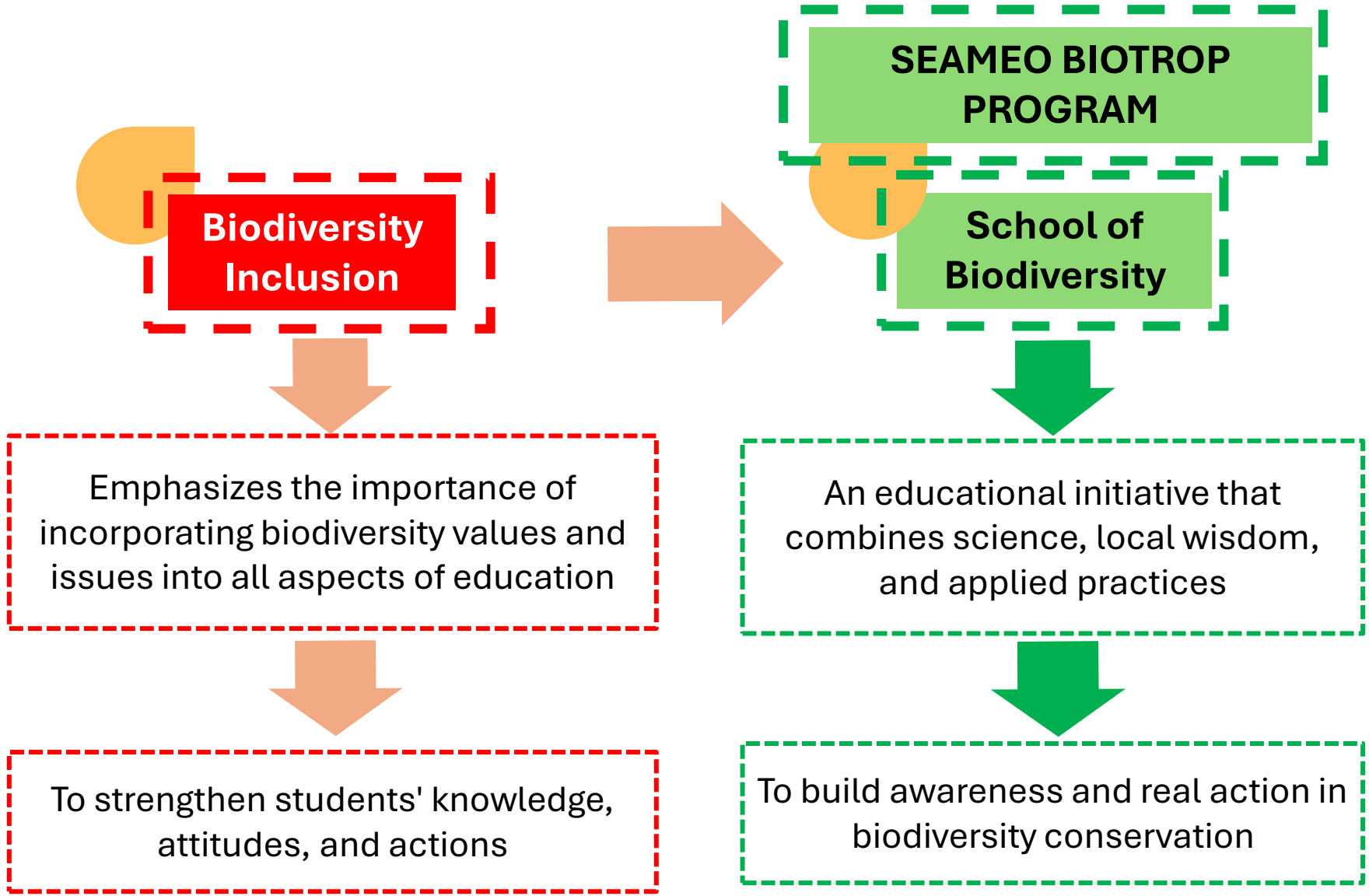


"These two concepts aim to form a generation that cares, has an environmental perspective, and is ready to contribute to sustainability"

BIOTROP MISSION

INNOVATION PRODUCT

APPLIED SCIENCE EDUCATION

COMPETENT HUMAN RESOURCE

BIODIVERSITY

ISSUE

1. Environmental degradation,
2. climate change that disrupts food security
3. land agriculture and forest area is reduced due to land clearing
4. occurrence of new diseases

no systematic comparative data across SEA and Japan to measure (KAP) towards biodiversity issues

CPRN Study

Biodiversity Inclusion in the Environmental Education: in Indonesia & ASEAN Level

Published in 2023:
1 National Policy Brief

REGIONAL

1. 19% answered keeping the environment clean is an easily effort to save biodiversity
2. 32% answered that the most preferred learning media for studying biodiversity is Practical or field activities

NATIONAL

1. 21% Sosmed to save biodiversity
2. 23% students learn “biodiversity ” in formal education

Objectives

1) **General:**

To promote and increase students' awareness of tropical biodiversity in supporting the inclusion of environmental education in senior high school/vocational school students at the ASEAN level.

2) **Specific:**

- To assess students' awareness of tropical biodiversity,
- To find out the interest in biodiversity education in ASEAN related to biodiversity and environmental issues,
- To produce policy recommendations regarding the inclusion of "biodiversity" material through environmental education among high schools in ASEAN countries level.

Methodology

- 4 selected countries committed to adopt SEAMEO BIOTROP's Biodiversity Inclusion study: SEAMEO CED (Lao PDR), SEAMEO VOCHTECH (Brunei Darussalam), Senior High School at Sakado, University Tsukuba (Japan), & SEAMEO RECSAM (Malaysia)
- By adopting SEAMEO BIOTROP Biodiversity Inclusion study, selected countries, those selected countries only complete 22% of the total stages, because 88% of steps had been completed by SEAMEO BIOTROP in 2023

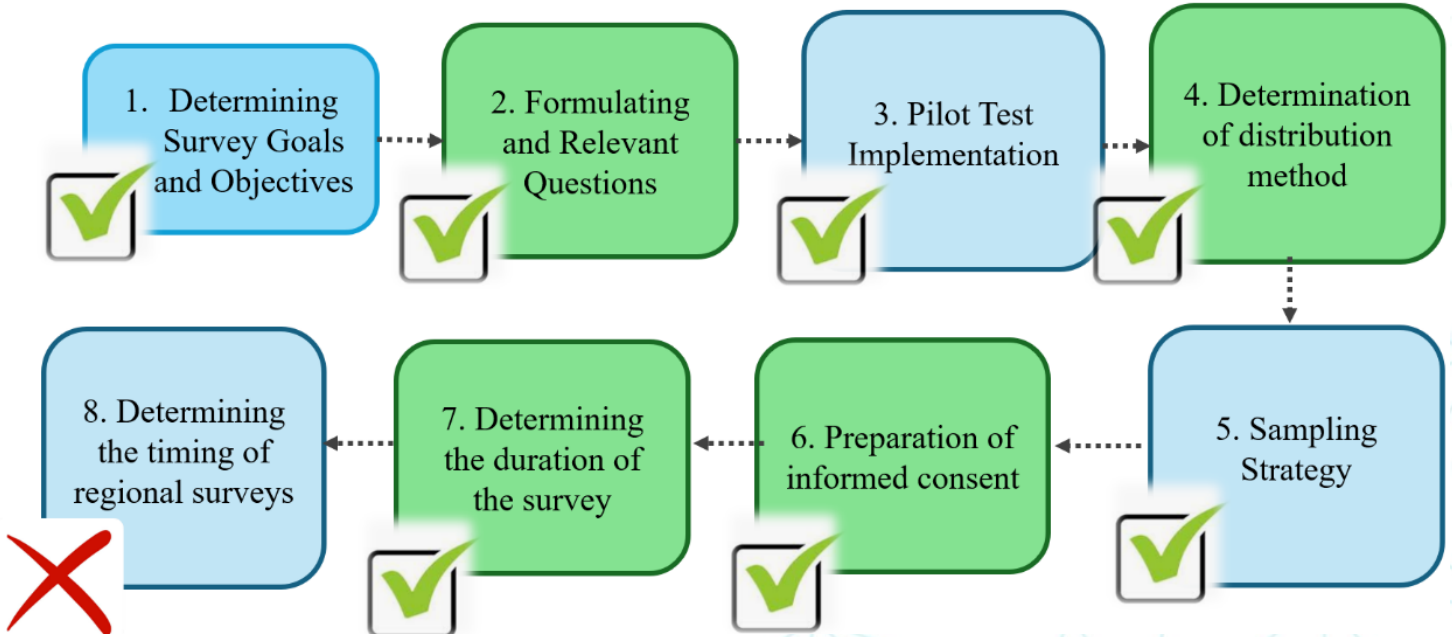


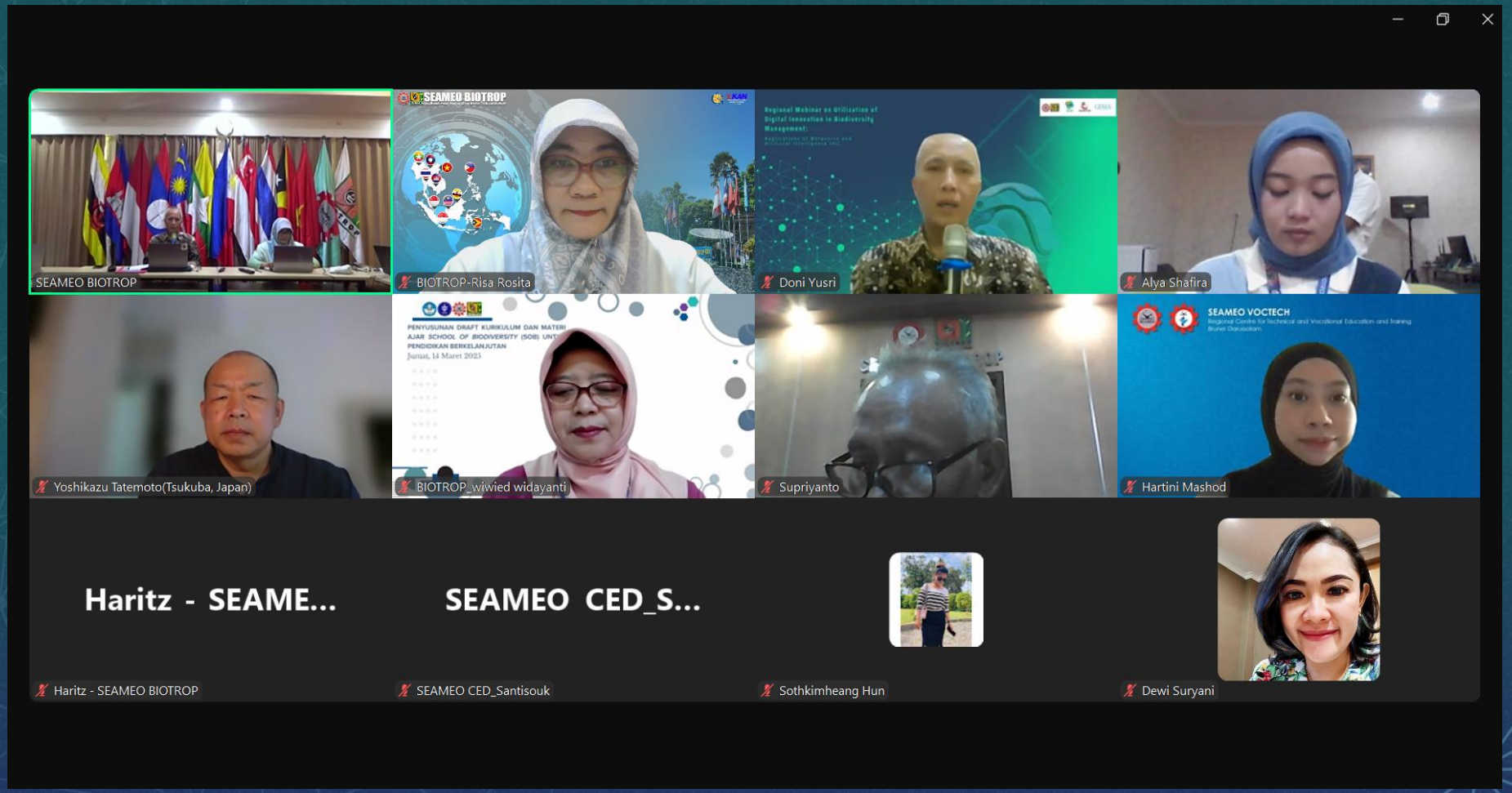
Figure 1. Research process flow chart on Adaption Biodiversity Inclusion Study

Methodology

A. PREPARATION AND INITIAL PLANNING

1) SEAMEO BIOTROP sending study proposals and invitation letters to become partners who will adopt the Adoption of Biodiversity Inclusion Study
2) Identification of participating countries and institutions
3) Strengthening the commitment of SEAMEO Centers (BIOTROP, CED, VOCTECH, RECSAM) and Sakado High School, Japan)
4) Joint Meeting with partners (BIOTROP, VOCTECH, CED, RECSAM) and Senior High School at Sakado, University Tsukuba (Japan) for more in-depth socialization of study indicators and survey instruments (general and KAP survey) that have been validated as well as the study funding mechanism. • Technical orientation to focal points and enumerators in each country

Methodology



- Online meeting SEAMEO BIOTROP, SEAMEO CED (Lao PDR), SEAMEO VOCHTECH (Brunei Darussalam),Senior High School at Sakado, University Tsukuba (Japan)
- Communication via email, social media with SEAMEO RECSAM

Methodology

B. BASELINE DATA COLLECTION

- **Sampling** used probability sampling because the sample population is already known (will calculate using the Solvin method). Samples will be randomly selected from schools located in the urban or rural area of each country.
- **Samples** are from schools located in the **urban** or **rural** area of each country.
- Respondents consisted of public and private high school/vocational school students in urban and rural areas in Bogor (Indonesia), Sakado (Japan), and Vientiane (Laos), with **inclusive criteria**: have received learning about biodiversity and the environment and were able to communicate well
- **Data Collection** used Questionnaires which have been measured for validity and reliability test from SEAMEO BIOTROP
    1) Variables that will be collected are related: Demographics, including: age, gender, class level of High school/Vocational students
    2) General information: knowledge of biodiversity, biodiversity in educational settings and the role of SDGs in biodiversity
    3) Measurement of KAP (Knowledge-Attitude-Practice)/(knowledge, attitudes and behavior)

Methodology

C. SURVEY IMPLEMENTATION

- Partners only need to send the survey results and provide student samples according to the required population.
- The survey will be distributed offline or online using Google Forms.
- Before the survey there will be socialization regarding detailed information for subjects, statements of willingness, filling out the biodiversity survey toward partners

D. DATA ANALYSIS

- Total respondents were 220 students (Bogor city, Indonesia=100; Sakado High School, Japan=53 and Laos PDR=67). The data will be analyzed by SEAMEO BIOTROP using SPSS version 27 to conclude the baseline data for the Biodiversity Inclusion Asia - ASEAN level study.

Methodology

E. DISSEMINATION OF RESULTS

- Regional seminars (CPRN Summit 03-04 July, 2025)
- Preparation of best practices and integrative models such as Training of Trainers for teachers, partnerships with communities to increase environmental awareness of students/teachers in local conservation.
- Publication (policy brief).

Findings

1. KAP Analysis Result All countries (Indonesia, Laos, Japan)

- ❑ Knowledge scored 53% (low), indicating limited understanding of biodiversity.
- ❑ Attitude reached 80% (moderate), showing awareness and willingness to engage.
- ❑ Practice was 62% (moderate), meaning some eco-friendly actions occur, but not yet consistently".

Table 1. Regional Result of KAP (Knowledge-Attitude-Practice) Dimension of Adoption of Biodiversity Inclusion Study: Baseline Data for Selected Countries (Indonesia, Japan, Lao PDR)

Status	Parameter	Group	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Knowledge	**Low**	**117**	**53**	**53**	**53**
		Moderate	73	33	33	86
		High	30	14	14	100
		Total	220	100	100	
Valid	Attitude	Low	16	7	7	7
		Moderate	**176**	**80**	**80**	**87**
		High	28	13	13	100
		Total	220	100	100	
Valid	Practice	**Low**	48	22	22	22
		Moderate	**136**	**62**	**62**	**84**
		High	36	16	16	100
		Total	220	100	100	

Findings

2. KAP Analysis Result All each country

- Indonesia excels in knowledge, but there is a big gap in attitudes and practices. The solution is not just adding information, but strengthening direct experience, the influence of social values, and support for the learning environment.
- Japan can act as a role model for other countries through: Student/teacher exchanges, regional training, Documentation of good practices.
- Laos needs basic literacy and behavioural habits.

Table 2. KAP Analysis Per Country (Indonesia, Japan and Laos).

Name of Country	Knowledge (%)	K Category	Attitude (%)	A Category	Practice (%)	P Category	General Category
Indonesia	54.0	High	40.0	Low	37.0	Low	Imbalance between knowledge and behaviour; knowledge is not internalized into attitudes and practices.
Japan	77.4	Moderate	79.2	Moderate	81.1	Moderate	Stable in all aspects, demonstrating consistent implementation of biodiversity education.
Laos	47.8	Moderate	61.2	Moderate	50.7	Moderate	Moderate level in all aspects; has potential for improvement through applied education.

Findings

Table 3. Gap Analysis Between Countries Based on KAP Category

Aspects	Highest Country	Lowest Country	GAP	Implications
Knowledge	Indonesia (54%) (High)	Laos (47.8%) (Moderate)	6.2%	There is a need to strengthen basic biodiversity literacy in Laos.
Attitude	Japan (79.2%) (Moderate)	Indonesia (40%) (Low)	39.2%	Indonesia needs a value and awareness-building approach.
Practice	Japan (81.1%) (Moderate)	Indonesia (37%) (Low)	44.1%	Indonesia needs to focus on applied activities for real behavioural change.

3. Gap analysis among countries

- The highest gap occurs in the aspects of attitudes and practices especially between Indonesia and Japan. This emphasizes the importance of strengthening the affective and behavioral aspects through contextual, applied, and participatory approaches.
- The quality of educational biodiversity is not evenly distributed, and interventions that are tailored to the local conditions of each country are still needed.
- Japan can be used as a model for good practice, especially in terms of consistency between knowledge, attitudes, and practices.
- Indonesia and Laos require strengthening in the attitude and practice dimensions.

Conclusion

KAP levels vary across countries, reflecting differences in educational approaches and the application of environmental values:

1) Japan showed the most consistent and highest results across all three aspects (K: 77.4%, A: 79.2%, P: 81.1%), indicating that biodiversity education has been well internalized in the learning system.
2) Indonesia has a medium knowledge score (54%), but attitude (40%) and practice (37%) are relatively low. This indicates a gap between understanding and application, indicating the need for learning strategies that encourage real changes in attitudes and behavior.
3) Laos is in the medium category across all aspects (K: 47.8%, A: 61.2%, P: 50.7%), with potential for further strengthening, especially in basic biodiversity literacy.
4) Based on the regional results of the analysis of questions related to the general information presented, it stated keeping the environment clean is an effort that we can easily do to save biodiversity

Recommendations

1) Strengthening real practices through action-based programs such as Teaching Factory, green schools, or conservation activities.
2) Integration of biodiversity values into the curriculum so that students' positive attitudes are more motivated to be implemented.
3) Regional collaboration is essential, to reduce the gap through: (1) transfer of knowledge and experience; (2) Cross-country training programs; (3) Joint curriculum development; (4) Establishment of an ASEAN biodiversity school network.

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