

Improving the Environment of a Thai Basin Through Education initiatives

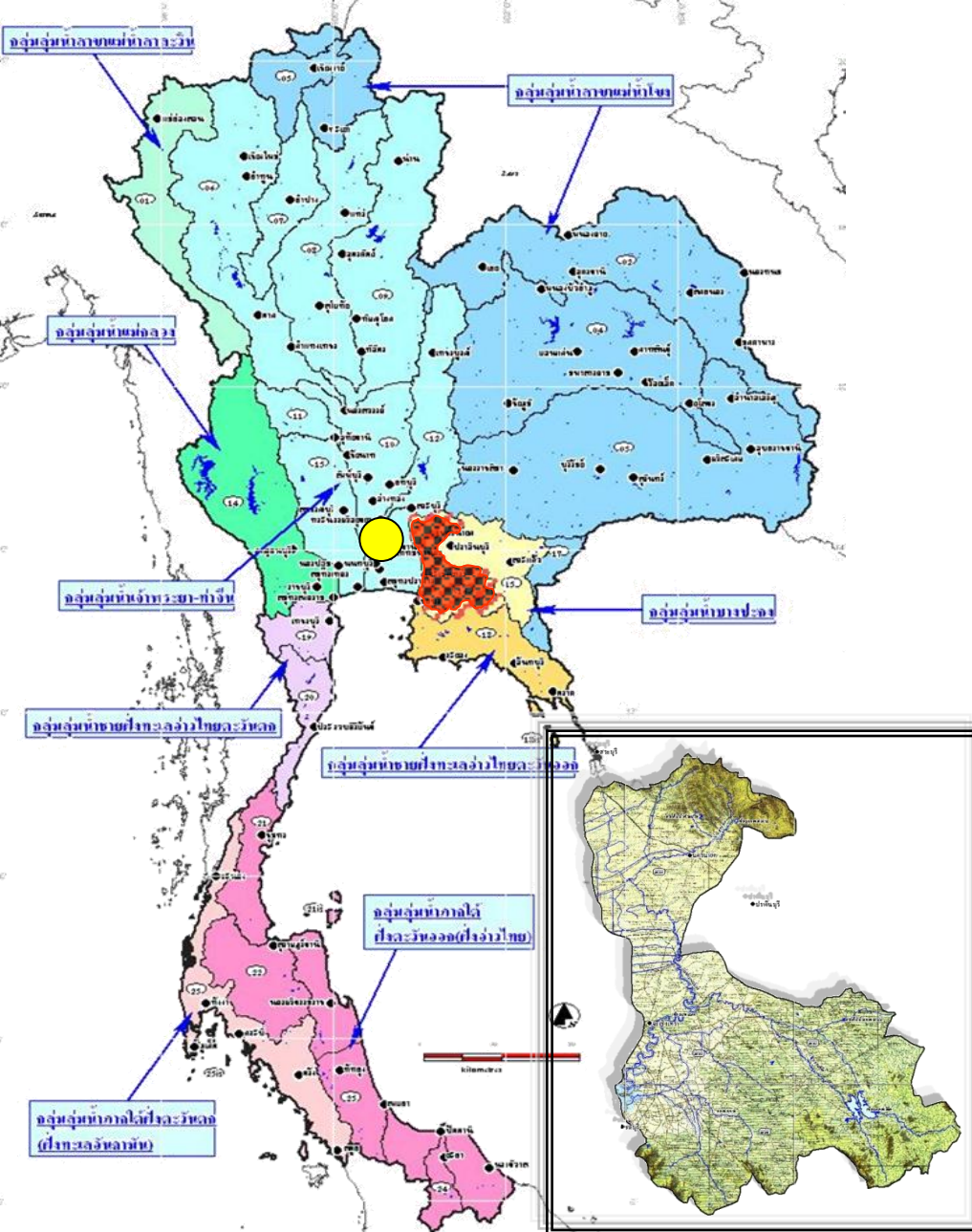


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Bangpakong Basin

The Bangpakong Basin, in the central-eastern part of Thailand, is vital to Thailand's agricultural production and to the country's industrial development. Large-scale and multiple users have led to degradation of the basin's resources, significant environmental problems, and decreasing water quality.



- Implementation of Eastern Seaboard (ESB) Development Program since 1982 aimed at regional development for national benefits

- ESB has been pushed by all National Economic and Social Development Plans

- Bangpakong Basin has seven major Industrial Estates built under the ESB covering approx 70 sqkm.

Thai industrialisation 1982 -





Water Quality



Air Pollution



River salinity

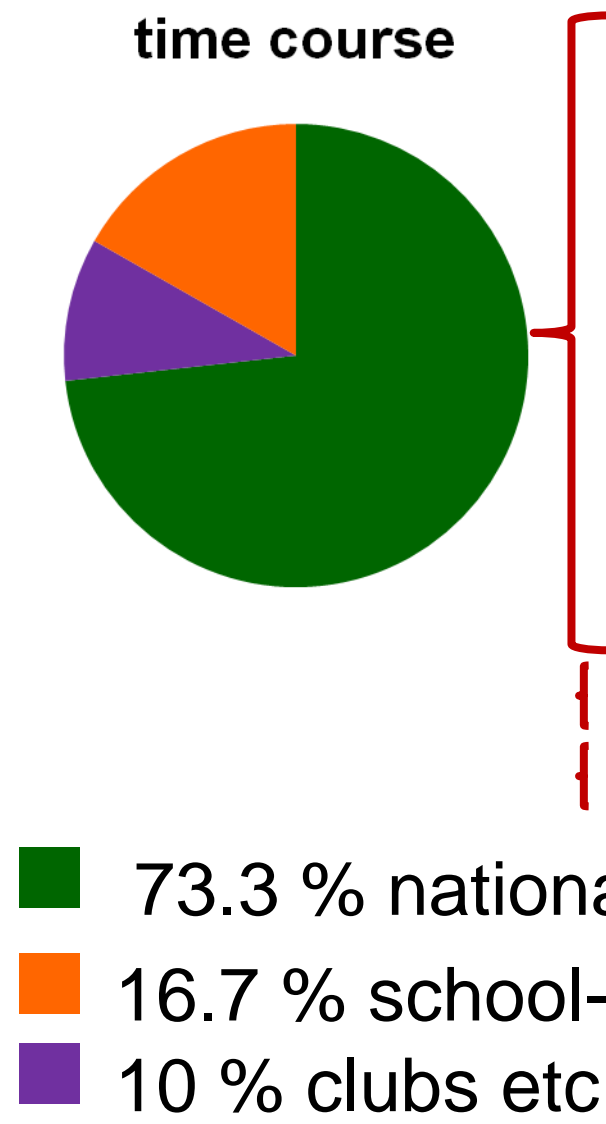
**Industrial
Waste**



**Forest & habitat
destruction**



Thailand's Curriculum Structure



กลุ่มสาระการเรียนรู้ / กิจกรรม	เวลาเรียน			
	ระดับมัธยมศึกษาตอนต้น			ระดับมัธยมศึกษา
	ม.1	ม.2	ม.3	ตอนปลาย
●กลุ่มสาระการเรียนรู้ภาษาไทย	120 (3 นก.)	120 (3 นก.)	120 (3 นก.)	240 (6 นก.)
คณิตศาสตร์	120 (3 นก.)	120 (3 นก.)	120 (3 นก.)	240 (6 นก.)
วิทยาศาสตร์	120 (3 นก.)	120 (3 นก.)	120 (3 นก.)	240 (6 นก.)
สังคมศึกษา ศาสนา และวัฒนธรรม	120 (3 นก.)	120 (3 นก.)	120 (3 นก.)	240 (6 นก.)
-ประวัติศาสตร์	40 (1 นก.)	40 (1 นก.)	40 (1นก.)	80 (2 นก.)
สุขศึกษาและพลศึกษา	80 (2 นก.)	80 (2 นก.)	80 (2 นก.)	120 (3 นก.)
ศิลปะ	80 (2 นก.)	80 (2 นก.)	80 (2 นก.)	120 (3 นก.)
การงานอาชีพและเทคโนโลยี	80 (2 นก.)	80 (2 นก.)	80 (2 นก.)	120 (3 นก.)
ภาษาต่างประเทศ	120 (3 นก.)	120 (3 นก.)	120 (3 นก.)	240 (6 นก.)
รวมเวลาเรียนวิชาพื้นฐาน	880 (22 นก.)	880 (22 นก.)	880 (22 นก.)	1,640 (41 นก.)
●กิจกรรมพัฒนาผู้เรียน	120	120	120	360
●รายวิชา / กิจกรรมที่สถานศึกษาจัดเพิ่มเติมตามความพร้อมและจุดเน้น	ปีละไม่เกิน 200 ชั่วโมง			ไม่น้อยกว่า 1,600 ชั่วโมง
รวมเวลาเรียนทั้งหมด	ไม่เกิน 1,200 ชั่วโมง / ปี			รวม 3 ปี ไม่น้อยกว่า 3,600 ชั่วโมง

EE in the Thailand Education System

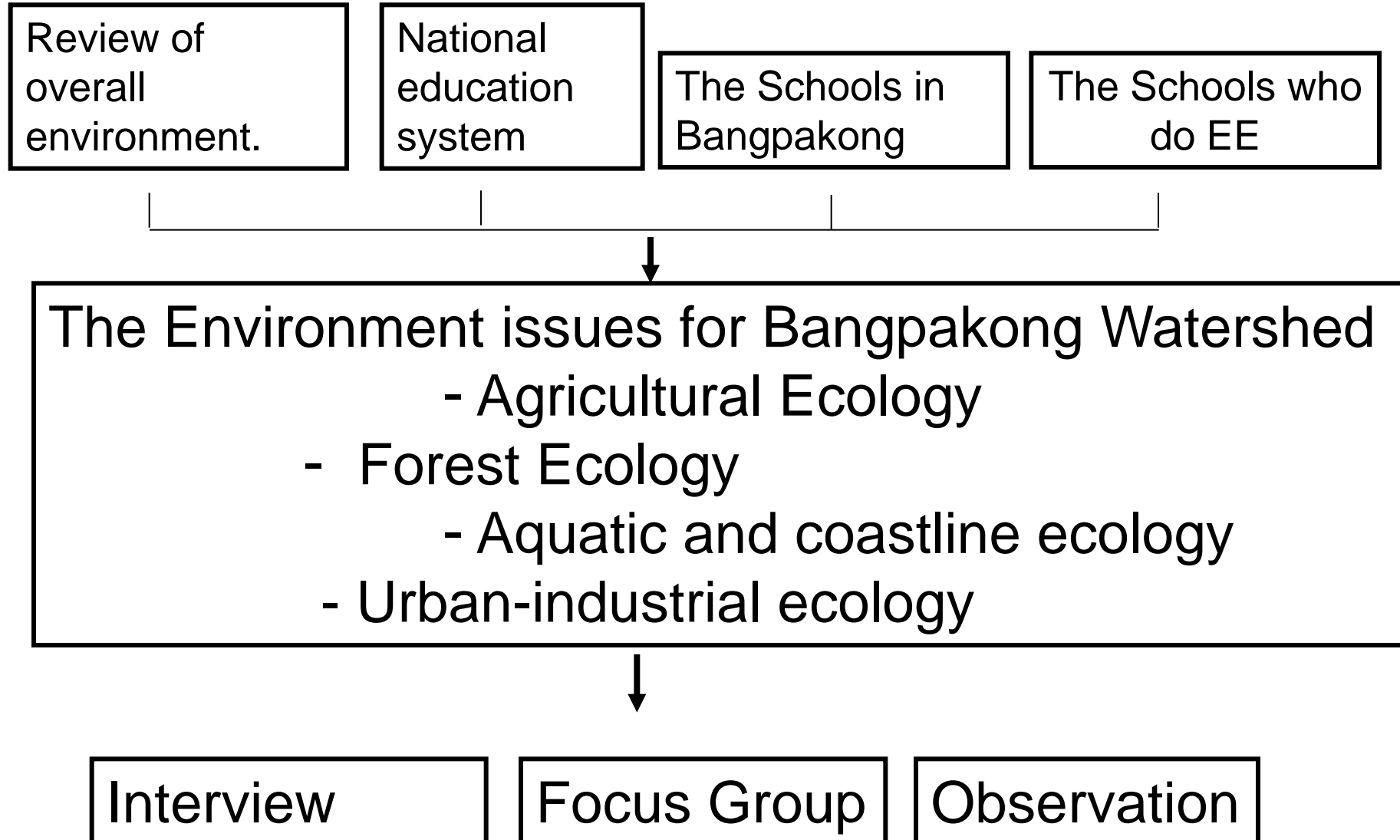
- 1999. Thai government acknowledges the severe degrading of the country's resources and environment.
- 1999. Education Act.
 - national science curriculum includes one small, strand of “environment” module (/73.3%).
 - PLUS school can integrate EE into mainstream curriculum OR science curriculum (16.7%).
 - PLUS EE can be part of club activities (10%)

EE is optional!

Research Objectives

1. To research current environmental conditions, situations and activities of secondary schools in the Bangpakong watershed locality.
2. To investigate the methodology of environmental procedure and activities of secondary schools in the Bangpakong watershed region.
3. To identify, and implement a framework process concerning environmental management strategies within school guidelines.

My Method:



My research variables:

- Ecozone of the school
- Location and size (rural/urban)
- Integrated or non-integrated curriculum
- Quality of relationships with community.
- School “support systems”.
- School facilities.
- Private sector support for EE activities.





Research sample

89 secondary schools in BP Basin

28 schools have EE teaching or activities.

13 schools located in urban-industrial zones

7 schools located in forest areas

4 schools located in agricultural zones

4 schools with primarily aquatic and coastline ecology



EE curriculum in the sample schools



- Of the 28 state secondary schools that include EE
- Only 4 schools integrate EE into main/core subjects AND provide EE as a local option.
- 21 schools provide EE only as a local option.
- 3 schools provide EE only as part of main/core subjects.
- 15 schools have some type of “environment” club.



Community relationships in sample schools.



- All schools report planned interaction with community once per semester.
- 6 schools host community groups or representatives more than 3 times per semester.
- 3 schools take classes into the community more than 3 times per semester.
- Only these 3 schools give high rankings to: “value of local wisdom”, and “our school is a community resource”.



System supports for EE in sample schools;

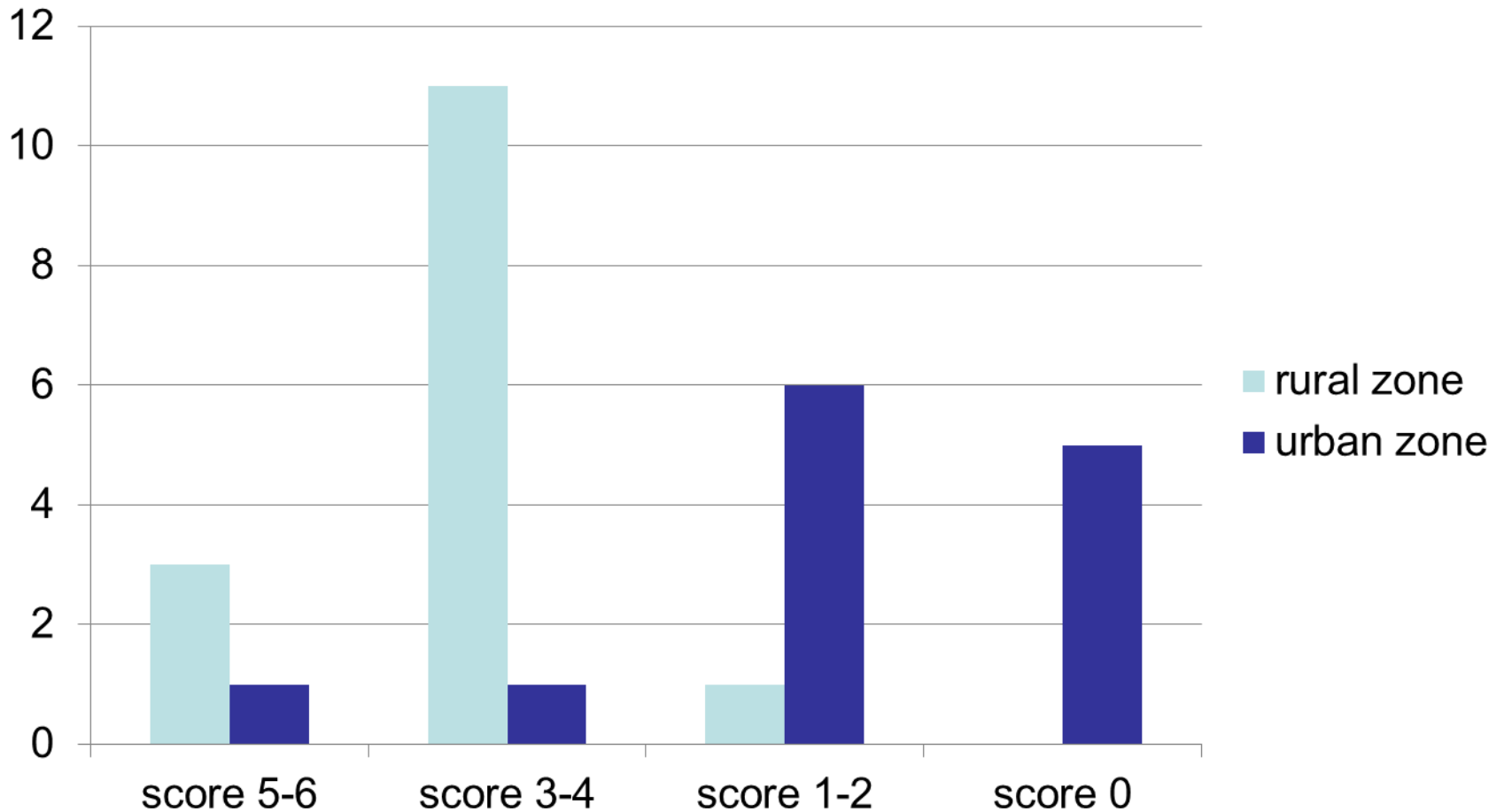


- As EE is optional, Headmaster is the decision-maker and a key support.
- All 28 schools also have at least one EE motivated staff (design curriculum, materials and activities)
- In 3 schools, all teachers/ subjects have integrated EE
- The 15 rural/smaller schools have poorer facilities. Yet 14 are in top 16 of my success table.
- Most urban schools receive private sector support for EE activities. Only two are in the top 16.

Successful EE schools – my criteria

1. Curriculum is clear and easy to access.
2. Students able to discuss local environment and access community resources independently.
3. Visible projects and results in school buildings & environment.
4. In top 50% of EE hours/activities.
5. Used by other schools as “best practice” resources.
6. Environment activities are known by community leaders and recorded by provincial education office.

e.g. “Successful” schools by zone



Common features of the 4 “star” schools

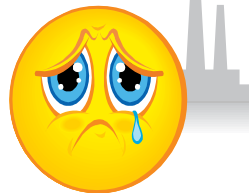
- Higher levels of community relationships (6+ interactions/semester).
- EE component integrated in 3+ subjects, not only science. In both local and main/core curriculum.
- Commitment of headmaster PLUS more than one teacher.
- EE activities relate directly to the school’s environment.
- EE is making much more progress in rural schools.. For the rural stars - teaching expertise is critical.
- Urban star - access to community & environment is critical.

Little (or no?) impact on EE success

- Private sector support
- “Environment” clubs
- Locally-produced curriculum when not based on local environment/issues.
- Quality of school’s physical facilities

EE impact on BP basin environment

- Water, air and soil quality continues to degrade at pre-1999 rates.
- Some school environments are much improved.
- Awareness/education not enough. Children, families & schools report feeling “powerless”
- Policy-makers and industry-owners mainly based outside the basin.
- Thailand has mostly ignored agricultural impacts – more local opportunities.





SAWASDEE KA

Two river-basins

	Length source-sea	Discharge (mean)	Catchment	Population
Waikato	425 kms	340 m ³ /sec	14,258 km ²	410k
Bang Pakong	125 kms	350 m ³ /sec	18,500 km ²	1.88m