Scene Setting 3

Outreach to support STEM education programmes

(Thai Perspective)
HIGHLIGHTS OF PISA 2015 MEAN SCORES AMONG 70 COUNTRIES AND ECONOMIES

<table>
<thead>
<tr>
<th>Countries</th>
<th>Science</th>
<th>Mathematics</th>
<th>Reading</th>
</tr>
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<tbody>
<tr>
<td>Average score</td>
<td>493</td>
<td>490</td>
<td>493</td>
</tr>
<tr>
<td>1  Singapore</td>
<td>556</td>
<td>564</td>
<td>535</td>
</tr>
<tr>
<td>2  Japan</td>
<td>538</td>
<td>532</td>
<td>516</td>
</tr>
<tr>
<td>3  Estonia</td>
<td>534</td>
<td>520</td>
<td>519</td>
</tr>
<tr>
<td>4  Chinese Taipei</td>
<td>532</td>
<td>542</td>
<td>497</td>
</tr>
<tr>
<td>5  Finland</td>
<td>531</td>
<td>511</td>
<td>497</td>
</tr>
<tr>
<td>6  Macao (China)</td>
<td>529</td>
<td>544</td>
<td>509</td>
</tr>
<tr>
<td>7  Canada</td>
<td>528</td>
<td>516</td>
<td>527</td>
</tr>
<tr>
<td>8  Vietnam</td>
<td>525</td>
<td>495</td>
<td>487</td>
</tr>
<tr>
<td>9  Hong Kong</td>
<td>523</td>
<td>548</td>
<td>527</td>
</tr>
<tr>
<td>10 China</td>
<td>518</td>
<td>531</td>
<td>494</td>
</tr>
<tr>
<td>11 South Korea</td>
<td>516</td>
<td>524</td>
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</tr>
<tr>
<td>15 United Kingdom</td>
<td>509</td>
<td>492</td>
<td>498</td>
</tr>
<tr>
<td>16 Germany</td>
<td>509</td>
<td>506</td>
<td>509</td>
</tr>
<tr>
<td>25 United States</td>
<td>496</td>
<td>470</td>
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<tr>
<td>52 Russia</td>
<td>487</td>
<td>494</td>
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<tr>
<td>54 Thailand</td>
<td>421</td>
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<td>62 Indonesia</td>
<td>403</td>
<td>386</td>
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<tr>
<td>70 Dominican Republic</td>
<td>332</td>
<td>328</td>
<td>358</td>
</tr>
</tbody>
</table>

Note: The ranks are adjusted to reflect the whole population of 15-year-old students in each country and economy, according to the OECD.
NARIT: Awareness & Inspiration Enhancement

**Activities & Target Groups**

- Teachers / Staff
  - Teacher Trainings
- Youth / Students
  - Youth Camps
  - Exhibitions
  - Astronomy Clubs
  - Research Projects (School Level)
- General Public
  - Public Events
  - Open House
  - Star Parties
- Amateur Astronomers
  - Astrophotography Competitions
  - Astrophotography Workshops
46 outreach staff
229409 participants
599 activities

- Student Internships
- Science Fair
- Planetarium

- Olympic
- Dobsonian Telescope Network
- Astronomy News
- Astronomy Booklet
- Dark Sky Campaigns
- School supports
- Public Talks
- Evaluations
PR Report
Oct 2018 - Aug 2019

- Press Release: 87
- Events: 27
- FB Posts: 910
- FB Live: 30
- Banners: 223
- TV: 192
- Video: 33
- Newspapers: 252
- Online: 2,067
- Graphics Media: 163

Press Release (87)
- Research/Technology/Collaborations (11) - 13%
- Astronomical News (42) - 48%
- Astronomical Activities (28) - 32%
- Others (6) - 7%

Website
- THAI: 1.23 M (Views)
- ENG: 64.2 K (Views)

Facebook
- Fanpage: 301,705
- Live: 323,289
- Like: 20,474
- Follow: 3,401

YouTube
- NongEarth NARIT Channel: 3,872
- Video: 2,48 M

Instagram
- @N.Earth Followers: 394
- View: 701.8 K

Number of News Published
- 2017: 2,062
- 2018: 1,632
- 2019: 2,511

Press Release
- 2017: 97
- 2018: 99
- 2019: 87

PR Value
- 2017: 167.8 M
- 2018: 381.9 M
- 2019: 322.1 M

Reporter
- 134

Special Scoop
- 24
<table>
<thead>
<tr>
<th></th>
<th>✓✓✓✓ ✓</th>
<th></th>
<th>✓✓✓✓ ✓</th>
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<tbody>
<tr>
<td>School network</td>
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<td>International exposure</td>
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<td>Teacher network</td>
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<td>Student research activities</td>
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<td>Number of activities</td>
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<tr>
<td>Number of activities</td>
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<td>Access to facilities</td>
<td>✓✓✓✓ ✓</td>
<td>Diversity of activities</td>
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<tr>
<td>Diversity of activities</td>
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<td>Access to resources</td>
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<td>Research based content</td>
<td>✓✓✓✓ ✓</td>
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<tr>
<td>Research based content</td>
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<td>Thai resources</td>
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<td>Staff motivation</td>
<td>✓✓✓✓ ✓</td>
</tr>
<tr>
<td>Staff motivation</td>
<td>✓✓✓✓ ✓</td>
<td>Public interest</td>
<td>✓✓✓✓ ✓</td>
<td>Staff knowledge and skills</td>
<td>✓✓✓✓ ✓</td>
</tr>
<tr>
<td>Staff knowledge and skills</td>
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<td>✓✓✓✓ ✓</td>
<td>Teacher motivation</td>
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<tr>
<td>Teacher motivation</td>
<td>✓✓✓✓ ✓</td>
<td>Advanced content</td>
<td>✓✓✓✓ ✓</td>
<td></td>
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</tbody>
</table>
Previous Newton Funds

• National Schools Observatory project
• Python school
UNESCO International Training Center for Astronomy

Service

Education training
- Emerging fields
  - Theoretical Astrophysics and Cosmology
- Frontier science
  - Cosmic rays and solar physics
- Basic foundations
- Radio Astronomy
- Optics
- Workforce training
  - Science teachers
  - Planetarium, science center staff
  - Aerospace industry
- Science journalist
  - Astrotourism operator
- Data scientist
- Skill training
  - Observational skills
  - teaching skills
  - Image processing skills
  - Software usage skills
  - programming skills
  - communication skills
  - Machinery skills
  - research skills
- Programming skills
  - Cosmic rays and solar physics
- Mechatronics

Basic foundations
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Vision
Astronomy become the integrated part of the society. (TBC)

Mission
Develop innovative trainings for capacity building and create STEM workforce for the benefits of humankind. (TBC)

Phase 1 (2019-2025)
- Human Capacity Training
- Build a solid foundation at SEA

Phase 2 (2025-2031)
- Reaching out to Africa and Latin America
- Knowledge Transfer into STEM workforce
- Researcher Trainings

Priorities
- Human Capacity Training
- STEM Education

Strategic Goals
- Increase activities in SEA
- Infrastructure set-up
- Connectivity with other organizations
- Grow researcher critical mass in SEA
- Increase public interest in astronomy in SEA
- Increases visibility and recognition to draw support
Possible project or combination of the following elements

• Upgrade National Schools Observatory
  • Expand the Liverpool Telescope and include Thai robotic telescopes
  • Develop advance course using telescope archives and/or use robotic telescopes
  • More than imaging

• Staff trainings (e.g. advanced science, science communication)

• Expand the python (programming) workshop to a formal Thai curriculum (online?)

• Develop portal for UK-Thai resources, and NARIT further expand to South East Asia
Elements for STEM ecosystem

- Curiosity, interest
- Student attitude
- Ability to question
- Accessibility
- Teaching quality
- Student research capacity
- Learn how to learn
- Career path