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## **Objectives and Outcomes:**

### **Objective 1**

Through a series of lectures and discussion, and an evening observing session, to increase children's awareness of the nature of modern astronomy and the role that it can play in the socio-economic development SEA\_ROAD nations.

Mr. Khomsan Thuree (Khun Bank) - Science Project and Educational Support:

Bank and his team introduced children to science projects together with coordinating other activities such as night-sky familiarisation, bushwalking and rafting.

Mr. Chanakan Santikunaporn (Khun Au) - Observatory Engineering Support:

Au and his team presented a lecture and practical demonstrations within the observatory dome intended to increase children's awareness of the systems, technologies and equipment used at an observatory. Children were encouraged to identify where these technologies are used in other applications within the broader community.

Mr. Sittiporn Doentaku (Khun Yo) - Telescope Operations:

Yo and his team presented an audio-visual presentation highlighting specific roles and typical duties of NARIT scientific and engineering staff, and how a co-operative team effort is important in achieving a common objective.

Mr. Pisit Nitiyanat (Khun Whai) – International Astronomy:

Whai presented a lecture outlining the importance of international collaboration within the scientific community, and in particular, NARIT's relevance within the ASEAN region and the broader international astronomical community.

Mr. Pondet Ananchai (Khun Satang) - ASEAN Economical Integration

Satung, a National Youth Advisor from UNEP S.E. Asia Youth Environment Network (SEAYEN), was our guest speaker and well versed in the cultural, educational and employment trends and developing regional policies that children should be aware of in readiness of the imminent ASEAN integration.

## Objective 2

The seminar aims to highlight various options in astronomy, associated sciences and supporting technologies, and the tertiary training required for these different options.

### Monitoring and Evaluation Framework:

**Both Level 1 (Implementation Evaluation) and Level 2 (Outcomes) were addressed by way of a questionnaire completed by attendees at the conclusion of the Seminar. See Section ?? for a copy of that questionnaire.**

**A summary of both Level 1 and Level 2 are as follows:**

#### **Level 1: Implementation Evaluation:**

Most items within the implementation tables were not relevant to this project as all attendees were children. However, some measure of the implementation process can be gotten through questionnaire survey and testimony from attendees.

<b>How satisfied are you with:</b>	<b>Very Satisfied</b>	<b>Satisfied</b>	<b>Somewhat Satisfied</b>	<b>Somewhat Dissatisfied</b>	<b>Dissatisfied</b>
1. Overall, how would you rate the seminar	<b>11</b>	<b>14</b>	<b>2</b>		
2. The right amount of time for the seminar	<b>8</b>	<b>15</b>	<b>4</b>		
3. The delivery of the program was organized	<b>7</b>	<b>14</b>	<b>5</b>	<b>1</b>	
4. Information was clearly presented	<b>6</b>	<b>6</b>	<b>10</b>	<b>4</b>	<b>1</b>

In general, feedback reflected mid to high scoring in all four (4) categories. Some notable departures was in Category three (3); “The delivery of the program ..” scored a single “Somewhat Dissatisfied” remark relating to the cramming of material, especially on the final day – Sunday 26 October involving quite a lot of travel from Doi Inthanon back to the hotel in Chiang Mai. Category four (4); “Information was clearly presented”, scored four (4) Somewhat Dissatisfied and a single “Dissatisfied”. These comments are related to the standard of English by the 5 NARIT presenters. While some with superior English abilities than others, all NARIT staff are involved in an on-going English abilities up-lift program.

The highest scoring categories were, “The right amount of time for the seminar”, and, “The delivery of the program was organised”, with each scoring, “Satisfied” by over half of the attendees.

## Level 2: Outcomes

### Deliverables

Besides the 5 presentations and supporting visits to the observatory, children were given two specific and extended periods to meet with NARIT astronomers and engineers.

The first period was on Saturday evening at Doi Inthanon inside the control room where a NARIT astronomer met with attendees to discuss options within astronomy together with outlining specific astronomical techniques used within astronomy. The second period was in Chiang Mai on the Sunday before the seminar ending was more broad-based where children met with a number of NARIT astronomers and engineers. Children's queries centering around career options and tertiary educational required within astronomy and its supporting technologies.

The questions within the questionnaire which indicate how the seminar had changed the perceptions of attendees, together with a sample of responses, are as follows:

#### a) "What was your favorite part of the seminar and why.?"

".. to the observatory because I can see telescope and astronomers working".

"Looking at the stars and finding out more about astronomy"

"Formal discuss. I had chance to ask questions to professional astronomer"

"Talk with professionals (*astronomers and engineers*) on Sunday afternoon"

"I like the trip to observatory because I can know more about astronomy"

"Star-gazing, it was amazing experience"

"Trip to see 2.4-meter telescope inside dome"

"Lecture about ASEAN and job relate to astronomy because give me knowledge"

"Stat gazing because I wouldn't know planets and constellations unless pointed out which was there"

#### b) "What new things did you learn. Why are these interesting top you?"

"Exoplanets discovery methods"

"How the comets made and how to see it" (dry ice and ice and ??

"Impact of astronomy to our daily life – cultural, technology, engineering relationships:

"I learn new things about telescopes – this is interesting because telescope require sophisticated technology"

"I learned how science related to high technology. I could use engineering and apply it to astronomy"

".. all material as like star, planet, comet and other, this interesting because never learn about it before"

"I learned about a star about an engineer. I interested because it was a new things"

"We can study engineering and then be support to science and astronomy"

"Many things I learn for example control telescope and see that technology and science match with each other"

"Control and analysis data in control room – to work inside observatory will be my passion - I love observatories and data analysis"

"Most things about astronomy I didn't know so this trip was interesting"

"How to get jobs in scientific academic"

"I learn many new perspective especially science and technology – it really broaden my view"

"I learn about how astronomer identify celestial object. I interested in methods and instruments used"

**c) Has attending the seminar made you interested in a study course in astronomy or other science or in technology.? Please explain."**

"I was interested in the professional engineers and astronomers and want to learn more about science and technology"

"Many career related to astronomy"

"Yes, I want to become an astronomer in near future"

"Yes, meeting engineer and astronomer who user their career worldwide makes me interested. I interested using my career in different counties"

"This seminar give me knowledge about opportunity in science and technology profession"

"Yes, it makes me put effort to work in the astronomical academy".

"Yes, I already taken major at the university" ??

"Really, to meet lots of Astro enthusiasts, to learn more about their experiments/experiences will encourage me to fulfill my dream"

"Yes, maybe I'll decide on senior high school"

"I am beginning to be interested in astronomy and even more into engineering. After hearing what science and engineer professional panel had to say, I was inspired by them".

"Yes, I'm interested in engineering because of you"

"It open my eyes about engineering part serve astronomy research "

Include a Section that shows questionnaire: (where to include)?

4. Significant Challenges

8. Financial Report

10. Resources