

SUMMARY

Indonesia actually has remarkable scientific potential. Our ancestors even possessed not only imagination, but also sense, initiative, and extraordinary work so that they were able to leave behind world-class buildings such as the Borobudur Temple which also has astronomical value. However, in reality, the development of science in Indonesia has not been massive. This year, Indonesia has an extraordinary momentum to revive the reputation of Indonesian science in the eyes of the world through the one-centenary anniversary of the Bosscha observatory and the phenomenon of a hybrid solar eclipse that will occur on April 20, 2023. In Indonesia, the astronomy community has a significant role in helping the government's efforts to popularize science, especially astronomy with its public outreach activities that are right on target, entertaining, inclusive, and more flexible. In this conference, I will present through this poster how the reality of the development of science, especially astronomy, complete with its obstacles in Indonesia as a developing country, and what is the role of the astronomy community in overcoming these challenges in order to cultivate the children of Indonesia so that in the future they can take on the role of prospering and advancing inhabitants of the earth along with other nations.

OBJECTIVES

The main purpose of this article is to provide additional references regarding the development of astronomy as a fundamental field in science development in Indonesia. This article will also discuss the challenges and realities related to the above so as to provide a more comprehensive perspective.

BACKGROUND

Astronomy education is an attempt to realize the desire to pass on knowledge and traditions of astronomy to the next generation. In 2003, Indonesia took part in the International Astronomy Olympiad (IAO) for the first time. Since then, almost every year Indonesia always sent participants to take part in international-level Olympiads, such as this IAO.

In preparing the participants, in 2004 astronomy was made one of the branches contested in the National Science Olympiad (OSN). Unfortunately, until now there has been no special Astronomy subject, but Astronomy is used as a part of the physics subject, and in some curricula, it is also included in the geography subject.

Astronomy interest in Indonesia is increasing from year to year. This fact can be seen from the increase in the number of Bandung Institute of Technology (ITB) astronomy students and Indonesia's achievements in the International Olympics.

ITB is the only university that organizes Astronomy Education in Indonesia, so this creates problems in distributing astronomy coaches, considering that teachers, such as physics teachers, are not well prepared to provide Astronomy education. This causes only a handful of students who can compete well. In addition, not all schools support astronomical activities. In fact, many schools do not know about Astronomy, which is one of the branches being contested in OSN.

From the above facts it can be concluded that there is a gap in Astronomy Education in Indonesia, especially in high school. This inequality of knowledge, skills and opportunities to compete is contrary to the mandate of the Indonesia constitution which should be able to guarantee equal educational opportunities, quality improvement, as well as the relevance and efficiency of education management to face challenges according to the changing demands of life.

DISCUSSION

In the education curriculum in Indonesia, basic competencies that contain astronomy are analyzing and evaluating. Even though the demands for basic competencies in the curriculum include a high level of scientific thinking, the discussion of the material is only about the concept of gravity and Kepler's Laws based on Newton's Law of Gravity.

Students who took part in the Olympiad, of course, had to study Astronomy more deeply, and could not only rely on subject matter at school. For students who have high motivation, they can learn on their own if the facilities are adequate and scientific forums that discuss Astronomy are easy to find. But for those who live in remote areas, far from these facilities, even the motivation to understand Astronomy may not be felt by them. For those with an interest in Astronomy, this discrepancy would feel extremely unfair.

Considering that Indonesia is a developing country, funding and government support for supporting facilities for activities which are limited to intellectual property are very difficult to obtain, it is not surprising that the development of astronomy in Indonesia is somewhat hampered.

From the facts above, only a handful of students have the chance to win in the Astronomy competition. For those who enjoy and are interested in Astronomy, they really need a place to express their interest.

The following are some efforts that can be made to overcome this gap:

1. Make astronomy as an independent subject at school
2. Extracurricular astronomy at school
3. Cross-sector cooperation in the field of astronomy
4. Provision of support by the Government for astronomy development efforts by various communities
5. Inter-university network
6. Form a union of Astronomy Olympiad teachers or trainers
7. Provision of astronomical references
8. Organizing comparative studies

CONCLUSIONS

Although interest in astronomy in Indonesia continues to increase, the content of the material in the curriculum is not supportive because astronomy has not yet become a fundamental field in science development in Indonesia. Coupled with the challenge of Astronomy OSN as a prestigious event that should provide equal opportunities for all students in Indonesia, but limited facilities and mentors are an obstacle to the equitable distribution of knowledge and skills in science, especially astronomy. This situation can be improved with the support and cooperation of various parties, such as the government, schools, universities, society, and communities engaged in astronomy.

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