

## AN IMO REFORM?

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(1) Introduction:

The International Mathematical Olympiad has existed since 1959. In a quarter of a century, the number of participating countries has increased from 7 to 38 and the number of competitors from 50 to over 200. A competition between countries with a relatively uniform social and cultural background has become a global event.

In spite of these changes, the IMO is administered now almost exactly by the original rules. Of course this proves that the rules have been good, although they have never been officially fixed. But if one tries to project the IMO in the future, some difficulties in the existing practices become manifest as well as a need of moderate reform. Reforms are not possible without preceding discussion. This article is intended to promote discussion about the organizational side of the IMO. I do not discuss the actual content of the competition. The proposals presented were partly exposed to the Jury of the IMO in Helsinki in July, 1985. They also reflect the experience of organizing the IMO in a small country with limited resources and a weak tradition in school competitions.

(2) Some Problems:

Originally, the IMO was organized within a clearly limited set of countries, and the division of costs was taken into account in a natural way by letting the organizing country of each year pay for everything that year. As the number of participating countries approaches 50, any particular country is likely to organize the IMO only twice in a century. Thus the organizer's investment is paid back in the form of received hospitality for its teams over a fairly long period of time.

The participation in the IMO is on the basis of invitations extended by the organizer to countries chosen by the organizing country. Traditionally, the countries which have participated in the past olympiads have been invited, in addition to countries which have somehow expressed their interest in the IMO. As the IMO becomes better and widely known globally, it is probable that many, perhaps most of the countries of the world will express their

willingness to join in. This will create a difficult situation to the organizer. Also, in principle, it is difficult to see why some countries, e.g. those that have been in the IMO for a long time, should be more justified of receiving the benefit of participation than others.

The scientific leadership of the IMO, down to the level of making decisions on very small details such as the exact wording of the competition problems, has been in the hands of the Jury, in which every country has had a representative and a deputy with the right to speak. Obviously, this arrangement becomes more and more awkward with the increasing number of countries. A development which has already taken place is the diminishing of the role of the deputy leaders.

(3) Proposals:

The passage to a more even distribution of the costs must necessarily be gradual. Probably the organizing country will always be responsible for a considerable part of the total cost of the IMO. The financial burden of the organizers could be lightened by establishing a participation fee to partially cover the costs of accommodation.

Another means of restricting the costs while admitting more countries to the IMO, would be a gradation of the team size. One sound principle could be to make the number depend on past performance of the team, say by allowing a team of three to a country with no prizes in the previous year, and teams of four to six for countries which have won prizes in the previous year.

To streamline the work of the Jury, a representative system could be adopted. The Jury could elect a working committee, consisting of, say, ten members, for a period of two years (with one half of the members changing each year). The routine tasks of the Jury, such as problem selection and editing, could be delegated to this committee; the entire jury could have plenary sessions to discuss general policy matters in addition to the election process. Also the two-tier organization could be considered a less temporary arrangement than the Jury, which is *de jure* recreated every year by the invitation and rules issued by the organizing country. The IMO Site Committee, now working under ICMI, could be moved under the Jury to perform the function mentioned in its name.

The position of a deputy leader could easily be eliminated. The leader could, if need be, take along assistants in the status of an observer.

(4) Comments:

The proposals stated above were discussed in a special Jury session during the 26th IMO in Helsinki. Although the opinion was divided, a majority of the views expressed were against the reforms. In particular, the countries now planning the following three or four IMO's assured their intention to follow the established practices. Personally, I am convinced of the need for some reforms, in the long run at least, if the IMO is to fulfill its task as a unique meeting place of mathematically talented young people from all over the world. I hope that by keeping alive a continued discussion on the procedures of the IMO we can eventually find acceptable solutions to the problems - or find out that they are not problems after all.

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