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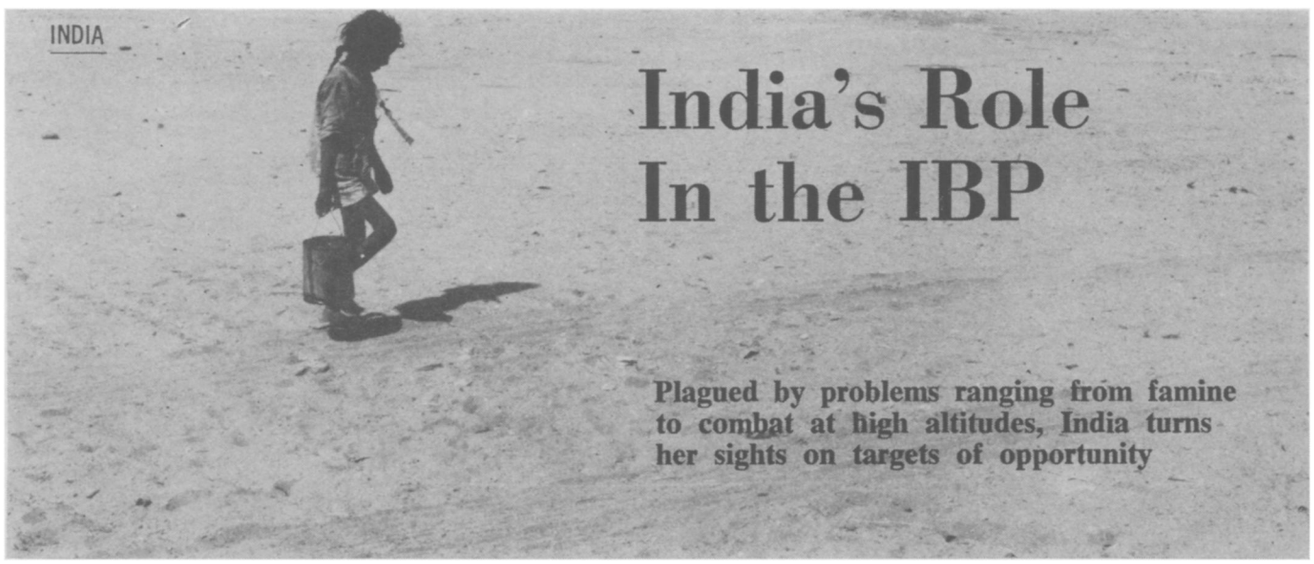


While other nations take the International Biological Program into exotic regions, India concentrates on her own doorstep.

An ambitious attack on India's twin problems of exploding population and lagging food production is being launched as a contribution to the International Biological Program. The IBP (SN: 6/10/67 page 556) is a 50-nation study of the biological basis of productivity and human welfare.

The Indian program takes in its sweep the higher reaches of the Himalayas, the rain forests of Central India, the arid deserts of Rajasthan in western India, and the estuaries of the coasts. The program is directed by a 10-member national committee headed by Dr. B. R. Seshachar, Head of the Department of Zoology of the University of Delhi.

Some 56 different projects have been recommended by this committee. Eleven of these are of vital importance to India because they emphasize the exploration of new biological resources and improved methods of food preservation. Noting that forced vegetarianism of a vast majority of India's population denies people animal proteins, the group will stress development of vegetable proteins.

In this task the Indian Agricultural Research Institute at Delhi and the Nutritional Research Laboratory at Hyderabad in the south will identify millet varieties with higher protein content. Related projects aim at the extraction of proteins from wastes like cane bagasse, corn cobs, groundnut husks, distillery sludge, prawn heads and the like.

Indian Information Bureau

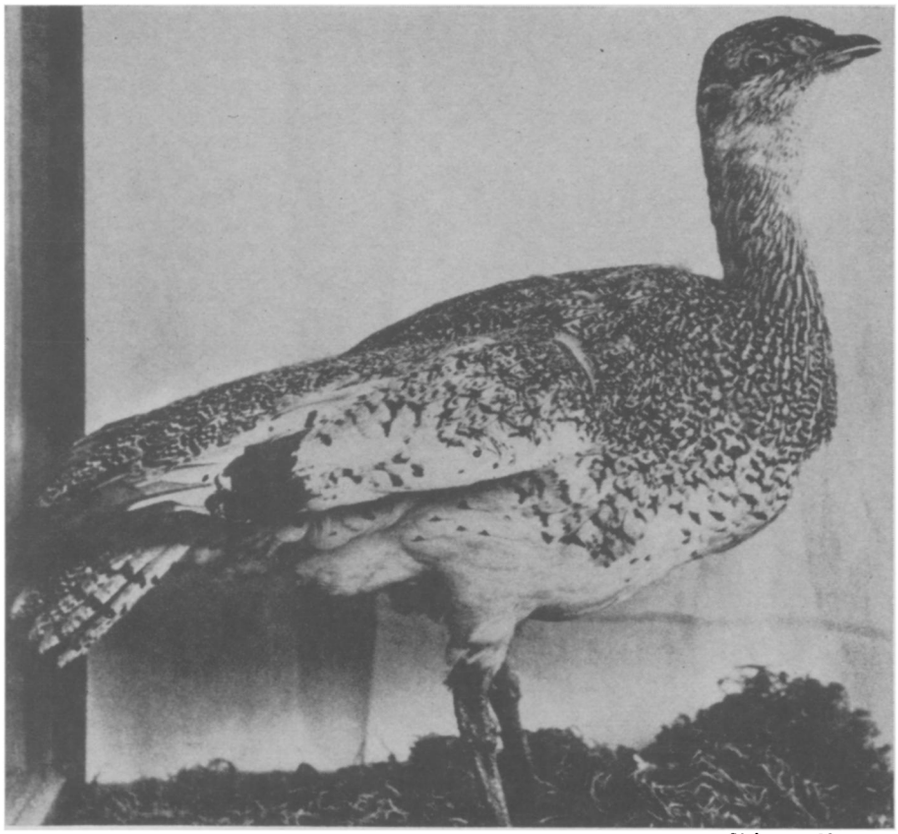
Jawans: trouble in the mountains.

Another group of projects will study environmental and physiological factors which influence the productivity and yield of both agricultural and forest plants. One aims to discover why an insect attacks certain plants and not others in its locality. This information could then be used to plan the cultivation of useful plants to yield maximum output.

Conservation of edible animals and birds is the concern of research in four other projects. One aims at the creation of farms of quail, which breed prolifically and provide an excellent source of protein food in several South-East Asian countries.

The Hindu community of India is demanding a total ban on cow slaughter. The implications of this ban should be clarified by a special project which aims at finding the optimum capacity of the land to carry the cattle without detriment to other life and soil cover.

Two projects will study the production processes of plants. One aims at genetic study of various cereals to assess their capacity to utilize solar energy for production of carbohydrates. The second project is a study of the effect of sunshine on rice production. To be undertaken at Calcutta University, this study will be based on the



Strinagar Museum

Indian bustard. The identification of new food sources is an IBP target.

observation that rice-grain yield diminishes during the monsoon season when both the intensity and duration of sunshine is reduced. This study might explain why high doses of nitrogen fertilizer often fail to increase grain yield; it could influence the future use of nitrogen fertilizers in the nation's paddy cultivation.

In view of the fact that India has so far done very little to exploit the food that can be harvested from its various water reservoirs, a group of 12 studies will be undertaken on the production of fresh water communities.

Attempts will be made to improve trout stocks in the lakes and streams of Kashmir in the north by artificial induction of spawning by pituitary injection. The inter-relationship of nutrients, plankton and fish in the wind-protected temple tanks of Madras in the south, which have a permanent bloom of green water weed, will be the subject of another study.

The data collected by the recent International Indian Ocean Expedition will be used as a base for intensive marine biological studies which will be undertaken at various centers, including Annamali University at Porto Novo, the National Institute of Oceanography centers at Ernakulam and Panaji, and Andhra University's department of zoology at Waltair, all of which are located in the south.

Problems in human adaptability were brought into sharp focus in India during the last Chinese invasion when soldiers from the plains were suddenly transported to the cold regions of the Himalayas to confront the well-acclimatized Chinese army. The International Biological Program therefore intends to study this aspect, linking it with a study of the physical fitness and work capacity of Indian athletes in the international olympics to be held this year in Mexico City, which is relatively high.

Other researchers will study the anthropology of various Indian castes, including Rajputs, Parsis, and Gujaratis, investigating their social relations.

The 56 projects so far outlined by the Indian National Committee require funds totalling around $2.3 million. Other projects to be added to the national program would take the figure to $3.6 million to be spent over a five year period. The question of obtaining funds will be perhaps more crucial than the projects themselves, since each project will have to seek assistance from the institution in which it is located. In spite of these drawbacks, the Indian program is among the most ambitious and far reaching so far proposed in any scientific field and should, if successful, benefit a large proportion of the people of Asia.

S. K. Ghaswala