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MEASURES NEEDED TO ENSURE MORE EFFECTIVE CONTROL OF LOCUSTS IN AFRICA.
EXECUTIVE SECRETARY'S REPORT ON HIS ENQUIRIES.

1. According to Paragraph 45 of the Report of the First Session of the Economic Commission for Africa (E/CN.14/18) the Executive Secretary was called upon to communicate with national and international bodies concerned with locust control and inquire what in the opinion of those bodies, was needed to ensure more effective control of locusts in Africa. The Executive Secretary attended the Sixth Session of the FAO Desert Locust Control Committee, and has been in close contact with the Director General of the United Nations Food and Agriculture Organization (FAO), who has for a number of years been giving considerable thought to the problem of locust control and has been working in close collaboration with the other competent agencies and with the Governments of the countries which are exposed to locust invasions. This paper is, therefore, mainly a statement of views assembled by FAO, as the intergovernmental organization with the most central interest in this field.

(a) The Red Locust and the African Migratory Locust.

2. Since the introduction of preventive control at an international level against the Red Locust in Northern Rhodesia and Tanganyika and against the African Migratory Locust in the Sudanese Republic

(in the French community), the costs of the control of these two locusts have been reduced from many millions of dollars to about half a million dollars per annum expended collectively by the governments of the countries potentially threatened in the outbreak areas of the locusts concerned. Previously the Red Locust devastated crops throughout the southern half of Africa. Since the last plague ended in 1944 no damage has been caused. The African Migratory Locust periodically devastated nearly all Africa South of the Sahara. Again no damage has been caused since about 1940 when the last plague died out. Constant vigilance is necessary to ensure that there is no reappearance of these locusts in plague proportions.

(b) The Desert Locust.

3. Major attention is now being devoted to the Desert Locust which continues to be a drain on the resources of the countries liable to invasion in Africa and western Asia.

4. The direction of control measures against the Desert Locust is recognized as essentially the responsibility of individual governments. The FAO has acted since 1952 as an international coordinating agency and has established the FAO Technical Advisory Committee on Desert Locust Control, the FAO Desert Locust Control Committee and regional sub-committees in eastern Africa and the Arabian Peninsula and has also convened a number of expert groups. The Conference and Council of FAO have devoted considerable attention to this problem and a long standing

project has been in operation based on regular programme and technical assistance funds.

5. The Strategy of Plague Control: Owing to the need to adopt more effective and economical control measures increasing attention has been given recently to the study of the dynamics of desert locust plagues and to the formulation of measures for their detection and control. A panel of experts on the Strategy of Desert Locust Plague Control was held in Rome in April to May 1959, and its main recommendations were as follows:^{1/}

- (i) the overall policy should change from defence to offence;
- (ii) the total invasion region should be treated as a whole;
- (iii) there should be unified planning based on past experience and on improved reporting and forecasting;
- (iv) offensive control should be concentrated where and when it is possible to achieve the greatest impact on the overall situation, (a) during plague activity, and (b) during recession periods;
- (v) all forces should have the maximum possible mobility;
- (vi) adequate strategic reserves of equipment and supplies should be provided to meet the requirements of mobile forces.

6. The panel also studied how best the principles enumerated above could be adopted in practice. They recommended international action,

^{1/} Report of the FAO Panel of Experts on the Strategy of Desert Locust Plague Control, FAO, Rome 1959.

regional action, national action, developments in information and forecasting and in training.

7. On the international plane the panel considered that the major objective of plague control should be a concentrated international effort against seasonal concentrations of locust infestations. Such concentrations were most likely to occur in the following primary areas:

- (i) north-western India and south-eastern West Pakistan
- (ii) a central belt comprising:
 - (a) south-western Arabian Peninsula (including parts of Saudi Arabia, Yemen and the Aden Protectorates);
 - (b) the Horn of Africa (parts of Ethiopia, French Somaliland, the Somaliland Protectorate and northern Somalia);
 - (c) eastern and northern Ethiopia and parts of Sudan, Chad, Niger, Soudan, Senegal and Mauretania.

8. Within these areas the location of concentrations of both swarms and hoppers varies widely from year to year; hence the need for great mobility of control forces and wide distribution of strategic reserves. The panel considered that a mobile striking force might be organized in the form of an international anti-locust aircraft unit. It also emphasized the need for establishing a permanent international fund for overall Desert Locust control by the countries within the invasion region. Such a fund might, in due course, lighten the heavy burden of expenditure imposed on those countries at present subject to intensive locust infestations.

It is estimated that affected countries spend each year on control operations a total of at least \$ 12 million and, during years of high locust infestation, about \$ 30 million. The Panel, therefore, requested FAO to examine the ways and means of establishing such a fund for consideration by the appropriate authorities including the FAO Desert Locust Control Committee. The measures recommended above would be most effective if implemented as a joint operation between national forces and a mobile international unit available for operating anywhere within the primary target areas. The proposed new strategical approach was designed to check a plague. It would appear to be equally applicable, with some adjustment, to measure during recession periods for preventing the resurgence of the plague.

9. At the regional level in Africa FAO has established a regional Secretariat in eastern Africa for coordinating control operations, facilitating mutual assistance and for establishing common reserves. The countries concerned are Sudan, Ethiopia, French Somaliland, Somaliland Protectorate, The Trust Territory of Somaliland under Italian Administration and Kenya. The Panel recommended that, for strategic reasons, Chad should be included in this group. This regional Secretariat collaborates closely with the Desert Locust Survey of the East Africa High Commission which has its headquarters in Nairobi. The FAO Panel of Experts emphasized the need for countries to be prepared, as far as possible to assist neighbouring countries when requested in overcoming shortages and other difficulties. The conclusion of formal agreements to this effect was strongly recommended.

10. At the national level the FAO Panel recommended that all countries should maintain or establish national anti-locust organizations which should never be totally disbanded, even if the country was free of locust infestations for a period of years. An adequate organization should remain to serve as a nucleus, including experienced personnel and essential equipment, so that an effective service could be reformed rapidly when required. It was further recommended that all countries should as quickly as possible establish or strengthen their national anti-locust forces by adopting or further developing the use of aircraft.

11. A variety of techniques is demanded. Complementary methods should be used where they were best suited, in accordance with the most recent technical developments. Control should be applied to those stages of the locust which are the most vulnerable and most susceptible to economic attack in relation to local circumstances and the time factor. Attention was drawn to the very high control potential of modern persistent and highly concentrated insecticides, whether applied from the air or ground. It was considered that the wide adoption of these insecticides and of modern methods of application would greatly increase the effectiveness, and reduce the cost, of control campaigns whether conducted on a national, regional or international basis. It was emphasized that aircraft are a very powerful weapon for Desert Locust control, comparing favourably in cost with ground control, and provide the maximum opportunities for interterritorial cooperation and for international action. ^{2/} The

^{2/} Report of the FAO Panel of Experts on the use of aircraft for Desert Locust Control. - FAO, Rome, 1959.

advantages of air reconnaissance and aerial spraying were emphasized, but complementary ground action and support are essential. In this connection, modern methods of ultra-low-volume spraying of concentrated persistent insecticides provided one of the most promising and cheapest techniques of locust control. It was recognized that there were circumstances when baiting remained the most practical method of locust control. However, the Panel recommended that, in general, baiting should be adopted only when adequate supplies of a cheap carrier were available in the vicinity of the site of control operations. Dusting was used under certain circumstances especially against early instar hoppers, though it was usually considerably less effective than spraying against older hoppers and adult locusts.

12. Reliable information and forecasting on the current locust situation throughout the invasion region are always essential but particularly for the success of the proposed strategy. This calls for the establishment and maintenance of national information services, regular and intensive reconnaissance and maximum possible use of aircraft for reconnaissance. Timely detailed reports should be submitted to the International Desert Locust Information Services (IDLIS), on the prescribed forms which have not yet been adopted by all countries, and telegraphic transmission of information to IDLIS on such developments as the first arrival of swarms, commencement of egg-laying first hatching and first fledging. IDLIS should be expanded and strengthened.

13. On training the Panel noted that there was a universal shortage of properly trained and experienced personnel in all aspects and levels of Desert Locust control, resulting in inefficiencies and waste. It, therefore, recommended that all possible action should be taken on national, regional and international levels to implement extensive training.

14. Proposed Action to develop Research Surveys and Training. In order that the attack outlined above can be directed at the most vulnerable points, considerably more knowledge is needed of the distribution, and biology of the Desert Locust, its environmental relationships and its movements. Control measures and services also require refinement and adaptation for more effective large scale operations. With a view to ensuring this strengthening of the scientific background and of the means for combatting this pest, intergovernmental discussions were held at the Fourth FAO Regional Conference for the Near East, held in Damascus in 1958. As a result of these discussions a request was drawn up to the Managing Director of the United Nations Special Fund for assistance in financing an Expanded Inter-Regional Project on Desert Locust Control. The request was subsequently modified by the Sixth Session of the Desert Locust Control Committee in Rome in June-July 1959. ^{3/}

15. This project calls for an expenditure of about \$ U.S. $3\frac{3}{4}$ million over a period of six years. The largest single item in this proposed

^{3/} Report of the Sixth Session of the FAO Desert Locust Control Committee, Appendix I, FAO, Rome, 1959.

programme of development is research, with emphasis on operational research aimed at developing, testing and demonstrating new and improved locust control techniques, on a scale sufficient to include problems of organization, logistics and administration. A large share of the funds is also proposed for supporting and strengthening existing field research stations and assisting governments to establish new stations to investigate the biology, ecology and population dynamics of the locust in the field and in field laboratories, to provide 'in service' training for personnel and to test new control measures. The expansion of national and international reporting and forecasting services is included as well as the granting of research fellowships.

16. Emphasis is also placed on strengthening and extending the FAO/UNESCO Desert Locust Ecological Survey initiated in 1958. This survey, originally planned as a three year project aims at more intensive study of the breeding areas of the Desert Locust, vegetation cover required for the locusts' survival, current weather conditions, etc. It is proposed that this survey should be expanded to permit more assistant staff, more extensive travel and the collection of additional data.

17. The third main activity to be included is training. Three courses of three months each for 25 trainees at appropriate field stations are proposed. Training would be largely practical. Provision is made for grants to permit exchange of personnel and field demonstrators, to permit selected staff to visit other countries for periods of 1 to 6 months.

18. Necessary Action by Governments: In accordance with the requirements of the United Nations Special Fund, that governments participating in the project contribute not less than one-third of the total cost, a scale of contributions by participating governments was drawn up by FAO and discussed at the Sixth Session of the Desert Locust Control Committee. The suggested counterpart contribution by governments totalled \$ 250,000 a year.

19. Recognizing that existing locust control is inadequate and involves a heavy economic burden, seventeen governments, eight of which are members of Economic Commission for Africa, had, by October 1959, agreed to participate in this six year project and to contribute U.S. \$ 1,266,350 to the project which aims at the intensification of research and training as a long term measure towards developing Desert Locust plague prevention. The project has been recommended by the Managing Director of the Special Fund to the governing Council, and it will have been considered by the latter at its meeting in December 1959. If approved, this Project which was fully endorsed by the 10th Session of the FAO Conference in November 1959 will inevitably lead to major improvements in Desert Locust control.

20. In view of the economic importance to the large area of Africa that is subject to locust plagues the Executive Secretary wrote to ten governments of African countries and territories in May 1959 endorsing the Expanded Inter-Regional Project on Desert Locust Control outlined above. It is clear that assistance and coordination along the lines outlined in this project is necessary if effective action is to be taken.