ASSISTANCE TO COMPLETE ERADICATION OF RINDERPEST FROM AFRICA

(RAF/5/043) D3 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US $	US $	US $	m/d	US $	m/d	US $	US $	US $	US $	US $
1997	6.0	79,200	0	50,000	0/0	0	0/0	0	40,000	0	0	169,200
1998	2.0	27,900	0	40,000	0/0	0	0/0	0	0	0	0	67,900
1999	6.0	88,200	0	40,000	0/0	0	0/0	0	40,000	0	0	168,200

First Year Approved: 1997

OBJECTIVES: The development objectives this project addresses are to increase food security, and to improve rural economies, over a large portion of the African continent, through complete and final eradication of rinderpest from Africa by the year 2002. As eradication proceeds, it is also a project objective to see that previously infected countries are recognized as officially disease-free by internationally sanctioned veterinary and trade organizations.

BACKGROUND: Rinderpest is a virus disease in cattle that kills most of the animals it infects. It creates a serious economic and social burden through both the loss of animals and the need for large scale vaccination. The control of rinderpest has been the main activity of African veterinary authorities throughout the 20th century. The disease spreads through contact with infected animals. In Africa, where animals often move freely across national boundaries, eradication is therefore possible only on a regional basis. Accordingly, the Organization of African Unity (OAU) launched the Pan African Rinderpest Eradication Campaign (PARC) in 1986. A single vaccination protects an animal for life. If at least 85% of the herd is vaccinated, the virus dies out. Thus, the PARC strategy is to vaccinate all cattle in infected areas, then to stop vaccinating while carefully monitoring for the disease. Should pockets of infection appear, those 'hot spots' become the focus of intense local vaccination. The key to this strategy is the use of diagnostic technology that not only serves to verify a vaccination rate of at least 85%, but also to identify remaining areas of virus activity. It is this diagnostic technology that the IAEA has been able to develop and transfer to Member States in the region. Past TC activities have involved projects with budgets totalling more than US $1.2 M. This sum is a small fraction of the total investment from national and international sources. Activities under PARC are now at a crucial stage. Eradication is complete for all of West and Central Africa. Isolated pockets exist in the east, in southern Sudan, Ethiopia, and Kenya. West African countries are poised to cease vaccination. Central Africa (essentially Chad and the Central African Republic) will continue to vaccinate in order to create an immune barrier between East and West. Surveillance and vaccination will focus on the remaining hot spots. To consolidate these gains, it is very important that West Africa follow the path the Organization International des Epizooties (OIE) prescribes. To do this, they must cease vaccination and seek international confirmation of disease-free status. Maintenance of the immune barrier will then permit eradication to proceed rapidly in the East. The Agency's support of diagnostic technology is essential to all aspects of the final stages of eradication, which can be reached by 2002. For more than 10 years, the IAEA has supported the introduction and application of enzyme-linked immunoabsorbent assay (ELISA) diagnostic procedures. The international community recognizes the IAEA's competence in this field, and turns to it to perform this crucial function.

PROJECT PLAN: Each country will adapt the following activities to meet its needs and role in the eradication programme. (i) Upgrade equipment and human resources for ELISA antigen detection and related dipstick techniques to permit rapid differential diagnosis of rinderpest and other diseases. (ii) Introduce specialized polymerase chain reaction (PCR) based technologies, especially at national or regional reference laboratories, such as the one in Côte D'Ivoire (supported under a separate Model Project). (iii) Maintain sero-surveillance efforts appropriate to the country's progress along the OIE pathway. (iv) Participate in strategic coordination activities involving meetings and expert visits. (v) Establish full quality control and assurance protocols according to international standards, including the exchange of samples and results with the regional reference laboratory, and with the World Reference Laboratory. (vi) Conduct vaccination programmes as appropriate. The principal outputs from the project will include: (i) fully established national and regional capabilities for the diagnosis of rinderpest and related viruses using antigen-capture ELISA/dipstick technologies; (ii) OIE-recognized laboratory status; (iii) effective external quality control based on PCR capability in regional and international reference laboratories; (iv) accurate assessments of the immune status of herds based on statistically valid sampling designs; and (v) achievement of OIE certification as having attained either provisional freedom from disease, validated freedom from disease, or validated freedom from infection.

NATIONAL COMMITMENT: The membership of PARC includes all countries in Africa that either have been infected, or are at risk from infection, with rinderpest. For the last decade, these countries have vigorously pursued the elimination of rinderpest with top-level government support. Their expenses for vaccination alone have been several hundred thousand US$ per year. In addition, all countries in the region maintain national facilities with trained staff, along with the associated field workers, to conduct sero-surveillance and vaccination efforts. It is the wish to avoid the perpetuation of this outlay that provides the impetus to the eradication campaign.

AGENCY INPUT: The Agency will provide equipment and supplies including improved ELISA antigen detection kits that permit rapid diagnosis of rinderpest in the clinical laboratory. It will promulgate the introduction of recently developed dipstick technologies that make diagnosis possible at pen-side within 30 minutes of observation of signs of disease. The provision of equipment and specialized reagents, along with minimal training, will support the introduction of these new techniques. Crucial to the success of this effort, and its acceptance by the international community, will be the establishment of an external quality assurance system. In some cases, it may be necessary to revitalize national animal health laboratories and their staff, especially where rinderpest has been absent for some time. The Agency will provide expert services to assess these needs in individual countries. It will assist in organizing strategic coordination meetings to ensure that the entire effort goes forward in an effective and efficient manner.

PROJECT IMPACT: The total financial burden to Africa from rinderpest is difficult to estimate precisely because of the many factors involved in addition to surveillance and vaccination. In fact, in many countries, the effectiveness of past control programs has reduced the actual cost to farmers to insignificance. However, these continuing control efforts are expensive. Both Member States and the international community recognize that elimination of the disease threat would free large resources. The money and human resources that are now devoted to rinderpest would shift to other pressing issues in animal health and production, thus multiplying the effects of eradication. The net result will almost certainly be a large increase in animal productivity in Africa. This increase in turn will improve food security, increase earnings for livestock producers, and promote export markets that are now closed to African meat and meat products.