

INTEGRATING SIT FOR TSETSE ERADICATION (ETH/5/012) D4 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	1/5	15,400	0	206,600	0/0	0	0/0	0	0	28,000	0	250,000
1998	1/0	13,950	0	196,980	0/0	0	0/0	0	0	90,000	0	300,930
1999	0/29	14,210	0	86,280	0/0	0	0/0	0	0	100,000	0	200,490

FOOTNOTE a/ 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	0/14	6,510	0	1,093,568	0/0	0	0/0	0	0	0	165,000	1,265,078
1998	0/0	0	0	1,180,630	0/0	0	0/0	0	0	58,500	175,000	1,414,130
1999	0/0	0	0	123,020	0/0	0	0/0	0	0	61,425	55,000	239,445

First Year Approved: 1997

OBJECTIVES: The development objective that creates the context for this project is the improvement of livestock health and reproduction as a means of increasing food security and enhancing the rural economy. The project's specific aim is to conduct a final demonstration of the technical, logistic and economic feasibility of eradicating isolated populations of the tsetse fly using the sterile insect technique. The demonstration site is a 20,000 km² region in the southern Rift Valley.

BACKGROUND: Tsetse-transmitted trypanosomiasis is one of the most serious livestock diseases on the African continent. It limits the production of cattle and other domestic livestock in a broad area south of the Sahara that exceeds 10 million km². Ethiopia has the largest livestock population in Africa, amounting to 33 million cattle, 41 million sheep and goats, seven million equines, and one million camels. The major contributions of livestock to the country's socio-economic development are direct provision of food; draught power; organic fertilizer; generation of foreign exchange earnings through export and sales of live animals as well as animal products and by-products; and the provision of jobs directly at farm level and indirectly in agro-industrial enterprises. Estimates suggest that about ten million cattle are under the threat of tsetse-transmitted trypanosomiasis. Moreover, agricultural development is impossible over vast areas because of the prevalence of tsetse flies. The tsetse fly adversely affects the livelihood of some five million people. There is evidence that the disease they transmit to cattle is on the increase. The Government's approach to trypanosomiasis control has been through the use of chemicals. In 1968, the Desert Locust Control Organisation for Eastern Africa (DLCOEA) attempted aerial spraying with insecticides in the Didessa Valley. The control exercise achieved 60% reduction in the fly population before the operation ceased. FAO, in collaboration with the Ministry of Agriculture (MOA), launched a control programme in 1986, using odour-baited, insecticide-impregnated traps and targets in Bedelle and neighbouring regions. In 1988 the MOA reported reclaiming about 700 km² of land. However, the cost of insecticides is very high and some tsetse species are developing resistance to them. It has not yet been possible to mount a sustainable tsetse control programme. The Government is now in the process of establishing a prioritized, soundly planned, and well organized new approach, one that is consistent with the country's socio-economic and technical situation. The sterile insect technique (SIT) is a necessary component of this integrated approach. The Government has selected an area of 20,000 km² in the southern Rift Valley for phased tsetse eradication. The first phase will include more than 2000 km², the second almost 5000 km², and the third phase, the remainder. The Ethiopian Science and Technology Commission and the National Tsetse and Trypanosomiasis Investigation and Control Centre will implement the project in collaboration with other institutions, including the National Animal Health Research Centre. At present, suppression activities have begun over about 900 km² of the target area.

PROJECT PLAN: Intense preliminary activities in the selected area of about 20,000 km² will precede eradication operations. These activities include: (i) a detailed tsetse/trypanosomiasis assessment, including the establishment of a structured veterinary and entomological monitoring system; (ii) verification of the degree of isolation of the tsetse breeding population in the project area; (iii) R&D on a suitable *Glossina pallidipes* strain for SIT releases; and (iv) training on strain adaptation and mass-rearing. Subsequent activities will include: (i) identification of the most efficient method(s) of pre-release population suppression; (ii) determination of the most economical combination of the rate of tsetse suppression and numbers of sterile males required; (iii) assessment of the type, location and capacity of the national tsetse mass-rearing facility, together with elaboration of the facility

designs; (iv) establishment of the mass-rearing facility; (v) intensive staff training; (vi) assessment of various options for dispersal techniques for the sterile flies; (vii) aerial releases of the sterile flies in an area of about 2000 km²; and (viii) constant monitoring of wild fly population and the incidence of trypanosomiasis.

NATIONAL COMMITMENT: The Government will provide the necessary staff and operational budget as well as a strong project management team. The Government will also undertake to (i) promote the involvement of local communities in all activities leading to trypanosomiasis control; (ii) encourage private sector participation; and (iii) endeavour, together with the Agency, to secure extrabudgetary contributions for the project. The Government will provide offices, laboratories, and insectaries.

AGENCY INPUT: The Agency's input will comprise expert services; equipment and supplies for data collection; pre-release tsetse suppression; equipment to establish a tsetse mass-rearing facility, including the insectary; a stand-by generator; a gamma source; part of the operating costs; and training. Subcontractors will carry out aerial releases of tsetse flies.

PROJECT IMPACT: The project's first phase will be a highly visible demonstration of SIT's effectiveness in tsetse eradication on the African mainland over an area of 2000 km². This demonstration will set the stage for subsequent eradication over an area 10 times as large. As land becomes available through eradication for agriculture, the consequent increases in livestock production and crops will contribute to food security and sustainable growth in the rural economy. This project will also generate the data needed for a thorough cost-benefit analysis of conducting integrated tsetse eradication campaigns under careful planning, and with full automation of insect rearing.