

TSETSE FLY ERADICATION ON ZANZIBAR ISLAND (URT/5/016) D4 a/

FOOTNOTE a/ FINANCING

YEAR	Experts		Equipment	Fellowships		Scientific Visits		Training	Sub-contracts	Misc. Comp.	Total US \$
	m/d	US \$	US \$	m/d	US \$	m/d	US \$	US \$	US \$	US \$	
1995	68/0	856,800	464,000	-	-	-	-	-	460,000	-	1,780,800
1996	68/0	897,600	276,000	-	-	-	-	-	426,000	-	1,599,600

First Year Approved: 94

Total expenditure to 30 September 1994:

\$921,999 (TACF)
 \$646,110 (EXTRA)
 \$1,568,109 (TOTAL)

OBJECTIVES: To effect complete eradication of the tsetse fly from Zanzibar, and to establish quarantine procedures to protect against reinfestation.

BACKGROUND: Trypanosomiasis has debilitating effects on animals and causes sleeping sickness in humans. The disease, which is transmitted by the tsetse fly, is a major limiting factor in agriculture and economic development for many African countries. FAO estimates that as much as one third of the total potential livestock productivity of Africa is lost owing to this disease. Zanzibar consists of two major islands. The larger of the two is infested with a single species of tsetse fly. Between 17% and 25% of the cattle on the island are infected with trypanosomiasis, and in some herds the prevalence is as high as 80%. As a result, Zanzibar annually imports up to 10,000 live cattle and large quantities of dairy products. The fact that only a single species of tsetse fly is present makes the circumstances ideal for application of the sterile insect technique (SIT). Efforts to develop the capability to eradicate the tsetse fly from Zanzibar using SIT have been under way for the past decade. With support from the IAEA and other organizations, the Tsetse and Trypanosomiasis Research Institute (TTRI) and a tsetse fly rearing facility are well established. In 1991, small scale routine releases were initiated in the main primary forest habitat on Zanzibar. In the second half of 1993 the density of sterile males released in this forest was substantially increased, resulting in a direct reduction of the reproductive potential of the target fly population. Most of the personnel required to conduct the programme are already trained, experienced and currently on-site, needing only to be provided with adequate supplies, equipment and leadership to carry out the project. Since 1986 the tsetse control component of a UNDP-funded FAO animal disease control programme has substantially reduced the original density of tsetse flies in most areas of Unguja. Although the programme failed to eradicate the pest from the entire island, it sufficiently reduced tsetse population densities to levels that now permit the efficient use of SIT. Once eradication is accomplished, the natural geographical isolation of the island will greatly facilitate effective quarantine against reinfestation.

PROJECT PLAN: Prior to the actual eradication effort, conventional methods will be used to further reduce the tsetse population. Meanwhile, rearing facilities at TTRI and at the Agency's Laboratories at Seibersdorf will be intensified. Weekly releases of sterile male flies will be extended to the entire southern portion of the island. In the second year, releases will be initiated in the northern part of the island. Releases will continue until eradication is achieved, which is expected some 2.5 years after initiation of first large scale releases on the island. Surveillance and quarantine procedures will be implemented to ensure that tsetse and trypanosomiasis transmission is not re-established. Additional activities related to the project will be (i) an economic assessment of the gains resulting for the Zanzibar and the Tanzanian economy from tsetse eradication and (ii) an environmental study on the pattern of land use, agricultural development and biodiversity after tsetse eradication and elimination of trypanosome transmission. The total cost of the project is estimated to be \$6,300,000.

NATIONAL COMMITMENT: The Governments of Tanzania and Zanzibar will ensure that the vehicles, equipment and consumables now involved in eradication and control activities will be committed to the project. The Governments will also provide office accommodation, laboratories, insectaries, workshops, and storage facilities together with all associated operating costs. A total of approximately 165 personnel in Zanzibar and on the mainland of Tanzania will be provided. The estimated total cash and in kind contributions to the project from the host governments is \$774,000.

AGENCY INPUT: Expert services for tsetse mass rearing technology, SIT releases and entomological monitoring of the tsetse target population, trypanosome surveys, and economic assessments and ecological studies; technical support and direction and overall programme management, including the provision of sterile flies from the Agency's Laboratories at Seibersdorf to supplement those reared at Tanga; equipment including a gamma cell, several vehicles, a generator; communication, insectary and field equipment; training in ELISA, fly rearing and entomological techniques. An additional \$5,800,000 will be needed through extrabudgetary funding from donor governments to cover a period of three years.

IMPACT: The eradication of the tsetse fly and the elimination of trypanosome transmission from Zanzibar would be effected in about three years. Imports of cattle and dairy products will be greatly reduced. The direct economic benefit to Zanzibar is estimated to be approximately \$2 million per year. This takes into account reductions in actual losses, costs of trypanosomiasis control, and imports. Additional longer term benefits would include the implementation of an integrated smallholder agricultural production system throughout the island.