

# Technical Cooperation Administration in Tanzania: Unresolved Policy Issues

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## 1. Introduction

The aim of this paper is to examine Tanzania's experiences in administering technical cooperation resources (TC). For purposes of this article, TC is construed as one of the instruments in international development cooperation that is aimed at enhancing human and institutional capabilities through the transfer, adaptation, and utilization of knowledge, skills and technology. Four teaching-cum-agricultural research institutions are examined. It is argued that because of the fragile institutional and structural capacity of the state, Tanzania has not generally succeeded in maximizing the exploitation of TC resources to achieve the intended objectives. Several institutional fragilities are identified. In the first place, for a long time the government of Tanzania did not incorporate in its macro development policies a clear and comprehensive TC policy framework<sup>1</sup>. As a result of this critical shortcoming, TC delivery in the country tended to be *ad hoc* and *laissez-faire*. Moreover, reliable institutional mechanisms for identifying and programming realistic national TC needs have yet to evolve. It is therefore argued that ill-planned and uncoordinated resource transfers have not led to sustainable institutional capacity building nor to cumulative technology transfer. Above all, at a project level, there exists no sound systems for a transparent and flexible management of such resources. Regrettably, this problem has, over time, degenerated into an abdication of the management responsibilities to foreign donors as a result of a vacuum in the local administration and control systems (Mutahaba, 1989; Kleemeier, 1982; Nkonoki, 1991). In turn, this very process has also tended to place national policy determination unduly in the hands of foreign financial institutions and donor agencies and has thus slowly but surely compromised national sovereignty (Rugumamu, 1991).

The dependency theory in international political economy provides valuable insights to explain this kind of relationships. In our case, the theory would assume unequal distribution of power and wealth between donors and recipients. Inequality between partners is the necessary condition for the actual exercise of influence over behaviour. Donors are endowed invariably with more resources than recipients. In most cases, there are neither direct nor automatic *quid pro quos* in this type of transactions. In other words, the relationships are typically characterized by a particular asymmetry – an asymmetry of dominance and dependence. The theory would further assume disproportionate influence of the donor on the very content of these relationships. The pattern of written and unwritten rules, principles, norms and procedures that govern aid relationships are equally asymmetrical, reflecting the inherent power imbalance. All things being equal, the theory would predict that the internal economic and social progress of the recipient nations will be determined and largely limited by constraints imposed by donor nations (Poulantzas, 1974; Jalee, 1968; Ake, 1979).

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However, a variety of capabilities that a recipient state and its institutions can deploy is likely to make a world of difference in such international transactions. The ingredients of state capabilities would be demonstrated, among other things, by its possession of a critical mass of endogenous experts to formulate and effectively implement clear and comprehensive national policies. Supported by stable and reliable institutions, the envisaged policy framework would distil national TC objectives; prioritize the needs; and, in each case, target the beneficiary populations. Indeed, those capabilities would naturally translate into an effective countervailing force to safeguard the core national interests. In this sense, therefore, chances of donors imposing low priority TC projects or transferring inappropriate technologies would be substantially reduced. So also would be the frequency of cases of projects and programmes lacking sustainability. To be sure, those critical institutional capabilities develop unevenly across economies and sectors.

However, some recent studies by Morss (1984) and Doornbos (1990) have advanced a compelling argument that, in fact, donor and project proliferation in Africa tend to contribute significantly to institutional erosion and decay. They have claimed that the overwhelming pressure of donors diverts the attention of the African governments from attempting to determine national policies and priorities to simply trying to please them for additional aid. Under the pretext of "*policy dialogue*", such governments end up accepting ready-made policy packages already agreed upon by the major donors. Sovereignty at bay, no doubt!

The paper is divided into four substantive sections. The volume, magnitude and role of technical assistance to Tanzania is presented and discussed in section one. Case studies of the Mbegani Fisheries Development Centre and the Uyole Agricultural Centre are discussed in section two. It is argued that in the absence of a comprehensive policy framework, implementation strategies and effective executing national institutions, the impact of TC is likely to be marginal at best and destructive at worst. In the third section, two success stories are presented and factors behind the success outlined. Finally there is the conclusion.

## 2. TC Volume and Distribution in Tanzania

It has been estimated that Sub-Saharan Africa received an annual average of about US \$ 4 billion worth of TC and about 70,000 to 100,000 expatriates worked on a variety of projects during the mid-1980s (Wallace, 1990:27). There is, however, a growing concern and skepticism in the literature that questions TC cost-effectiveness and its mode of delivery. It is argued that much success has been recorded neither in terms of institutional capacity building nor in terms of human resource development in critical scientific and policy management areas. It is further argued that TC delivery and administration is "donor driven" and that the recipient government positions have usually been reactive rather than initiative. As a consequence, the overall TC impact on the Sub-continent has been pretty marginal (Green, 1973; Mushi and Kjekshus, 1982; Baskin, 1985).

Moreover, there has been a growing malaise in Africa with the role of TC personnel. While the number of highly educated Africans has been increasing, the volume of TC personnel has also been rising. Irritatingly, the latter absorb between 70 and 80 per cent of the total TC resources (Bernis, 1990:10). Much too often, TC experts have

been engaged in areas where nationals with by far superior professional qualifications and even richer grassroots experience exist. Such disturbing yet common incidence has forced some cynics to seriously question the otherwise "hidden agendas" of aid donors and recipient governments (Hayter, 1970; Bhatt, 1980; Payer, 1982).

Above all, some official misconceptions about TC have also heavily contributed to its gross ineffectiveness in several African countries. TC resources are invariably misconceived as "free-gifts". In other words, they are taken to be priceless development funds which are simply not to be repaid. Indirect costs linked to TC use are seldom considered (Bernis, 1990:6). It is precisely because of this mistaken notion that some governments have tended to accept any of these "gifts" regardless of their importance in the national development plans and priorities. Little or no effort is made to carefully assess, say, the professional competence of the TC personnel, the rigorousness of a counter-part training programmes nor the appropriateness of the technology packages imposed on illiterate peasants (Bagachwa and Rugumamu, 1991). To be sure, misconceptions of this kind have not helped to enhance the positive impact of TC.

Tanzania is one of the major aid recipients in Sub-Saharan Africa. In 1975/76, for example, the country ranked the third aid recipient of the Overseas Development Assistance (ODA) in the region receiving US \$ 302 million or about 1.6 percent of the disbursed aid. In 1980/81 and 1987/88, Tanzania ranked second receiving US \$ 666 million and US \$ 800 million, respectively, from the ODA disbursed funds. As can be deduced from Table I below, the share of TC resources in the total aid flow has, over a ten-year period, averaged about 33 percent. The amount of TC given to Tanzania declined from an average of 34.7 percent during the 1980 - 85 period to 32 percent during the 1986 - 89 period (UNDP, 1989).

**Table I: The Volume of Technical Assistance to Tanzania 1980 - 1989 in (US \$ Million)**

YEAR	1. TOTAL AID	2. TECH. COOP.	TECH. COOP. as % of TOTAL AID
1980	666	233	34.9
1981	701	229	32.6
1982	684	178	26.0
1983	593	209	35.2
1984	557	216	38.7
1985	486	200	41.1
1986	680	260	38.2
1987	814	244	29.9
1988	905	250	27.6
1989	906	293	32.3

Sources: OECD, *Geographical Distribution of Financial Flows*, Paris. (several edition)  
UNDP *Tanzania Development Cooperation Report* 1987, 1988, 1989.

Between 1986 and 1989, the total TC resources to Tanzania increased from US \$ 260 million to US \$ 293 million with a low of US \$ 244 million in 1987. During the same period, according to the same UNDP sources, the number of TC projects recorded more than doubled - increasing from 420 to 979 from 60 donors. The annual average of TC disbursements was over US \$ 260 million. This was about one third of total external assistance flows, or about 20 percent of the total import bill and significantly over half of total export earnings (UNDP, 1989).

However, over the same period, TC resources were disproportionately distributed across sectors. As Table II demonstrates, the general development, policy and planning sector received an average of 23 percent over a four-year period. The agricultural sector, supposedly the nerve centre of the economy, was allocated about twelve percent of the disbursed funds. The education sector received only five percent. This is undoubtedly a clear manifestation of a poor priority ranking procedure in the national planning system. Understandably, this kind of oversight can only happen in countries where donors are left relatively free to pick and choose where to invest their resources.

**Table II: Sectoral Distribution of External Assistance to Tanzania 1986 - 1989 (by percentages)**

Sector	1986	1987	1988	1989	1986-1989 Average
1. General Dev. Issues, Policy and Planning	16	37	30	12.9	23.9
2. Transport and Communications	13	16	18	20.3	16.8
3. Agriculture, Forestry and Fisheries	13	15	15	8	12.7
4. Industry	8	10	13	19.7	12.6
5. Health and Water	5	9	11	5.7	7.6
6. Education	5	3	5	7.3	5.0
7. Others	40	10	8	26.1	21.0
Total	100%	100%	100%	100%	100%

Source: UNDP, *Development Cooperation Reports* 1986 to 1989

As earlier stated, technical cooperation involves the provision, on concessionary terms, (usually 10 percent grant element and above) of resources aimed at enhancing human and institutional capabilities through the transfer, adaptation and utilization of knowledge, skills and technology. The underlying assumption is that the application of improved techniques results in higher productivity per person, giving rise to higher incomes, higher savings and higher investments per capita. This makes possible the generation and application of improved techniques which result in higher productivity per person and so the process continues (Girvan, 1983:11). TC resources are provided in the form of specialized personnel, training, machinery and equipment and finance. Indeed, this is a unique instrument of technology transfer in the

“North-South” economic relations. It is unique in the sense that technology is transferred almost invariably in non-commercial transaction<sup>2</sup>. This is what Dichter (1988) aptly called “development-oriented technology transfer.”

The most fundamental aspect in any development cooperation programme is the transfer of knowledge and skills to the local participants in the programme. The argument is that the latter will be sufficiently equipped to implement similar or even more complex activities in the future by themselves without recourse to foreign support. The ultimate goal is to empower the recipient institutions and people to take charge of their own lives. To this effect, they should participate in designing and implementing development programmes in order to encourage technological initiative at grassroots level. This is commonly referred to in the literature as “building national technological capabilities” (Cooper, 1974). The two traditional methods of transferring knowledge and skills are formal training through schools and colleges and counterpart training, that is locals working together with an expatriate on the same tasks for a given period of time.

In order to create forms of knowledge transfer adopted to specific work situations and yet to avoid interpersonal difficulties associated with counterpart training, “institution twinning” has recently emerged. The theory behind institution twinning is that an established institution possesses what has been commonly called “corporate skills” – experiences accumulated from working in a particular field for a long time. This includes methods and approaches for tackling new situations which are specific to that institution and which are acquired through time by some employees of that institution (Cooper, 1984; Mothander et al., 1989).

The simplest form of institution twinning is set up between two institutions which are in the same field or in very similar fields, of operation. One of the partners (senior) informs the other (junior) how it would solve possible practical problems, sharing of work methods, research techniques and findings, as well working manuals. It would obviously be upon the junior partner to adapt the acquired knowledge to the local working conditions and circumstances.

At the institutional level, effective knowledge and skill acquisition and accumulation is a long and complex process. It takes a critical mass of accumulated knowledge to rationally determine what additional skills, knowledge and technologies are required; how to search for and select the types and knowledge needed; how to negotiate for favourable terms of transfer; how to adapt and absorb new production systems, and finally, how to generate and diffuse technologies in selected areas (Stewart, 1978; Bell, 1984). In the subsequent pages, we explain how different modes of TC delivery and institutional environment in Tanzania have impacted skill and knowledge acquisition as well as technology transfer.

### 3. The Mbegani Fisheries Centre: Ill-Conceived Project.

As earlier pointed out, for a long time Tanzania did not have a policy framework to guide TC activities. Nor were there any formal and reliable mechanisms for identifying and programming TC requirements for different sectors of the national economy. It is precisely because of this critical policy lacuna that a good number of TC projects in the country were found to be donor conceived, designed, implemented and indeed

driven. This led, more often than not, to designing projects which were either inappropriately packaged, poorly targeted or excessively lavish for the actual need. As a consequence, the overall impact of TC projects and programmes on the intended populations in Tanzania was variously rated as quite insignificant (Green, 1973; Freeman, 1982; Nordic Report, 1988). The Mbegani Fisheries Development Centre project supported by Norwegian aid is one of the classic examples on a long list of poorly conceived, designed and executed projects in Tanzania.

The Bagamoyo-based Mbegani Fisheries Development Centre (here-after the Centre was established in 1966 by the Government of Tanzania along with two other colleges to train fisheries personnel. In 1972 the Government of Tanzania approached the Royal Norwegian Government to request for the necessary assistance to develop a fisheries sector in the country. The Government of Norway accepted the request. Through the Norwegian Agency for International Development – NORAD – Norway embarked on assessing the nature and extent for such a support.

NORAD sub-contracted a Norwegian Fisheries Development Corporation – FIDECO, to undertake feasibility studies of the fisheries sector in Tanzania and then advise on the kinds of support projects and programmes to be provided. As will be demonstrated momentarily, after a rather sketchy and indeed impressionistic survey, the consultants recommended to NORAD to rehabilitate, expand and modernize the Centre facilities for purposes of industrial fisheries training and development. In order to establish a modern industrial fisheries training college, FIDECO further recommended that the Centre be provided with two mechanized training vessels, a fish receiving station, a mechanical workshop, a jetty, and to refurbish and upgrade the entire existing infrastructure. Apparently NORAD accepted almost all the above recommendations. Additionally, the FIDECO consultants were awarded a new contract to execute the entire project. Eleven experts were attached to the project to design and conduct courses leading to two-year certificates and three-year diplomas as well as supervising the construction works.

It is important at this juncture to underscore the point that after signing a “Letter of Understanding”, the Government of Tanzania seemed to have left almost all the project preparations and execution in the hands of FIDECO consultants and remotely NORAD. Nor were the Centre’s faculty and staff adequately involved. As a result, the FIDECO was given a relatively free hand to determine the nature and level of education to be provided, the curriculum content and the fishing vessels and gear to be procured and used for training. It is the argument of this paper that had the Government of Tanzania or its designated agencies adequately involved themselves at all stages of the project cycle, subsequent costly policy decisions would probably have been minimized if not avoided. Joint and comprehensive feasibility studies, for example, would presumably have facilitated informed decisions regarding training and development programmes at the Centre. Left to operate relatively independently, FIDECO not only missed the intended beneficiary but also went out of its way to overdesign the project to the consternation of both NORAD and the Government of Tanzania<sup>3</sup>.

Studies by Mytelka (1981) and Packer (1979) of the textile industry in Ivory Coast and the Tanzania National Development Corporation respectively found out that

poorly supervised private consulting firms tend to over-design and over-build facilities because the amount of fees charged is usually proportional to the value of the equipment and machinery installed. In an earlier study, this author confirmed Mytelka and Packer's observation in the Tanzanian textile industry. He noted that:

... With little or no effective state participation in the machinery procurement and installation, foreign private companies have a strong propensity to over-build plants and substantially increase the costs from which their fees are calculated. Foreign consulting companies and construction firms did just that in the modernization exercise of the Tanzanian textile industry (Rugumamu, 1989).

We have every reason to believe that FIDECO might have been influenced by the same profit motive. In fact, well over 65 percent of the TC funds provided went into the procurement of the machinery and equipment as well as paying the building contractors, fees (See Appendices 1 and 11). After all, capital accumulation is about maximizing profits!

The types of training vessels and their gear as well as the instructors, background significantly influenced the nature of training and the skills imparted at the Centre. The training was dominated by higher-level fisheries training (diplomas and certificates) which were intended for large scale modern industrial fishing. The Mv Mafunzo and other mechanized vessels – the main training vessels – have a limited capacity for using only large scale industrial fishing gear. High sea trawling, purse seining and trolling are the major fishing techniques imparted at the Centre. A tracer study of the Centre's recent graduates and their employers confirmed that the knowledge and skills imparted at the Centre were, more often than not, for removed from the concrete fishing conditions in Tanzania. The graduates are often faced with ominous lack of modern working tools, equipment, facilities and standard fishing vessels (Eastern and Southern African Universities Research Programme, 1988b: 110 – 112). Some of the graduates who work among artisanal fishing communities as extension officers are quickly disillusioned as they discover that their professional knowledge of large scale industrial fishing could not be easily adapted to those completely different circumstances.

The artisanal fishing has been estimated to contribute well over 95 percent of the total annual fish harvest in Tanzania. This traditional fishing industry employs about 60,000 people on full-time basis and about 3,000 people are engaged on part-time fishing and other fisheries related activities (Eastern and Southern African Universities Research Programme, 1988a)<sup>4</sup>. The main fishing vessels are dhows and canoes largely propelled by sail. The common gear employed include gill-nets, shark-nets, seine-nets, cast-nets, traps and hard lines. Motorized gear among traditional fishing communities is quite uncommon. Despite these rudimentary techniques, artisanal fishermen produce, as already mentioned, about 95 percent of the total annual fish harvest. The FIDECO feasibility study reports and recommendations failed to capture the importance of this fishing community in the industry (Havnevik et al., 1988: 218–230).

Not surprisingly, the 1979 Nore Commission Report and the 1986 Norwegian Mission Report on the Centre's performance strongly criticized the very objectives of this TC project. Apparently, both reports strongly deplored the undue emphasis that was placed on the higher-level, high-technology demanding training programmes

and were also very critical about the shoddy development activities that the Centre had been undertaking. Consequently, various costly recommendations were later made to restructure the Centre's training and development programmes so as to pay special attention to the needs and concerns of artisanal fishermen (Norwegian Evaluation Mission Report, 1986:43–52). FIDECO was later fired and two other Norwegian construction companies were hired to complete the infrastructural works at the Centre and undertake training.

It has to be emphasized again at this point that subsequent problems at the Centre were a product of the initially poorly conceived and designed project. Even after several evaluation mission reports indicating poor project planning, design and performance, NORAD was reluctant to abandon the project. This option was probably considered undiplomatic! To save faces, in a rush and, indeed armed with scantily informed background studies, it massively invested in this otherwise nonviable project by adding yet new programmes (Havnevik et al., 1988). As Table III clearly indicates, between 1986/87 and 1990/91 NORAD and the government of Tanzania invested well over 200 million shillings to establish a one-year certificate course for extension officers opened additional short course training posts for small-scale fishermen and invigorated the Centre's development activities. In retrospect, it can plausibly be argued that both FIDECO and NORAD marginally took into account the socio-cultural setting and needs of Tanzania's fisheries industry. This is, in fact, what makes this project a classic failure case.

Table III: Mbegani Fisheries Centre Budget for 1985/86–1990/91 (in TSh. mill)

Item	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91*
A. Recurrent Tanzania	4.18	5.55	9.96	17.9	25.5	36.69
B. Development NORAD	6.59	16.62	17.25	36.26	46.26	98.9
Total	10.77	22.17	27.22	54.19	71.76	135.49

Source: Mbegani Fisheries Development Centre Accounts (various years).

\* Estimates.

The failure to appreciate the importance of the above, led to vague operationalization of the project's potential target population. Moreover, the Government of Tanzania deserves a full share of the responsibility and blame. One would have expected the Government to assume a lead role in all key issues of TC delivery process. Passivity, however, tended to reign here. Kleemeier (1982:80–82) who earlier studied the role of technical assistance in rural development in Tanzania argued that this passivity was reinforced by the Government's mistaken belief that "technical" aspects of foreign aided projects were better left to the discretion of donor experts.

#### 4. The Uyole Agricultural Centre: A Targeted Beneficiary

In 1968 the government of Tanzania made request for technical assistance from the Nordic governments in order to establish an integrated agricultural institute for the

development of four Southwestern Highland regions of Tanzania. After two feasibility study missions – the Nordic Agricultural Experts and the Nordic appraisal and Planning experts missions – a technical cooperation agreement was signed in 1972. The Finnish government was given the execution responsibility of the project on behalf of the other donors. Among other things, the agreement provided: –

- (a) a grant for investment in various facilities and equipment;
- (b) consultancy services for construction and design of buildings;
- (c) personnel assistance programme for 145 man–years during a five–year period;
- (d) scholarships for 37 Tanzanians for University level education; and
- (e) to finance Nordic administration costs.

In 1975 Iceland became a supporting member of this project. The above–mentioned agreement was renewed three times up to 1985 when all but Finland withdrew from the project. From 1985 to 1992 the Finnish government alone supported the Uyoie project.

By 1975 most of the research and training offices had been completed and so were the laboratories, green houses, workshops and livestock facilities. The training programme became operational two years later. Until the late 1970s both the research and training programme understandably were dominated by Nordic experts. Gradually this picture began to change in the early 1980s as Tanzanians returned to the Centre with graduate degrees.

As per the Act of Parliament establishing the Centre, it was mandated to undertake production–oriented research and training activities in order to solve immediate technical problems of the farmers. To this effect, the crop research programmes include maize, rice, phaseolus beans, potatoes, wheat, fruits and vegetables. In turn each crop research covers breeding, agronomy, crop production and on–farm research. The livestock programmes concentrate on pasture development and pasture nutritive value studies for dairy cattle. In brief, the target group of this TC project was unambiguously stated and correctly understood right from the start.

The Uyoie Agricultural Centre is the only research institute in Tanzania with a fully–fledged extension section and extension specialists. It organizes regular researchers' demonstrations and on–farm trials with its village, district and regional agricultural extension networks. The Centre also publishes extension leaf–lets, booklets, as well as the *Uyoie Research Bulletin*. Commenting on the overall performance of the Uyoie Centre, the 1988 World Bank evaluation team remarked that:

The Uyoie Agricultural Centre has been more successful than others... in reaching farmers, helped by its extension section... it can be regarded as a useful model for regional adaptive research which could be replicated. The experiment of combining training and research has also worked well (World Bank, 1988:8).

On the training side, the Centre has a planned capacity of 500 students. It houses five academic departments and conducts three different programmes: diplomas, certificates and short courses for farmers. By 1991, the Centre had successfully trained 6,569 Tanzanians of whom 2,102 received diplomas, 787 certificates and 3,680 were short courses farmers (See Appendix III).

Moreover, despite occasional brain–drain from the Centre to other more attractive local and international jobs, the Uyoie TC project has relatively managed to train and retain a handsome pool of its professionals (See Appendix IV). A variety of imaginative incentive schemes has been created to motivate and retain researchers and trainers. These include, among others, subsidized rent, free medical care, free transport, research funds and equipment and subsidized rental charges for agricultural equipment for private use. As at September of 1991, for instance, the Centre employed 83 agricultural professionals and 138 technicians. In effect, we can conclude that knowledge and skills have been effectively transferred to the nationals through this Nordic TC arrangement. The programme has built and strengthened national research and training capabilities. The local experts have accumulated sufficient capabilities to identify agricultural problems, define appropriate research projects and deliver scientific solutions to their clients. As we shall later demonstrate, the Centre's impact on the agricultural development in the regions concerned has effectively been felt.

The Southern Highlands Maize Improvement Programme graphically demonstrates the Uyoie research success. It has been based at Centre since 1971. The long–term objectives of this programme include forming agro–economic packages for maize for different agro–ecological zones and farming systems found in the region, breeding hybrids and open–pollinated varieties and monitoring pests and disease of maize.

In last twenty years or so, the maize research programme has successfully provided the requisite information on land preparation, varieties, planting time, rates and methods of fertilizer application, the use of organic manures, rotations, plant density and arrangement, weed and pest control. This variable information has been passed on directly to the farmers or indirectly through the extension system. It should be emphasized that similar successes have been recorded in the research and development of sorghum, millet, rice wheat and grain legumes (Moshi and Marandu 1988; Marandu, 1988).

With the benefit of hindsight based on a flood of new information, one can legitimately conclude that the phenomenal Uyoie achievements could hardly have been possible without the unfailing donor support. Its up–to–date infrastructure for research and extension services and staff retention schemes for example, have been uninterruptedly maintained by TC resources. The logical questions that follow are: for how long can such support last? It is sustainable after donor withdrawal? These and other similar questions are the subject of the subsequent discussion.

Despite those apparent praises and accomplishments, the TC management for the Uyoie Centre has not always been rosy. The perennial question of sustainability stands out prominently. During the initial construction phase (1971–1976) for example, the Nordic governments extended about Tshs. 256 million to the project while the Tanzanian government contributed Tshs. 240 million or 58 and 42 percent respectively (Uyoie Accounts). One would have expected that the local financial contributions would have gradually risen. Surprisingly, subsequent agreements between the Tanzanian and the Nordic governments neither paid sufficient attention to the exact size of the local contributions over time nor to the Nordic phasing out

time-table. The 1980 joint Nordic-Tanzania Evaluation Mission report, for instance, casually noted the serious drop in the quality of research and training at the Centre as a large number of Nordic experts concluded their contracts without commensurate replacement. Accordingly, the report recommended no further expansion of the programmes and a substantial raise in the government contributions in matching funds. Once again, no exact estimates were proposed nor deadlines suggested. This rather disturbing omission is likely to impact negatively the Centre's programmes as the Finns finally withdraw.

**Table IV: Finnish and Tanzanian Governments Contributions**

To the Uyolet Centre 1985/86 to 1989/90 (in Tshs. mill.)

Year	1. Finnish	2. Tanzanian	3. Total	2 as % 3
1985/86	25.0	29.0	54.0	54%
1986/87	98.0	52.0	160.0	39%
1987/88	108.0	72.0	180.0	40%
1988/89	158.0	138.0	296.0	47%
1989/90	279.0	151.0	430.0	35%

Source: Uyolet Centre Accounts (Several Years)

As Table IV clearly shows, between 1985/86 and 1989/90 the Tanzanian government subvention to the centre averaged only 43 percent. In fact, there seems to have been no conscious efforts to gradually increase the government's relative annual contributions to the centre for an eventual smooth take over. A further breakdown of the 1988/89 and 1989/90 figures in Table V, for instance, demonstrates that FINNIDA has all along been supporting the core activities in the research and training divisions at Uyolet. It is very unlikely that the government of Tanzania will fill FINNIDA'S gap in the short run. This is surely a sign of poor management.

**Table V: Government and Finnida Expenditure Comparisons**

1989 and 1990 (Mill Tshs)

Items	1989			1990		
	Govt.	Finnida	Total	Govt.	Finnida	Total
1. Research Institute	36.0 (39%)	56.0 (61%)	92.0	34.5 (26%)	100.0 (74%)	134.6
2. Training Institute	26.2 (53%)	23.2 (47%)	49.4	31.0 (48%)	33.9 (52%)	64.9
3. Others (collaboration & training)	— (0%)	17.7 (100%)	17.7	— (0%)	17.4 (100%)	17.4
4. Rehabilitation	— (0%)	26.8 (100%)	26.8	— (0%)	54.6 (100%)	54.6
5. Institutional Support	72.1 (68%)	34.4 (32%)	106.6	76.9 (51%)	73.2 (49%)	150.0
6. Development	9.0 (100%)	— (0%)	9.0	3.6 (100%)	— (0%)	3.6
Total	138.0 (47%)	158.2 (53%)	296.3	151.5 (35%)	279.4 (65%)	43.9

Source: Finnida/Uyolet Annual Meeting Uyolet 11-12 November, 1991.

## 5. Institution Twinning and Transfer of Technology

Despite the absence of a national policy framework on TC, the Sokoine University of Agriculture's two new faculties of Forestry and Veterinary Medicine have effectively managed to acquire and assimilate technology through TC arrangements. The secret behind this phenomenal success is the University's relatively strong institutional capacity which was a significant bottleneck in our earlier case studies. Indeed, as the 1989 Development Assistance Committee Report poignantly observed, "sustained and self-reliant development depends on the strength and quality of the country's institutions" (1989:107). The University of Sokoine skillfully deployed its accumulated knowledge and experience to strike favorable deals with donor agencies. This phenomenal performance corroborates Muscat's conclusions (1986:61). He persuasively argued that the major determinant of TC effectiveness is the level of development of the recipient institution, that is, the degree to which the institution in question is able to absorb and exploit the technical and material resources provided from outside. Indeed, the observation that technology transfer and TC effectiveness increase through time, along with rising skills and institutional capacities, implies that effectiveness would normally be low among the least developed countries and institutions.

The Faculty of Forestry was established in 1973 by the Government of Tanzania with NORAD providing a generous grant for equipment, infrastructure, laboratories vehicles and foreign academic staff. From 1973 to 1991, NORAD had spent well over US \$ 30 million on the project. The University of Sokoine had, on its part, carefully undertake a thorough internal needs assessment long before the initial feasibility studies were carried out. This comes out clearly from the project agreement documents. The fine details of the project activities were unambiguous, and priorities were well articulated and carefully sequenced. Moreover, the effectiveness of the recipient's participation in the project planning, design and implementation is obvious from the ways in which technology transfer mechanisms were programmed and implemented.

To be precise, a comprehensive training programme for young Tanzanian academicians and technicians was drawn up specifying colleges, areas of specialization and time frames. The project further identified the School of Forestry at the Agricultural University of Norway as a senior counterpart in a twinning arrangement with the Sokoine University of Agriculture. The senior counterpart was charged with several responsibilities. Among others, it was responsible for training Tanzanian counterparts in order to build up scientific and technological skills, methodologies, research stations and laboratories organization, and to develop collaborative research and training. The Mbegani Fisheries Development Centre project agreement did not involve any form of institutional cooperation.

Together with an initial skeleton of national experts, the project had by mid-1991 trained over 300 B.Sc.s 57, M.Sc.s and 14 Ph.D.s. About seventy percent of these are Tanzanians. The rest came from Kenya, Uganda, Rwanda, Malawi, Ethiopia, Sudan, Nigeria, Ghana, and Gambia (Faculty of Forestry Review Report, 1990).

In less than two decades of existence, the Faculty of Forestry has grown from modest beginnings to a fully-fledged faculty. In 1974, for instance, there were 12 Norwegian

experts at the Faculty. Today (1992) only one expatriate remains. The phasing out of expatriates and the training of the nationals were implemented in a timely fashion. Moreover, the Faculty, has already been earmarked as a centre for excellence in the Southern African sub-region. It is, in fact, currently running graduate programmes for the whole region. Above all, as a clear testimony of maturity, the Faculty of Forestry has recently published a comprehensive research priorities booklet which outlines its areas of research interests and strengths (Faculty of Forestry, 1991).

Going by its annual research publications and consultancy reports, the Faculty of Forestry at the Sokoine University of Agriculture has produced outstanding contributions in local and leading international journals. The main areas of research fall under two broad categories: applied and adaptive research and strategic and basic research (Faculty of Forestry Records, 1990). This is yet another solid testimony of the fact that scientific knowledge and skills have been effectively transferred to the local researchers.

It is also interesting to observe that the Government of Tanzania usually allocates insignificant amounts of money to University research and development. The 1987 ESAURP study of fourteen Universities in the region estimated that, on the average, they receive about 2 percent from their recurrent expenditure for research activities (ESAURP 1987:198-9). As a result, most of the research funds have been obtained through competitive research applications and through collaborative research programmes with foreign Universities and research institutions. The ability to compete and win in regional and international research contests is yet another substantive proof that the Faculty of Forestry at the Sokoine University has accumulated comparable research capabilities.

The Government of Tanzania has also come to recognize the importance of forestry scholars in influencing public policy and management. Not infrequently, some senior faculty members have been called upon to provide expert policy advice to the Government as well as sitting on important boards of directors.

The successes that were recorded in the Faculty of Forestry were more or less replicated in the Faculty of Veterinary Medicine at the same University. The latter was established with a generous grant package from the Government of Denmark through the Danish International Development Agency - DANIDA. The specific objective of DANIDA was categorically stated as "to support Sokoine University of Agriculture in building up a fully-fledged Faculty of Veterinary Science capable of conducting research and providing training at degree levels". During phase one of the project (1979-1986), DANIDA extended a comprehensive package of about US \$ 35 million to the University to construct all the necessary physical infrastructures including office buildings, laboratories, equipment as well as paying for the recurrent costs to support graduate training of Tanzanians abroad, research and teaching expenses for Danish academicians working at the faculty, and funds for regular maintenance and supplies.

During phase two of the project (1986-1991) DANIDA provided about US \$ 4 million to pay for graduate scholarships of Tanzanian academicians, maintenance of buildings and equipment, as well as to pay for recurrent expenditures on research

and teaching materials. Just as in the Faculty of Forestry, the TC package for the Veterinary Science included a twinning arrangement with the Royal Veterinary and Agricultural University in Copenhagen. The latter provided the Sokoine University with short and long term professors, organized joint Ph.D programmes for Tanzanians, and supported collaborative research. Moreover, local veterinary academicians and their Danish counterparts designed and implemented degree curricula that suited the tropical veterinary conditions. By the end of 1990/91 academic year, well over one hundred BVS, 5 Ph.Ds and 12 MVMs had been trained. It is envisaged that by 1993 the project will have trained 33 Ph.Ds. The 1991 Faculty Review mission had the following nice words to say about this project:

The overall impression is that the Faculty of Veterinary Medicine is now fully operational as far as the undergraduate programme is concerned... the faculty is well organized, runs and provides facilities for training and research on international level (1991:8)

That is not all. Our interviews revealed that initially all graduate training programmes were tied to Denmark. This arrangement remained so regardless of whether the Danish institutions were adequately prepared to train Veterinary Science experts for tropical conditions or not. However, this arrangement was later changed to allow Tanzanians to join institutions of their own choice. Clearly, this clause in the contract demonstrates weak bargaining capabilities on the part of the recipient institution. We are arguing that untied training assistance would have been negotiated in order to allow Tanzanians to train at any reputable institutions outside Denmark with a track record of tropical veterinary research and training.

Several possible explanations can be advanced in this regard. It is quite possible that the local negotiators were too cautious to embarrass their government. In other words, they were afraid of losing the entire offer simply because of hard-nosed bargaining. Secondly, it is also possible that the recipient negotiator possessed insufficient knowledge about alternative training arrangements and the costs involved. This aspect called for a detailed research of its own. Explaining the importance of information in the bargaining encounters, Singer (1975:379) perceptively taught us that:

Information, like technology, feeds upon itself. If you do not have enough information to begin with to know where to look for the information that you need, or to know what new information could be assembled, your initial inferiority is bound to be sharpened and perpetuated.... This unequal bargaining situation will affect *all* relations between the investing and the borrowing countries, whether labelled aid, trade, investment, transfer of technology, technical assistance or any other (emphasis original).

The last possible explanation stems from a mistaken notion that TC experts and advisors know what is "good" or "bad" for recipient institutions and beneficiary populations. This dependence mentality is normally ingrained in asymmetrical relationships of this kind. Too much bargaining would be perceived as "poking one's nose in the donors' business". That might also result in losing the whole deal altogether. In short, explanations account, in one way or another, for the repeated occurrence of unfavourable restrictive clauses in TC packages in Tanzania and elsewhere in the Third World.

However, on its part, the Government of Tanzania agreed on a systematic phasing-out arrangement for the recurrent budget of the Faculty of Veterinary

Medicine. The Government committed itself to establishing a procedure for this exercise since the 1988/89 financial year through a "Letter of Understanding" between the Project Coordinator and the Treasury. It was agreed that by the end of 1993 the Danish contribution to operational costs would cease. This means that the local contribution would increase correspondingly. As Table VI amply demonstrates, there has been a conscious effort by the Government to raise its annual contributions to this Faculty's recurrent costs to reasonable levels. The figures have risen from 23.9 percent of the total recurrent budget in 1985/86 to about 81 percent in 1990/91. Additionally, the Danish Government agreed to set aside about US \$ 1 million annually for the next five years as a foreign exchange facility to enable the Faculty to procure foreign supplies and parts for the installed machinery and equipment. Our skepticism, however, concerns what will happen when this facility is also phased out. Will the Government take up this responsibility fully? If one were to go by past experience project sustainability has proved the "Achilles heel" of most of TC projects in Tanzania.

Table VI. Recurrent Budget for Faculty of Vet. Science 1985/86–1990/91 (Tshs. Mill)

	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
1. DANIDA	12.4	23.5	23.5	23.5	23.5	12.3
2. TANZANIA	3.9	4.6	7.7	11.9	29.0	53.0
3. TOTAL	16.3	28.1	31.2	35.4	52.5	65.3
2 as % of 3 \$	23.9	16.3	24.6	33.6	55.2	81.1

Source: Project Document Annex 4  
Sokoine University Calendar 1990/91

All in all, this was one of a few TC projects that was professionally designed and implemented in Tanzania. This second time around, the Sokoine University carefully undertook its Faculty's needs assessment well in advance. It was fully involved in project planning, design and implementation. To this effect, the 1990 Danish–Tanzania Review Mission had the following to say about the performance of the project:

...It is the impression of the Review Mission that most of the project objectives were carried out very well. This is mainly due to an obviously out-standing cooperation and coordination between the Tanzanians and the Danish advisors as well as highly enthusiastic work from everybody (1990:8).

This evidence sharply contradicts Gran's findings about institution twinning arrangements in Tanzania (Gran, 1991). As earlier argued, increased institutional capacity for research and training through the twinning arrangement presupposes, among other things, a congruency of objectives between the donor and the recipient, a thorough internal needs assessment, absorptive capacity, and above all, the right TC inputs both in quantity and quality. The NORAD academic improvement project at the Institute of Development Management (IDM) lacked adequate preparation and design. According to Gran, (1991:62) NORAD had sloppily operationalized its policy objectives for enhancing the teaching and research capacities at the Institute. The latter's contribution in shaping the same was also doubtful. Secondly, NORAD

deployed poor quality advisors who, in turn, reinforced the poor quality of the project. To crown its all, the senior twinning institution – Agder College of Kristiansand – did not measure up to the envisaged tasks of collaborative research and teaching. As result, that arrangement had insignificant positive impact on institutional capacity building.

## 6. Conclusion

From the above discussions three conclusions are in order. First, we have observed that the nature and capability of the recipient institution largely influences the amount of gains to be reaped, risks to be faced, and the damage to be suffered from such international transactions. As earlier postulated in the theory, institutional capacities will invariably be reflected in its inhouse ability to undertake comprehensive and realistic TC needs assessment and planning. When carefully enforced, this mature policy stance would markedly minimize chances of donors imposing low priority TC projects nor inappropriate technology packages on the recipient country. Moreover, institutional capacity would also be reflected in the level of participation of the recipient in TC project planning, design and implementation. It was argued that effective knowledge and skill transfer presupposes, *ab initio*, the recipient's full participation in all project cycle activities. Relatedly, the capacity of the recipient institution would be reflected in its ability to direct, regulate and monitor the activities of the TC executing agencies in order to ensure that only the stated project objectives were pursued.

The second conclusion is closely tied to the first one. Technical assistance strategies of the recipient institutions assume the existence of a comprehensive national TC policy framework within which to operate. In our opinion, such a framework would be sufficiently detailed to deter its abuse in practice. Moreover, it would provide broad guidelines to help TC planners, negotiators and monitoring agencies in their day-to-day activities. The failure to institute such a framework in Tanzania, we have argued, tended to jeopardize the chances for TC effectiveness. As other research findings have extensively documented, unplanned low priority TC projects were usually approved, some of which projects were poorly designed and unprofessionally implemented while government counterpart funding was rarely forthcoming. In short, most TC projects in Tanzania lacked the institutional basis for sustainability (Mongula, 1990: Nordic Report, 1988).

Thirdly and finally, there is urgent need to sensitize the state bureaucracy in the Third World to the "hidden agendas" of international development agencies. To be sure, the political leadership in donor countries makes decisions concerning the broad political and economic interests which the TC resources have ultimately to serve. These include, among others, economic interests, promotion of foreign policy, international security concerns and humane internationalism (Stokke, 1989:9–15). In the absence of a realistic national policy framework and effective recipient participation, such interests are bound to determine TC project design and implementation. The motives behind aid policies are often intertwined and therefore a little difficult to be disentangled by the recipient countries. Public utterances notwithstanding, rarely are aid policies simply altruistic. Nor need development objectives of donor and recipient countries always coincide. It is therefore imperative that

recipient countries be thoroughly clear their critical TC needs and strive not to lose focus of those priorities during negotiations. As earlier argued, such a laudable posture is likely to greatly minimize the recipient country's economic and political vulnerabilities.

**Appendix I: NORAD Grant to Mbegani Fisheries (1974–1983)**

Year	Grants in mill. NOK
1974/75	13.0
1975/76	4.5
1976/77	1.0
1977/78	1.4
1978/79	7.0
1979/80	85.0
1980/81	30.0
1981/82	—
1982/83	8.0
<b>Total</b>	<b>149.9</b>

**Appendix II: NORAD Grants Breakdown in NOK Mill. (1974–1983)**

	Amounts	% of Total
Feasibility studies	19.9	13.2
Building contracts	80.0	53.3
Planning & designing	9.9	6.6
Education Planning	3.7	2.4
Projected administration	8.9	5.9
Machines and equipment	14.1	9.4
Operational costs	13.4	8.9
	<u>149.9</u>	<u>100.0</u>

**Appendix III: Uyole Graduates Breakdown (1977–1991)**

Year/Awards	1977–1972	1980–1989	1990–1991	Total
Diplomas	281	1,580	240	2,101
Certificates	262	383	142	787
Short Courses	163	2,264	1,295	3,722
<b>Total</b>	<b>706</b>	<b>4,227</b>	<b>1,677</b>	<b>6,610</b>

Source: Uyole Agricultural Centre files.

**Appendix IV: Uyole Staff Position (September 1991)**

Section/Staff	Professionals	Technicians	Total
Research Institute	48	81	129
Training Institute	25	35	6
Service Dept.	10	22	32
<b>Total</b>	<b>83</b>	<b>138</b>	<b>221</b>

Source: Uyole Agricultural Centre files.

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#### Endnotes:

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1. Various scattered policy statements about TC in the Arusha Declaration (1967) and thereafter were never woven together into one coherent policy; nor were there any serious attempts to operationalize them into a set of strategies aimed at what assistance to be sought, priority sectors to be targeted, and establish a transparent management system. Until pretty recently has the Government been sensitized into seriously working towards establishing a TC policy framework, planning and programming (UNDP, 1989).
  2. The commercial forms of technology transfer include, among others, technical assistance, agreements, know-how agreements, joint venture sub-contracting, licensing and franchising. An informed discussion on this subject is found in Vaitos (1975).
  3. The Centre has, since 1982, been operating at a capacity of only hundred and twelve students for both certificate and diploma programmes. The cost per student per year is more than four times higher than comparable institutes in the country.
  4. The activities include, among others, marketing, distribution, netmaking, marine engine repair, boat building and the production of other fishing accessories. For fuller details on the subject see Eastern and Southern African Universities Research Programme, 1988a.