1. Key development issues and rationale for Bank involvement

1. The call for productivity led growth and more and better skills from higher education. Tanzania’s National Strategy for Growth and Poverty Reduction (MKUKUTA) calls for productivity-led expansion of key sectors of the economy. To achieve sustained overall economic growth of between 6 and 8% annually, the strategy calls for steep increases over the next four years in the rates of growth in sectors such as agriculture, from 5.4% to 10%, and manufacturing, from 8.9% to 15%, while also decreasing unemployment, from 12.9% to 6.9%. Specific sub-sector goals call for tripling the quantity of rehabilitated roads from 4,500 km to 15,000 km annually, raising livestock growth rates three-folds, and increasing the value added of mineral exports by a factor of six. It also calls for increase in the transition rates from primary to secondary education from around 23% in 2004 to 50% in 2010, and the cohort participation rate in higher and technical education from around 1.3% in 2005 to around 12% in 2010.

2. Total factor productivity in Tanzania is lower than most other countries in the region. Higher amounts of capital per worker in Tanzania have not led to more efficient production, likely owing to an insufficiency of technical and entrepreneurial capacity in the workforce. However, where firms employ university graduates in senior positions, total factor productivity is 24% higher than the national average. If developed appropriately, this will rapidly and significantly improve the availability and use of knowledge and technology which are key means to increased productivity in all these sectors, as well as in the ICT, fisheries, and financial and commercial services. The 2004 Investment Climate Analysis found the quality of the workforce to be an especially serious constraint to productivity in Tanzania. Currently, therefore, higher and technical education, scientific, technological, and innovation capacity needs to be strengthened to contribute to the “MKUKUTA” goals for productivity-led expansion of the main sectors of the economy.

3. Evidence suggests that the demand from the labor market is high, there is low unemployment among graduates and the private rates of returns are high. Soderman et al (2004) found that wage differentials in the manufacturing sector varied positively with years of schooling, and showed the biggest increases after 12 years of school. They also found that the premium to tertiary education is going up, and skills demand among younger workers is more
Evidence also suggests considerable labor migration to Tanzania, including of highly skilled labor in the fastest growing sectors of the economy. Further work is needed however, to analyze more systematically the linkages between the sector and the labor market demands. Tracer studies of candidates, and other reports, suggest concern about the quality of the graduates, in particular in English, communication and mathematics skills. Investments in science, technology and research are particularly low and not at a level where they can be expected to make a significant contribution to technology transfer and productivity improvement.

4. Participation in higher and technical education in Tanzania is low by regional and international standards and the sector is smaller than it is in many countries that have achieved high growth rates. The country has one of the lowest higher and technical education enrollment rates in the world: around 1.3% of the age cohort participates. There are five public universities with 38,000 students and thirteen private and sectarian universities with 3500 students as well as four large technical colleges with 2200 students. Admission to these institutions is dependent on results in A-level examinations after six years of secondary. In addition, there are about 180 smaller technical colleges with about 4,000 students operating under fifteen other ministries and agencies, particularly health and agriculture. Admission to many of these is dependent on results in O-level examinations taken after four years of secondary.

5. The higher and technical education sector is already expanding rapidly. Between 2002/2003 and 2004/2005 the sector expanded from about 31,000 students to about 48,000. The number is expected to continue to increase. The drivers of this expansion or its immediate or longer term consequences have not been fully analyzed. Most of the new entrants have been absorbed by the public universities, but private institutions have also grown significantly albeit starting from a very low base. However, it should be noted that the enrollment in the technical education sector does not appear to be growing and that the sector is relatively small, despite an increasing number of private providers. In addition, the enrolment in graduate degree programs is low (about 6 percent of the total) and does not seem to have kept pace with the expansion at undergraduate level. Faculty qualifications have remained high, but the expansion is putting pressure on this, and policies are needed to draw additional staff for the maintenance of quality while the system expands.

6. The Government contribution to science and technology research and training has to date been quite small. Total investment in R&D is less than 1/100 of a percent of GDP, or about $1 million dollars. This investment is dominated by donors, who contribute 52% of resources. Seventy-four percent (74%) of R&D spending goes to the health sector a priority with a public goods- rather than growth orientation. Engineering and technology, by contrast, received only 11% of R&D funding, and agriculture only 14%, despite accounting respectively for 18.5% and 46.8% of GDP respectively. The emphasis is mainly on government-owned R&D institutes, and does not recognize the full output or potential from the university or NGO sector, and the system is dependent on donor resources, and these define and limit not only the areas of research undertaken but also the scope. In short, despite some notable pockets of excellence, the system is struggling to maintain itself, and is not currently in a position to fulfill the general goals of the Sub-sector Masterplan.

7. With the rapid expansion seemingly driven by student demand and availability of capacity in the institutions – it is important that Government establishes clear priorities and mechanisms to implement those priorities. Without these priorities it is likely that the expansion

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will lead to general decline of quality, a reallocation of resources towards institutions and programs able to serve large numbers and an underinvestment in more capital intensive forms of tertiary education – such as scientific and technical education – and research, which are important drivers of growth.

8. **Robust reforms and institutional frameworks in the sector are in place.** Important work has taken place with the development of key policies and strategies for higher and technical education in Tanzania and this provides a basis for future development. The Ministry has developed the Science and Technology Sub-Master Plan and the Higher and Technical Education Sub-Master Plans (2003 – 2018). These Master Plans contain interventions that encompass policy, legal and regulatory changes that must accompany coherent investment programs suggested therein, including the rationalization of the sector. These were followed by the Medium Term Strategic Plan for 2004/2007 of MSTHE which establishes key objectives for the sector. Individual institutions are also in the process of implementing their specific strategic transformation programs.

9. There have also been several important reforms in the science technology technical and higher education sector over the last years. A *National Accreditation Council for Technical Education (NACTE)* was established in 1997 which has enabled a coherent quality assurance mechanism across this diversified sector. The creation of NACTE has also helped to establish more effective coordination structures and has also increased the responsiveness to the labor market through the curriculum Boards. The recent *Universities Act of 2005* has established a coherent system for management of the University institutions. This includes establishing the Tanzania Commission for Universities (TCU) with responsibilities for quality assurance, accreditation, coordination of student intake, and budget management. A Students Loans Board (SLB) was recently established providing financing for all students at accredited institutions whether public or private. There is however concerns about the sustainability of the SLB program which the program will help analyze. These institutions, structures and systems are appropriate for a modern technical and higher education system as well as for science and technology development.

10. **Remaining Issues and rationale for support.** Against this background, MHEST has developed an investment program focusing on higher and technical education, research and development institutions, and within these MHEST has focused on areas where there are significant skills gaps as the focus for investment in what is now to be called *Quick Wins*, pending the evolution of a long term development and investment plan to cover a wider scope that links with other subsectors within the Education Sector Development Program (ESDP). The program seeks to increase the annual intake into higher and technical education substantially, though the clarification of a long-term and financially-sustainable expansion policy is pending. Implementing this program has considerable implications for all aspects of the higher and technical education system that include student and institutional finance, personnel requirements and capacity, education policies, capital investment, the number and content of degree programs, and ICT application. Government and the Partners agreed that selected areas of the program would be developed for priority financing and immediate investment. These specific areas of intervention would be set within the context of a coherent reform program and investment plan for the sub-sector as a whole. The program would respond to the following issues:

- The need to strengthen quality and expand capacity to produce skills in strategic disciplines important for economic growth. A broad-based expansion of the sector without clear direction, or without “protecting” priority areas through selective investments in new and ongoing academic programs is likely to lead to an expansion in those areas of the sector where marginal costs are lowest – and this could subsequently drain resources from more economically important areas. Selective investments in strategic areas, including both human
resource development and equipment/infrastructure could meet labor market demands for both more and better skills;

- The potential for rapid gains from immediate investments given the robust institutional frameworks, and where several strong Universities posses capacity to manage and implement programs; and

- The need to strengthen capacity for three particular purposes: (i) To support key systems management agencies to enable them to better implement their mandates. In particular there are demands for support to help realize implementation of the new Universities Act, but also to support core systems functions such as the budget management and implementation process; (ii) To help position the non-University tertiary sector for a more significant role and expansion in the future, it would also be important to support capacity enhancement in those institutions; and (iii) To help develop a long-term and financially-sustainable expansion policy.

11. Achieving priority investments in these disciplines will significantly improve the relevance of the higher and technical education system and enhance its contribution to the national economic development of Tanzania. It will also help position the larger education system in a strategic way for further policy reforms in the future. The Government is in the process of revitalizing the ESDP for long term development of the sector as a whole and this investment will help in developing such a program in collaboration with other partners and contribute significantly towards both achieving the tentative objectives of such a program, and also help to build capacity for continuous reform of post-secondary education.

2. Proposed project development objective

12. The Project Development Objective is to help produce more and better qualified graduates and technicians in strategic disciplines of economic relevance required to meet the national development objectives of the MKUKUTA. Quantitative indicators will be chosen which can measure the output of graduates in specific high priority disciplines.

<table>
<thead>
<tr>
<th>Development Objective</th>
<th>Indicators</th>
<th>Baseline Value (2006)</th>
<th>End-of-Project outcomes</th>
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<td>To help produce more and better qualified graduates and technicians in strategic disciplines of economic relevance required to meet the national development objectives of the MKUKUTA</td>
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3. Preliminary project description

13. **Component 1: Quality enhancement and expansion of capacity in strategic areas.** The interventions will target activities in relevant public higher learning institutions that can contribute towards attaining a critical mass of skilled workers at degree and technician levels. The interventions would aim at supporting the critical economic and social sectors, and particularly those related to the major sources of growth.

14. **Sub-component 1A Institutional Investment Projects In Identified Strategic Disciplines:** Initial priority will be given to interventions (a) that are in line with the national development
agenda and (b) in those disciplines that can yield and/or allow quick results. Activities will primarily support scientific and other equipment and staff development, and also civil works (including rehabilitation) if justified. Universities currently providing programs in the areas identified will be asked during preparation to collaborate to develop detailed proposals for how they reach specific objectives for each area. This will help ensure that the investments are built upon existing capacities and this will help ensure that they can be realized in a short period.

15. The first selection is likely to be made among the following: (i) Teacher training for the expanded secondary and tertiary education system, particularly for maths, science and languages; (ii) Graduate studies in the sciences and education; (iii) Minerals processing and marketing; (iv) Tourism and hospitality industry; (v) Conventional and renewable energy; (vi) Information and communication technology; (vii) Transportation systems; (viii) Food science and technology for value addition of agro-products; (ix) Textile technology for value addition of agro-products; (x) Bio-medical technology; (xi) Manufacturing systems; (xii) Agricultural production; (xiii) Lands valuation and management; (xiv) Water, sanitation and environmental management; (xv) Building materials science and technology; and (xvi) Business skills and entrepreneurship. Once these areas have been prioritized, a selection will be made of those for immediate intervention.

16. **Sub-component 1B Competitive Fund To Support Institutional Program Development In Strategic Areas.** The objective will be to improve quality, and expansion in the strategic disciplines. A fund will provide a mechanism to support important smaller scale interventions which are not identified during project preparation. It will focus on strategic areas relevant for economic growth. This fund will be open to all accredited higher education institutions. Draft criteria and selection modalities have already been developed and these will be agreed during preparation. Tentatively, criteria are likely to focus on: (i) Relevance for economically strategic areas; (ii) Scientific an/or technological Quality of the proposal; (iii) Human Resource Development Activities; and (iv) Track Record of the academic staff and existing programs.

17. **Sub-component 1C Human Resource Development To Enhance Capacity For Production Of Skills.** In order to increase the pool of high level skills and academic staff, a set of programs are proposed to train and attract academic staff in the priority disciplines. This includes programs such as: (i) Post-graduate and under-graduate training scholarships for study abroad, sandwich programs, and local training. This could include scholarships for PhD and masters level programs for study abroad in strategic areas, and also incentives for students domestically in selected strategic areas. These programs are likely to be nationally managed scholarship programs; and (ii) At the institutional level, programs will be developed to upgrade skills of existing academic staff; and develop programs to attract international academics to work in priority areas in Tanzanian institutions.

18. **Sub-Component 1D Increased Availability of Print Materials for All Subjects.** This includes: (i) Upgrading and updating libraries and sharing of such resources across institutions; and (ii) Review of textbook policies, including availability, use, and financing.

19. **Component 2: Capacity Building.** Four programs are envisaged here as follows:

20. **Sub-component 2A: Support Key Systems Management Agencies** to better perform according their core objectives and mandate. Significant legislative achievements has taken place over the last few years and there is now in place a robust framework of regulations and institutions. The challenge is to make these institutions technically effective. This will include: (i) Programs to further develop the capabilities of systems managers at MHEST agencies in selected areas. This could include supporting the development of quality assurance mechanisms
at the Tanzania Commission for Universities (TCU) and at the National Accreditation Council for Technical Education (NACTE), supporting student intake coordination at TCU, supporting technical analysis of Students Loans Board issues (SLB), and other targeted interventions at the Commission for Science and Technology (COSTECH); and (ii) Reviewing mechanisms to enhance linkages between the higher learning institutions and the labor market, including strategic assessments of skills demand in the economy, and concomitant mechanisms for curriculum adjustments;

21. **Sub-component 2B: Institutional-Level Management and Capacity** Building to enable regulatory institutions to network and discharge their functions more efficiently. This would include support for management interventions for executives at institutions of higher learning;

22. **Sub-component 2C: Establishment Of A National Virtual Private Network/ICT (VPN) (TENET)** that links all the higher and technical institutions in Tanzania (public and private) as well as R&D institutions. This will ensure that all institutions are able to use a common internet gateway, and help in the sharing of electronic databases access. The option of contracting out the network management to a private provider will also be explored. This network may facilitate cheaper inter-institutional communication via VOIP as well as localization of internet traffic. The network will also connect MHEST, HEIs and agencies into one WAN; and

23. **Sub-component 2D: Introduce An Efficient Management Information System For The Sector**, including “smart-card or plastic money” type multi-purpose student IDs for all HEIs. This will enhance the capability of MHEST to supervise the operations of its institutions and agencies, create human resources databases, library access as well as student records.

4. Institutional Arrangements

24. The coordination of the implementation will be located within MHEST, to be assisted by a national team of experts. Depending upon their capacity, the institutions are expected to implement those sub-components that directly affect them. The MHEST will support those institutions with less capacity, and facilitate those interventions that cut across institutions. To ensure adequate coordination and collaboration, the roles and outputs for these different levels regarding the project will be specified in an implementation manual.

25. Arrangements will vary from component to component. For the quality and expansion component, universities currently providing programs in the areas identified will be asked during preparation to collaborate to develop detailed proposals for how they reach specific objectives for each area. This will also ensure collaboration between large institutions with considerable planning and implementation capacities, and the smaller ones. During implementation, grants will be provided to the institutions that would be responsible for managing the sub-projects. Support will be needed for the smaller institutions. Government is currently managing a process to identify and develop these specific plans.

5. Other Development Partners

26. Other partners, bilateral and International NGOs have been providing support for the sector for many years. Much of this has been in collaboration with specific institutions and mainly with the University of Dar Es Salaam and Sokoine University of Agriculture. Sida and NORAD have been involved in the preparation missions of this project. Both of these partners are considering supporting the program under preparation. Other partners are briefed through the regular education donors group meetings and through aide memoire discussions.

6. Lending Instrument

27. A Specific Investment Credit is proposed for the following reasons: (i) Major capital investments in strategic areas are needed in the higher education sector and these are unlikely to
be made through budget allocations; (ii) A long-term and financially-sustainable expansion policy needs to be further developed before financing could be provided through budget-support which the project will help prepare groundwork for; and (iii) Currently, predictability of budget is very poor and there are large discrepancies between allocations and outturns, in particular, with regards to the Students Loans Board and the budgets for Institutions:. A track-record of improved budget predictability should be established prior to financing through budget support.

7. Safeguard policies that might apply
The project is expected to trigger the Environmental Assessment (OP/BO 4.01) and Involuntary Resettlement (OP/BP 4.12) policies due to its focus on construction and rehabilitation of schools. An Environmental and Social Management Framework (ESMF) will be prepared to identify, assess and mitigate likely negative environmental and social impacts of the project. And a Resettlement Policy Framework (RPF) will be prepared to address the potential resettlement issues.

8. Tentative financing

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<th>Source</th>
<th>($m.)</th>
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</tr>
<tr>
<td>INTERNATIONAL DEVELOPMENT ASSOCIATION</td>
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</tr>
<tr>
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