Biennale on Education in Africa
(Maputo, Mozambique, May, 5-9 2008)

Beyond Primary Education:
Challenges and Approaches to Expanding Learning Opportunities in Africa

Parallel Session 4A

Extending Basic Education, Expanding Secondary Education: Governance and Policy Issues

Madagascar: The Challenge of Expanding Secondary Education and Training

Working Document
Draft

PLEASE DO NOT DISSEMINATE **DOC 1.1.22 ENG**

• Original Version in English •

This document was prepared by ADEA for its Biennale (Maputo, Mozambique, May 5-9, 2008). The views and opinions expressed in this volume are those of the authors and should not be attributed to ADEA, to its members or affiliated organizations or to any individual acting on behalf of ADEA.

The document is a working document still in the stages of production. It has been prepared to serve as a basis for discussions at the ADEA Biennale and should not be disseminated for other purposes at this stage.

Association for the Development of Education in Africa (ADEA)

International Institute for Educational Planning
7-9 rue Eugène Delacroix
75116 Paris, France
Tel.: +33(0)1 45 03 77 57
Fax: +33(0)1 45 03 39 65
adea@iiep.unesco.org
website: www.ADEAnet.org

THE WORLD BANK

AFRICA REGION HUMAN DEVELOPMENT

WORKING PAPER SERIES

Madagascar:

The challenge of expanding secondary education and training

November 2007

Acknowledgments

This report was prepared in response to a request from the Honorable Minister of Education of Madagascar, Haja Nirina Razafinjatovo, for assistance in reviewing options to reform Madagascar's secondary education and training system. His contribution at various stages of writing this document has significantly enriched the discussions and the content of the report and has guided the main recommendations

The report was prepared by Patrick Philippe Ramanantoanina (Senior Education Specialist, AFTH3) with considerable support from the Minister and his senior policy and technical staff, including: Tahiana Razafindramary (Director of Planning), Marson Raherimandimby (Director of Secondary Education), Marze (Director of Basic Education), and Ernest Tsikel'Iankina (Director of Technical and Vocational Education Training). Technicians at various levels of the Ministry of Education also provided data and analysis, including Arsène Ravelo (Head of the Department of Statistics), Evelyne Anne-Marie Randriamiarina (Head of the Department of Training – Secondary education), and Elie Ramasindraibe (Head of the Department of Pedagogical Programs – Secondary education). Josiane Rabetokotany (Education Project Coordinator), Irène Rolofoniaina (Director of the Secondary Education component), and Agathe Razafindrahaingo (Responsible for the Technical and Vocational Education Training component) launched and supervised the diagnosis and school surveys, which are the main background documents for the report. They also provided valuable inputs at various stages of writing the report.

Acknowledgments are also conveyed to the "chefs" CISCOs, parents' association representatives, teachers and heads of schools who participated in the consultation conducted by the Ministry during the diagnosis of the secondary education sector, and who provided inputs throughout the process.

The report benefited from its inclusion in the Secondary Education In Africa (SEIA) study initiative, and the guidance of Jacob Bregman, SEIA Team Leader and Lead Education Specialist. He provided invaluable advice on the content and form of the report from its inception.

Inputs were also received from the members of the Bank's Country Team for Madagascar. Sajitha Bashir, Senior Education Economist, Stefano Paternostro, Lead Economist, provided comments and advice at several stages of the report, and particularly to ensure the technical quality of the final report.

Special thanks go to international consultant Margaret Kajeckas. The report benefited considerably from her research, writing and editorial expertise.

Valuable advice and comments were also provided by the report's peer reviewers: Jesko Hentschel (Country Sector Leader, LCSHD); William Experton (Lead Education Specialist, AFTH2); and Halil Dundar (Senior Education Specialist, AFTH3).

Andrianina Noro Rafamatanantsoa and Norosoa Andrianaivo provided document processing support. Laza Razafiarison (AFTP1/PR) compiled Household Survey and Public Expenditures data.

Finally we gratefully acknowledge the Norwegian Education Trust Fund for providing financial support for the preparation of this report.

Foreword

Forthcoming

Acronyms and Abbreviations

BAC	*Baccalauréat*
BEP	*Brevet d'Etudes Professionnelles*
BEPC	*Brevet d'Etudes du Premier Cycle*
BTS	*Brevet de Technicien Supérieur*
	Advanced Vocational Diploma
CAP	Certificat d'Aptitude Professionnelle
CEG	*Collège d'Enseignement Général*
	Public Secondary School
CEPE	Certificat d'Etudes Primaires et Elémentaires
CFA	*Certificat de Fin d'Apprentissage*
	Artisan Certificate
CFP	*Centre de Formation Professionnelle*
	Vocational Training Center
CISCO	*Circonscription Scolaire*
COMESA	Common Market for Eastern & Southern Africa
CR	Completion Rates
CRESED	*Crédit pour le Secteur de l'Education*
DHS	Demographic and Health Survey
DPR	Development Policy Review
EFA	Education For All
EF1	*Enseignement Fondamental du 1er cycle*
	Fundamental Education 1st cycle
EF2	*Enseignement Fondamental du 2nd cycle*
	Fundamental Education 2nd cycle
EPP	*Ecole Primaire Publique*
	Public Primary School
EPS	Education Physique et Sportive
EPU	*Enseignement Primaire Universel*
	Universal Primary Education
ETFP	*Enseignement Technique et Formation Professionnelle*
	Technical Education and Vocational Training
FDI	Foreign Direct Investment
FPI	*Formation Professionnelle Initiale*
	Initial Vocational Training
FPQ	*Formation Professionnelle Qualifiante*
	Qualifying Vocational Training
FPT	*Formation Professionnelle Technique*
	Technical Vocational Training
FRAM	*Fikambanan'ny Ray Aman-drenin'ny Mpianatra*
	Parents student association
FTG	*Formation Technologique Générale*
	General Technological Training
FTI	Force Track Initiative
GER	Gross Enrollment Rate
GDP	Gross Domestic Product
GOM	Government of Madagascar
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
HH	Household
ICT	Information, Communications and Technology
IDE	Investissement Direct Etranger
IIEP	International Institute for Educational Planning
IMATEP	*Ivon-toerana Malagasy momba ny Teti-Pivoarana*
INSTAT	*Institut National des Statistiques*
IT	Information Technology
JSE	Junior Secondary Education
LS	Lower Secondary
LTP	*Lycée Technique et Professionnelle*
	Vocational and Technical Lycee
MLA	Monitoring learning achievements

MENRS	*Ministère de l'Education Nationale et de la Recherche Scientifique* Ministry of National Education and Scientific Research
MINESEB	Ministère de l'Enseignement Secondaire et de l'Education de Base
NER	Net Enrollment Rate
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PASCOMA	Protection Accidents Scolaire de Madagascar
PAT	*Personnel Administratif et Technique* Administrative and Technical Staff
PCR	Primary Completion Rates
PER	Public Expenditure Review
PRSP	Poverty Reduction Strategy Paper
SADC	Southern African Development Community
SE	Secondary Education
SEIA	Secondary Education In Africa
SME	Small and Medium Enterprises
SSA	Sub Saharan Africa
SMICT	Sciences Mathematics and Information and Communication Technology
SSE	Senior Secondary Education
TVET	Technical and Vocational Education and Training
UNDP	United Nation Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPE	Universal Primary Education
US	Upper Secondary
VTET	Vocational Technical Education and Training
WB	World Bank
ZAP	Zone Administrative et Pédagogique

Executive Summary

1. The Government of Madagascar (GOM) requested this report to support the development of a new secondary education and training strategy. The report is designed to contribute to ongoing education reform discussions by presenting: analysis of the secondary education and training system; challenges and constraints to the expansion of the system; options to expand and improve secondary education based on other country experiences; and possible next steps for identifying the most appropriate course of action. The report aims to encourage discussion among policy-makers, stakeholders and donors, and does not promote one approach over another. It is part of the ongoing Secondary Education in Africa (SEIA) study being undertaken by the AFTHD and is funded by the World Bank, the Norwegian Education Trust Fund (NETF) and the Irish Education Trust Fund (IETF).

2. The GOM is currently preparing an in-depth transformation process of the education sector as presented in its strategic development document called "Madagascar Action Plan" (MAP) for the 2007-2011 periods. To the objective of making Madagascar more competitive for the 21st century, the GOM expects to increase the average years of schooling of the population (currently about 4.4 years compared to 9 years for Mauritius). One option the GOM has taken to increase the educational status of the population is the restructuring of its education system from a 5-4-3 system to a 7-3-2 system. On the other hand, this restructuring aims also at responding to the increasing pressure on the Junior Secondary Education after the huge increase of the primary completion rate (from about 37% in 2001 to about 60% in 2006).

3. Since 2002, the GOM has undertaken several measures for a free primary education and accessible to poor students and in remote areas, school fees in public primary schools have been eliminated, textbooks have been distributed to all primary schools and all primary school children have been provided with some school supplies. These actions encouraged over one million additional children to enroll in primary school in 2002 and increased the primary net enrollment ratio (NER) from 67 percent in 2001/2002 to 98 percent[1] in 2004-05. The objective of an Universal Primary Education (UPE) is likely to be met by 2015 and to that end in May 2005 technical and financial partners endorsed Madagascar's EFA Plan, which received funding under the Fast Track Initiative's (FTI) Catalytic Fund (US$10 million in 2005, US$25 million in 2006 and US$25 million in 2007).

4. Preliminary analyses show that Madagascar's capacity to respond to the increasing demand for JSE education is weak. It is estimated that by 2015, about 600,000 primary school graduates will be ready to start junior secondary school every year, but there will be enough room to accommodate only about 200,000 new students in JSE if current situation does not change. With regards to the objective of Universal Primary Education, high drop outs among primary education completers will also have a negative impact because inability to go to junior secondary school can be a disincentive for students to finish primary school.

5. In spite of strong constraints for the expansion of SE, Madagascar has been managing to expand slightly its SE. Public and private enrollments show important increases over the past six years; for both levels JSE and SSE students enrollments increased about 1.8 times between 2001/02 to 2005/06. Regarding public schools, high proportion of small size SE schools (e.g. 32 percent of JSE schools have less than 100 students and only half of those offer all four JSE grades) have been created to address the needs for JSE in rural areas. Private schools are very active even without benefiting any public subvention; they enroll more than 50 percent of the total SE students and they are mostly located in urban and suburban areas.

[1] Madagascar Ministry of Education and Scientific Research data

6. The expansion of SE in Madagascar has been marked by several issues and constraints that are similar to other developing countries in Sub Saharan Africa. On outcomes viewpoint, gender and social disparities (in favor of boys, urban areas and wealthiest quintiles), low enrollment and completion rates and low students learning outcomes are featuring the current SE system. Internal efficiency is low with high repetition and drop out rates. The system shows low cost-effectiveness with (i) a little proportion of public SE teachers who complies with the regular teaching time (20 hours per week), which is still lower than international practices; (ii) low students to teacher ratios due to a very specialized teachers system; and (iii) an excessive number of administrative staff.

7. The overall context of the country has been also decisive for the development of the SE. One strong constraint to expand SE is the low population density in most rural areas. As a result, the expensive efforts in developing an important number of small JSE and SSE schools have not led to better access to SE schools, distances to JSE and SSE schools are still too long making them inaccessible, on average the radius of JSE catchment areas vary by a 18-30kms range for the six provinces of Madagascar. A second constraint is the low amount of domestic resources available for SE schools because of low revenue collection taxes at the macro level (about 9 to 10 percent of GDP) and difficulties to increase private participation in a context of general poverty (about 70 percent of the population are under the poverty line).[2] Lastly, the level of development of the economy in most areas seems not justifying massive expansion of SE. In a context where about 75 percent of employments are in the informal economy and only elementary skills are required for traditional manual works in rural areas, parents and communities do not show strong interest in investing in SE, and particularly if it is too academic.

8. On the demand side, inability to pay secondary school costs is still the primary barrier to enrollment. Total education expenditures of families in the two poorest quintiles are only sufficient to cover the registration fees and school supplies for one SE student. Due to lack of SE services in remote and rural areas, families often have to pay additional costs for transportation, accommodation and meals when SE students have to move to other localities. Some private schools have lowered school fees (registration and enrollment fees), which has been possible by the schools hiring time-based salary SE public teachers. In spite of that, private schools are generally still too expensive for the poorest quintiles. Cost opportunity is also a constraint, and it is more pronounced where parents do not believe in the value or relevancy of SE.

9. Quality of SE education appears to be under international standards and there is not any system to measure it. The 2004 national assessment on Sciences and Mathematics in grade 8 was an attempt to measure students learning outcomes and it shows that for both subjects, Malagasy students show low learning achievements (only about 3 percent have required basic skills in mathematics). In the last five years, the pass rates for the JSE and SSE exit exams have never been above 50 percent.

10. Low quality of SE has several reasons like shortages of teaching and learning materials, but the most critical quality issue in SE is the poor qualification of teachers. Only 20 percent of teachers in JSE and 33 percent in SSE have the required teaching certificates. Poor preparation of JSE teachers is due, in part, to reduced capacity in teacher training. For pre-service training, there is only one centre at the national level with capacity for around 100 graduates a year and in service training does not exist. For SSE teachers, there is a need to harmonize the two tracks at the university level, the "Ecole Normale Supérieure" and the traditional faculties. As a result in large majority of classrooms, obsolete teaching practices are still the norm, such as rigid chalk-and-talk, teacher centered/dominated, and lecture-driven pedagogy or rote learning.

[2] However, in terms of share of domestic resources the education sector is receiving about 20-25 percent of total government domestic resources and the SE and TVET sub sectors about 25 per cent of the total education domestic resources, which is in line with international practices.

11. Beyond the several technical and physical constraints for the expansion of the SE, one issue is the overall concept and objective of SE in Madagascar. Since the sixties the SE in Madagascar has not evolved from its initial purpose to only prepare students to higher education. Over the years the two tracks (the general SE and the TVET) did not succeed in providing students other opportunities than being prepared to higher education. This concept is well-established in people's mind because most of SE students are from wealthiest quintiles which ultimate objective is to go to tertiary education. This has led to an overloaded curriculum (15 subjects in some cases) and to a rigorous selection process irrespective of the need for a critical mass of JSE completers to develop the modern economy.

12. The system remains very selective with a high number of drop-outs during the transition between cycles (primary, junior secondary education and senior secondary education). Meanwhile the Technical and Vocational Education Training (TVET) system, the only alternative for school leavers to acquire skills, is facing major challenges in terms of coverage, quality and relevance. The TVET system also has not evolved from its traditional supply driven model since its creation in the sixties. As a result, high numbers of SE school leavers are entering the job market without being appropriately skilled since their prior education was too limited to abstract and academic knowledge.

13. Apparently the intended curriculum for general SE is outdated and there is not information on what and how much is effectively taught in classrooms. In theory the SE curriculum is designed and decided at the national level, with possibility for adjustment at local levels. While in practice, local adjustments are very limited because of the lack of curriculum expertise at the district/local levels, and teachers are mainly devoted to improve success rates of national examinations and pay marginal attention to competencies and skills. In terms of content, the curriculum in force is dated from 1996 and new subjects (economy, new technology etc…) are not yet considered. The curriculum implementation is of concern because most SE teachers have not been trained to teach the current curriculum and there is no mechanism to monitor curriculum implementation and revision.

14. In its strategic development document, the GOM has decided to proceed to a holistic approach rather than to address separately each issue and by level of education. The GOM announced in November 2005 its plan for a new education structure with an extension of primary education from five to seven years, a reduction of JSE from 4 to 3 years and SSE from three to two years. Probably this will have positive impact on SE for many reasons. Graduates of a seven-year primary cycle will be better prepared to meet the demands of JSE, thereby reducing current repetition and dropout rates and improving the internal efficiency of the system. It is also expected that reducing the length of JSE and SSE will encourage students to complete SE and therefore within cycle dropouts will probably decrease. Shifting students from the current JSE cycle to the primary cycle will also create room for more students in the secondary cycle where physical space and well qualified teachers are extremely limited. In terms of fighting against child labor, most graduates from this seven-year primary cycle will be around 15 years old -- the legal working age -- and better prepared for the school-to-work transition if they do not pursue further studies.

15. The restructuring of the education per see has a potential to improve the context of SE in Madagascar, but it should be accompanied by a series of policies, actions and measures to set up a more cost-effective, equitable and relevant SE and TVET system. In the report, those policies, actions and measures are developed under six challenges: (i) a smooth implementation of the reform to introduce seven-year primary education; (ii) a sustainable expansion of secondary education; (iii) an increased and equitable access to SE; (iv) an improved quality of SE; (v) A more relevant SE; and (vi) a demand driven TVET system.

16. Regardless the positive impact of the reform to introduce seven-year primary, it is yet a complex process because of several reasons and particularly because the reform covers all aspects of the education system and encompasses all primary and SE levels. It will take many years of implementation and for its success the GOM is likely to develop long term capacities in key functions such as curriculum development, school constructions and teacher training. A part from the need to develop capacities, the existence of different sorts of primary schools (small size and multi-grades schools, schools with incomplete primary cycles) suggests a comprehensive operational plan at local level for the transition of those schools to the new primary structure.

Another complexity is the synchronization of the restructuring at both primary, JSE and SSE levels. This needs a detailed operational plan in terms of space and timing, with strong capacity at regional and district to implement it. Lastly, the reform should be an opportunity to make the education system more responsive to parents' expectations to ensure higher completion rates in primary and JSE levels.

17. For a sustainable expansion of the SE system, the report suggests several actions/measures and policies to address the issue of low cost effectiveness. Reduction of student unit costs is one option by improving reducing repetition and drop out rates, aligning the regular teaching time to international practices, better redeployment of less specialized teachers, reducing the number of administrative staff and simplifying the curriculum to three main fields (languages, social studies and SMICT). In its 2008-20011 development plan the GOM is planning to implement innovative cost effective approaches like distance learning, networks of schools of excellence. Another alternative the GOM is planning is to set up a more effective Public Private Partnership on the basis of cost sharing programs with education private providers.

18. To ensure a balanced social and economic development, equity should be guaranteed while expanding access to SE. Given the financial constraints, in the short term places for new JSE intakes could be increased by setting a double shift system where it is possible and particularly in JSE schools where teachers have very low teaching load. Open schools system is also envisaged by the GOM in order to provide opportunities to primary completers for JSE. Regarding the issue on low population density, to take example for developed countries multi-grades JSE schools could be also envisaged. A pro poor student scholarship program needs to be set up; the current student scholarship program benefited only to most of tertiary education students who are in majority from the wealthiest quintile of the population. Lastly, if a massive JSE is agreed then a flux regulation system needs would be necessary between JSE and SSE in order to balance the budget allocation between JSE, SSE and tertiary education.

19. Improving quality of a SE is facing several constraints. Textbooks are missing in JSE and SSE schools for decades. The key action is to set up a pre and in service teacher training system. This system should be link to a career path in order to break with the current promotion system based on years of teaching. The report suggests also setting up a quality management system which includes student learning assessment as well as school management. The report suggests addressing the critical issue of the low mastery of the language of instruction by teachers.

20. Expanding the SE as it is now may be unsuccessful unless the relevance of SE is improved. The restructuring of the primary education is also an opportunity to review the curriculum for the overall education system. For SE, the new curriculum should also integrate new subjects but also include some topics to prepare students to the transition to work. Some countries have included the concept of community works in their JSE curriculum if some JSE students have to enter to the work after completing the JSE levels, which will be the case for Madagascar. Including some vocational subjects in JSE can be an option although experiences in some African countries are not conclusive. Decentralized curriculum with possibility to schools or regions to adapt the curriculum to their context is recommended but that will need a higher capacity at local level. For SSE, the report suggests that relevance should mean high quality since the main purpose of SSE is to prepare students for tertiary education. Consequently a rigorous entry selection process would be necessary for SSE.

21. The last challenge is the transformation of the TVET system to a demand driven system. This is a difficult process in a context largely dominated by the informal economy. Subsequently to this situation, two approaches could be envisaged (i) empowering the structured private sector for the VT for the formal economy and (ii) develop traditional apprenticeship for informal economy. Those two approaches imply that the current network of public training centers needs to be transformed in order to set up a partnership with the private sector and to review the role of the current LTPs which also tend to provide VT programs. It is also recognized the uselessness of having VT for primary education completers who still need to complete a basic education of nine or ten years.

Résumé analytique

22. Le présent rapport a été préparé à la demande du gouvernement de Madagascar (GdM), dans le but de contribuer à l'élaboration d'une nouvelle stratégie pour l'enseignement secondaire et la formation. Il est conçu pour alimenter les discussions en cours sur la réforme de l'éducation en présentant : une analyse du système d'enseignement secondaire et de formation ; les défis et contraintes imposés à l'expansion du système ; les options de développement et d'amélioration du système, élaborées à partir des expériences relevées dans d'autres pays ; et les prochaines étapes éventuelles à suivre pour identifier la meilleure ligne de conduite. Son objectif est d'enrichir le dialogue entre décideurs, acteurs et bailleurs de fonds ; à ce titre, il ne privilégie aucune approche en particulier. Financé par la Banque mondiale, le *Norwegian Education Trust Fund* (NETF) et l'*Irish Education Trust Fund* (IETF), ce rapport s'inscrit dans le cadre de l'étude en cours sur l'enseignement secondaire en Afrique (*Secondary Education in Africa*, SEIA) entreprise par l'AFTHD.

23. Le GdM prépare actuellement une transformation en profondeur du secteur éducatif, qu'il a présentée dans son document stratégique de développement pour la période 2007 à 2010, intitulé « Madagascar Action Plan » (MAP). Dans le but d'améliorer la compétitivité de Madagascar à l'aube du XXI^{e} siècle, le gouvernement souhaite augmenter le nombre moyen d'années de scolarité de la population, qui est actuellement de 4,4 ans environ (contre 9 à Maurice). Entre autres mesures, il a décidé de restructurer le système éducatif du pays, et de faire passer l'actuel système de type 5-4-3 à un système de type 7-3-2. Cette restructuration permettra aussi de faire face à la pression croissante que subit le premier cycle de l'enseignement secondaire suite à la forte hausse du taux d'achèvement du primaire, qui est passé de 37 % environ en 2001 à environ 60 % en 2006.

24. Depuis 2002, le gouvernement a mis en œuvre plusieurs mesures en direction d'un l'enseignement primaire accessible aux élèves pauvres et dans les zones enclavées. Les frais de scolarité ont été supprimés dans les écoles primaires publiques, des manuels ont été distribués à toutes les écoles primaires et tous les enfants en âge d'école primaire ont reçus quelques fournitures scolaires. Ces actions ont encouragé l'inscription de plus d'un million d'enfants supplémentaires dans les écoles publiques en 2002 et la hausse du taux net de scolarisation (TNS) de 67 % en 2001/2002 à 98 %[3] en 2004/2005. L'objectif d'éducation primaire universelle (EPU) sera probablement atteint en 2015. Dans cette perspective, les partenaires techniques et financiers locaux, en mai 2005, approuvé le Plan EPT de Madagascar, qui a bénéficié de financements du Fonds catalytique de la *Fast Track Initiative* (FTI) : 10 millions de dollars EU en 2005, 25 millions de dollars EU en 2006 et 25 millions de dollars EU en 2007.

25. Les analyses préliminaires ont montré que la capacité de Madagascar à répondre à la demande croissante d'éducation en premier cycle du secondaire est faible. D'après les estimations, d'ici à 2015, environ 600.000 diplômés de l'enseignement primaire s'apprêteront chaque année à rejoindre les bancs du premier cycle du secondaire, tandis que le nombre de places disponibles ne s'élèvera qu'à 200.000, en l'état actuel de la situation. Or, l'impossibilité de poursuivre des études dans le secondaire pourrait démotiver les élèves du primaire et entraîner des abandons scolaires avec des conséquences négatives pour l'objectif d'éducation primaire universelle.

26. Malgré les fortes contraintes pesant sur l'expansion de l'enseignement secondaire, Madagascar s'est efforcé de développer légèrement ce niveau d'enseignement. Durant les six dernières années, les inscriptions ont augmenté de façon importante tant dans le public que dans le privé : elles ont été multipliées par 1,8 dans les deux cycles du secondaire entre 2001/2002 et 2005/2006. Dans l'enseignement public, un grand nombre de petits établissements secondaires ont été créés pour absorber la demande de scolarisation en premier cycle dans les zones rurales (32 % des établissements de premier cycle ont moins de 100 élèves, seule la moitié d'entre eux offrent les quatre années du premier cycle). Les écoles privées sont très actives, même si elles ne

[3] Données du ministère malgache de l'Éducation et de la Recherche scientifique

bénéficient d'aucune subvention publique : elles accueillent plus de 50 % des élèves du secondaire, principalement dans les zones urbaines et périurbaines.

27. L'expansion de l'enseignement secondaire à Madagascar est marquée par une série de problèmes et contraintes semblables à ceux que connaissent d'autres pays en développement d'Afrique subsaharienne. Du point de vue des résultats, le système actuel est caractérisé par les disparités sociales et entre les sexes (qui jouent en faveur des garçons, des zones urbaines et des quintiles les plus riches), la faiblesse des taux de scolarisation et d'achèvement ainsi que des résultats de l'apprentissage. L'efficacité interne est médiocre, entravée par de forts taux de redoublement et d'abandon. Le système affiche un rapport coût-efficacité bas avec (i) une faible proportion de professeurs du secondaire public effectuant les horaires d'enseignement réglementaires (20 heures par semaine, déjà inférieures aux pratiques internationales) ; (ii) des ratios élèves/professeur bas, car les professeurs sont très spécialisés ; et (iii) un personnel administratif pléthorique.

28. Le contexte général du pays explique également en grande partie le faible développement de l'enseignement secondaire. Ce dernier est fortement entravé par la faible densité de population de la plupart des zones rurales. Il en résulte que les coûteux efforts de construction de petits établissements de premier et du deuxième cycle du secondaire n'ont pas nécessairement conduit à l'amélioration de l'accès aux écoles secondaires. Les distances qui les séparent des familles sont encore trop longues et les rendent inaccessibles : le rayon moyen d'une zone de recrutement du premier cycle du secondaire est compris entre 18 et 30 km dans les six provinces de Madagascar. Le manque de ressources intérieures disponibles pour les établissements secondaires constitue un autre obstacle important au développement du secondaire. Dans un contexte de pauvreté générale (environ 70 % de la population vit sous le seuil de pauvreté), les recettes fiscales (qui représentent 9 à 10% du PIB) sont faibles au niveau macro, et augmenter la participation du privé est difficile[4]. Enfin, le niveau de développement économique de la plupart des secteurs ne semble pas justifier une expansion massive de l'enseignement secondaire. Etant donné qu'environ 75 % des emplois proviennent de l'économie informelle et que des compétences élémentaires suffisent pour les travaux manuels traditionnels des zones rurales, ni les parents ni les communautés ne montrent beaucoup d'empressement à investir dans l'enseignement secondaire, surtout s'il est trop académique.

29. Du côté de la demande, l'incapacité à assumer les frais de scolarité reste le principal obstacle à l'inscription dans le secondaire. Les dépenses totales d'éducation des familles appartenant aux deux quintiles les plus pauvres suffisent à peine à couvrir les frais d'inscription dans le secondaire et l'achat des fournitures scolaires d'un seul enfant. En outre, à cause du manque de services d'enseignement secondaire, les familles des régions rurales reculées doivent souvent payer des frais supplémentaires de transport, de logement et de nourriture pour la scolarisation de leur enfant dans une autre localité. Certaines écoles privées ont certes baissé les frais d'inscription et de scolarité en engageant à l'heure des professeurs du secondaire public. Mais malgré cela, les écoles privées demeurent en général trop coûteuses pour les familles des quintiles inférieurs. Le coût d'opportunité est également un frein au développement de l'enseignement secondaire, surtout si les parents ne croient pas à la rentabilité ou à la pertinence de celui-ci.

30. La qualité de l'enseignement secondaire semble inférieure aux normes internationales et aucun système n'est mis en place pour la mesurer. En 2004, l'évaluation nationale des sciences et mathématiques en 8^{e} année d'études (troisième année du premier cycle du secondaire) a tenté de mesurer les résultats de l'apprentissage des élèves. Elle a montré que dans les deux disciplines, les acquis des jeunes malgaches sont faibles (seuls 3 % possèdent les compétences de base en mathématiques). Les taux de réussite aux examens de fin de premier et de deuxième cycle du secondaire n'ont jamais dépassé les 50 % pendant les cinq dernières années.

31. La médiocre qualité de l'enseignement secondaire a différentes explications, comme le manque de matériels didactiques, mais aussi et surtout, le manque de qualification des enseignants. Seuls 20 % des professeurs du premier cycle du secondaire et 33 % du deuxième cycle possèdent les diplômes

[4] L'État affecte pourtant à l'éducation 20 % à 25 % de ses ressources intérieures, dont un quart va à l'enseignement secondaire ainsi qu'à l'enseignement et à la formation technique et professionnelle, ce qui correspond aux pratiques internationales.

d'enseignement requis, en partie parce que les capacités d'accueil de la formation des professeurs sont limitées. En ce qui concerne la formation initiale pour l'entrée en fonction, il n'existe qu'un seul centre au niveau national, qui produit environ 100 enseignants diplômés par an, et la formation continue n'existe pas. Il faudrait également harmoniser les deux filières universitaires de formation des professeurs du premier cycle du secondaire, l'Ecole normale supérieure et les facultés traditionnelles. La conséquence de cette faiblesse en formation des enseignants est la subsistance de pratiques d'enseignement obsolètes : le cours ex cathedra, la pédagogie centrée sur/dominée par le professeur, la lecture magistrale des cours, ainsi que l'apprentissage par cœur sont encore la norme.

32. Au-delà des obstacles techniques et des contraintes physiques freinant son expansion, la conception générale et les objectifs de l'enseignement secondaire mériteraient d'être revus. Depuis les années soixante, son seul but s'est limité à préparer les élèves pour l'enseignement supérieur. Aucune des deux voies de l'enseignement secondaire (la générale et la formation technique et professionnelle) n'a réussi à offrir aux élèves d'autres possibilités que la préparation aux études supérieures. Cet objectif est profondément ancré dans les mentalités, car la plupart des élèves fréquentant le secondaire proviennent des familles des quintiles supérieurs, dont le but ultime est d'accéder à l'enseignement supérieur. Les programmes sont donc surchargés (jusqu'à 15 matières différentes dans certains cas), et les élèves sont rigoureusement sélectionnés, sans tenir compte des besoins massifs de diplômés du secondaire de l'économie moderne.

33. Toujours très sélectif, le système reste marqué par un nombre élevé d'abandons au moment des transitions entre les cycles (entre le primaire et le secondaire, et entre les deux cycles du secondaire). En même temps, le système d'enseignement et de formation technique et professionnel (ETFP), qui représente la seule possibilité pour les élèves quittant l'enseignement général d'acquérir des compétences, est confronté à des défis majeurs, en termes de couverture du territoire, de qualité et de pertinence. L'ETFP non plus n'a pas évolué depuis sa création dans les années soixante et demeure fondé sur un modèle guidé par l'offre. De nombreux élèves quittant l'enseignement secondaire entrent donc sur le marché du travail sans avoir acquis les compétences appropriées car leur cursus scolaire a été trop centré sur des connaissances abstraites et académiques.

34. Outre le caractère obsolète de ses programmes, l'enseignement secondaire souffre aussi d'un manque d'information sur les contenus réellement enseignés et sur les durées réelles d'enseignement dans les classes. En théorie, les programmes sont conçus au niveau national, mais il existe des possibilités d'ajustement au niveau local. En pratique, ces ajustements locaux sont très limités en raison du manque d'expertise en matière de conception de programmes et cours au niveau des districts et autres niveaux locaux, et les professeurs se concentrent essentiellement sur l'amélioration des taux de réussite aux examens nationaux et accordent peu d'attention aux compétences et aux capacités. En termes de contenu, les programmes en vigueur datent de 1996 et n'abordent pas encore de nouveaux thèmes tels que l'économie, les technologies de l'information, etc. L'application des programmes d'enseignement n'est pas évidente, car la plupart des professeurs du premier cycle du secondaire n'y ont pas été formés et il n'existe aucun mécanisme de contrôle de la mise en œuvre et de la révision des programmes.

35. Dans son document stratégique de développement, le GdM a décidé d'adopter une approche systémique que par niveau d'enseignement, et de traiter toutes les questions ensemble plutôt que séparément. En novembre 2005, il a annoncé son plan pour une nouvelle structure éducative, qui prévoit l'allongement de l'enseignement primaire de cinq à sept ans, la réduction du premier cycle du secondaire de quatre à trois ans, et du deuxième cycle de trois à deux ans. Ce changement devrait avoir des répercussions positives sur l'enseignement secondaire pour plusieurs raisons. Les diplômés d'un cycle primaire de sept ans plutôt que cinq devraient être mieux préparés à répondre aux exigences du premier cycle du secondaire, ce qui devrait réduire les taux actuels de redoublement et d'abandon, et améliorer l'efficacité interne du système. Il est aussi attendu que la diminution de la durée des premier et deuxième cycles du secondaire devrait aussi encourager les élèves à achever leurs études secondaires, et conduire à une baisse des abandons en cours de cycle. Durant la période de transition entre les deux systèmes, le transfert dans le primaire des deux premières années de l'actuel premier cycle du secondaire créera aussi de la place en secondaire, où la capacité d'accueil et les professeurs qualifiés manquent cruellement. Le changement de système favorisera aussi la lutte contre le travail des enfants, puisque la plupart des enfants sortant de ce cycle primaire de sept ans approcheront les 15

ans, l'âge légal du travail, et que ceux qui ne poursuivent pas d'études secondaires seront mieux préparés à l'entrée dans le monde du travail.

36. En soi, la restructuration du système éducatif malgache peut améliorer le contexte de l'enseignement secondaire, mais elle doit être accompagnée d'une série de politiques, actions et mesures visant à mettre sur pied un système d'enseignement secondaire, technique et professionnel plus efficace du point de vue des coûts, plus équitable et mieux adapté. Dans ce rapport, ces politiques, actions et mesures sont regroupées en six priorités : (i) la mise en œuvre maîtrisée de l'allongement du cycle primaire ; (ii) l'expansion soutenable de l'enseignement secondaire ; (iii) un accès plus facile et plus équitable à l'enseignement secondaire ; (iv) l'amélioration de sa qualité ; (v) une plus grande pertinence de l'enseignement secondaire ; et (vi) un système d'enseignement et de formation technique et professionnel guidé par la demande.

37. Même si des effets positifs sont attendus de l'allongement du cycle primaire, le processus sera complexe, en particulier parce que la réforme affecte deux niveaux, le primaire et le secondaire, et concerne tous les aspects du système éducatif. Sa mise en application prendra plusieurs années et, pour réussir, le GdM devra vraisemblablement développer des capacités à long terme dans des domaines clés comme la conception des programmes scolaires, la construction d'écoles et la formation des enseignants. En outre, un plan opérationnel complet devra être élaboré au niveau local pour accompagner la transition vers la nouvelle structure des différentes sortes d'écoles primaires (de petite taille, à classe unique, à cycle primaire incomplet, etc.). Synchroniser la restructuration du cycle primaire avec celles des deux cycles de l'enseignement secondaire sera également une opération complexe, nécessitant un plan opérationnel détaillé dans le temps et dans l'espace, et exigeant de fortes capacités de mise en œuvre aux niveaux de la région et du district. Enfin, la réforme est aussi l'occasion de rendre le système éducatif plus sensible aux attentes des familles afin d'élever les taux d'achèvement du cycle primaire et du premier cycle du secondaire.

38. Pour assurer un développement soutenable de l'enseignement secondaire, le rapport suggère de mettre en œuvre une série d'actions et de mesures visant à remédier à la faible efficience du système. L'une des options envisagées est de réduire le coût unitaire par élève grâce aux mesures suivantes : diminuer les taux de redoublement et d'abandon, aligner le temps d'enseignement réglementaire sur les pratiques internationales, mieux redéployer les professeurs en les spécialisant les moins, réduire le personnel administratif et simplifier les programmes scolaires autour de trois grands domaines (langues, sciences sociales et sciences-mathématiques-TIC). Dans son plan de développement 2008-2011, le GdM prévoit d'adopter des approches innovantes pour une meilleure efficience, telles que, par exemple, l'enseignement à distance et la mise en réseau des meilleures écoles. Le GdM envisage également des partenariats public-privé plus efficaces, basés sur des programmes de partage des coûts avec des prestataires privés de services d'éducation.

39. Un développement économique et social harmonieux passe par la garantie d'un accès large et équitable à l'enseignement secondaire. Compte tenu des contraintes financières, l'augmentation à court terme du nombre de places disponibles en premier cycle du secondaire peut être obtenue par la mise en place d'un système de double vacation, là où cela est possible, en particulier dans les établissements où la charge de travail des professeurs est très peu élevée. Le GdM envisage aussi la création d'un système d'écoles ouvertes permettant d'offrir des opportunités de scolarisation en premier cycle du secondaire aux diplômés du primaire, et d'établissements du secondaire à classe multigrade, comme cela a été fait par certains pays développés dans des régions à faible densité de population. Un programme de bourses destinées aux élèves pauvres pourrait être mis en place, car les bourses actuelles bénéficient en majorité à des étudiants engagés dans des études supérieures, en général issus des quintiles les plus aisés de la population. Enfin, si un système d'enseignement secondaire massif est accepté, il sera nécessaire de créer un dispositif de régulation des flux entre le premier et le deuxième cycle, afin d'équilibrer les allocations budgétaires entre les deux cycles du secondaire et l'enseignement supérieur.

40. L'amélioration de la qualité de l'enseignement secondaire se heurte à plusieurs obstacles D'abord, le nombre de manuels de premier et de deuxième cycle est insuffisant depuis des années. Ensuite – et c'est un point essentiel – il faut mettre en place un système de formation initiale et continue des enseignants, incluant l'élaboration de plans de carrière pour remplacer l'actuel mode de promotion fondé sur l'ancienneté. Enfin, le

rapport suggère de mettre en place un système de gestion de la qualité incluant l'évaluation des acquis des élèves et la gestion des établissements scolaires, et d'aborder le problème critique de la maîtrise insuffisante de la langue d'enseignement par les enseignants.

41. L'expansion de l'enseignement secondaire tel qu'il est aujourd'hui ne peut réussir si sa pertinence n'est pas améliorée. La restructuration de l'enseignement primaire offre l'opportunité de revoir les programmes d'enseignement de l'ensemble du système. Ainsi, dans l'enseignement secondaire, les nouveaux programmes pourraient inclure de nouvelles disciplines, mais aussi une préparation des élèves à la transition vers le monde du travail. Certains pays ont aussi incorporé la notion de travaux communautaires dans les programmes du premier cycle, à l'intention des élèves devant entrer dans le monde du travail à la fin du premier cycle, ce qui sera le cas à Madagascar. Certaines disciplines professionnelles peuvent enfin être envisagées, bien que certains pays d'Afrique ait vécu des expériences peu concluantes à ce sujet. Par ailleurs, le rapport recommande une certaine décentralisation de la conception des programmes d'enseignement afin de permettre aux régions ou aux écoles de les adapter à leur contexte. Cela nécessitera néanmoins le renforcement des capacités locales. A la différence du premier cycle, le deuxième cycle prépare essentiellement les élèves à l'entrée dans l'enseignement supérieur ; par conséquent, il doit être de grande qualité, et accessible à l'issue d'un processus de sélection rigoureux.

42. Dernier défi : la transformation du système d'enseignement et de formation technique et professionnel en un système guidé par la demande. Ce processus s'avérera difficile dans un contexte largement dominé par une économie informelle. Deux approches peuvent être envisagées : (i) l'implication du secteur privé structuré dans la formation professionnelle ciblant l'économie formelle, et (ii) le développement de l'apprentissage traditionnel pour l'économie informelle. Deux conséquences en découlent : la réorganisation du réseau actuel de centres de formation publics afin d'y inclure des partenariats avec le secteur privé ; et la réforme des lycées techniques et professionnels actuels, qui proposent aussi des cursus de formation professionnelle. Enfin, le rapport reconnaît l'inutilité de proposer des formations professionnelles à des diplômés de l'enseignement primaire, qui doivent encore achever les neuf ou dix années de l'enseignement fondamental.

Table of Contents

List of tables

List of figures

List of boxes

Annexes - List of tables

1. INTRODUCTION

1.1 Madagascar is an island nation of almost 18 million people off the coast of Mozambique. It is rich in natural and human resources, but for decades has ranked as one of the poorest countries in the world. It struggles with food insecurity, disease, illiteracy, threats to its unique biodiversity and extreme poverty. In 2002, a new Government came into power and adopted its Poverty Reduction Strategy Paper (PRSP). The PRSP focuses on three main areas: (i) restoring the rule of law and good governance; (ii) boosting broad-based growth; and (iii) promoting human development and social protection.

1.2 Revamping Madagascar's education and training system is an essential part of the Government of Madagascar's (GOM) efforts to promote human development, and in turn, broad-based growth. Improving primary school access, completion rates and quality of education were the initial focus of reform activities. Success in bringing more children into the education system combined with the demands of a growing economy make it clear that access and quality issues also need to be addressed at the secondary school level.

Remarks: For the purpose of the report, Secondary Education (SE) encompasses Junior Secondary Education (JSE) and Senior Secondary Education (SSE).

Background

1.3 In 2002, the GOM eliminated school fees in public primary schools and provided school kits to all primary school children. New students continue to receive school kits each year. These actions encouraged over one million additional children to enroll in primary school and increased the net enrollment ratio (NER) from 67 percent in 2001/2002 to 98 percent in 2004-05.

1.4 Consistent with the goals of the PRSP, Madagascar presented a national Education for All (EFA) Plan in October 2003, to ensure access to a quality primary education for all Malagasy girls and boys by the year 2015. In May 2005, Madagascar's technical and financial partners endorsed the EFA Plan. The Plan lays out a strategy to expand the system and improve quality through extensive teacher recruitment and training, pedagogical changes, institutional restructuring and capacity building, improvements in materials and facilities, communication campaigns, and encouraging community involvement. In July 2005, the Plan received support under the Fast Track Initiative's (FTI) Catalytic Fund (US$10 million in 2005, US$25 million in 2006 and a notional allocation of US$25 million for 2007). The 2005 EFA Plan is currently being updated by the GOM to take into account the change to a seven-year primary education.

1.5 Despite the dramatic increase in primary enrollment, Madagascar's education and training system faces major constraints. Public education financing for all education cycles combined (including foreign financing) is increasing but it is yet relatively low, representing an average of 3.2 percent of GDP between 2001 and 2006. The primary cycle received 54 percent of the education budget in 2004. Secondary education was allocated 29 percent of the budget, which includes vocational training. A review of 17 countries with a GDP per capita less than US$500[5] shows that, on average, they spend 48 percent of their education budgets on primary and about 30 percent on secondary education. Data on education spending as a percent of GDP is unavailable for all but five of the countries (Benin, Burundi, Mauritania, Niger, Senegal, Togo and Zambia), which spent an average of 3.6 percent of GDP on education in 2002.

[5] GDP of Madagascar is US$250.

Table 1.1: **Madagascar: Trends in Education Expenditure from 2001 to 2004**

	2001	2002	2003	2004	2005	2006
Total public education expenditure (domestic and external revenue) (% of GDP)	3.3	2.7	3.0	3.3	3.8	3.3
Total public education allocation (domestic and external revenue) (% of total budget)	12.5	14.4	17.0	18.2	17.7	18.3
Private spending (% of GDP)	1.4	-	-			

Source: World Bank, Public Expenditure Review, 2005 – –MENRS 2007

1.6 Inefficiencies within the system are a drain on these scarce resources. High repetition and low completion rates waste money in every cycle. The completion rates for junior and senior secondary are especially low with only 17 and 6 percent of age-eligible children, respectively, finishing the cycles.

Table 1.2: Madagascar's Education System: Basic Indicators

Indicator	**2001/2002**	**2002/2003**	**2003/2004**	**2004/2005**
Enrollment Ratio (%)				
Primary (Net)	70	82	97	98
JSE (Gross)	21	21	24	27
SSE (Gross)	7	7	8	9
Repetition Rate (%)				
Primary	30	n/a	35	19
Junior Secondary	n/a	n/a	17	14
Senior Secondary	n/a	n/a	16	15
Completion Rate (%)				
Primary	35	40	47	60
Junior Secondary	n/a	13	15	17
Senior Secondary	n/a	7	6	6
Exit Exam Pass Rate (%)				
Primary	49	62	60	73
Junior Secondary	33	40	50	39
Senior Secondary	37	41	33	44
Transition Rate to Next Level (%)				
Primary	n/a	75	64	55
Junior Secondary	n/a	69	56	n/a
Senior Secondary	65	61	60	69

Source: MENRS

1.7 Madagascar's 2.5 percent annual population growth rate (the average rate for Sub-Saharan Africa is 2.1 percent) translates into a high demand for basic, primary and secondary education. The dependency ratio, or the number of young and elderly dependents divided by the number of people in the working population, is very high in Madagascar -- approximately 84 percent in 2005 -- and is predicted to decrease by 10 percentage points by 2015 (74 percent).

Table 1.3: Projected Population Estimates for Madagascar (in thousands)

Age	**2005**	**2010**	**2015**
0-5	3,412	3,645	3,815
6-10	2,500	2,715	2,926
11-14	1,770	2,000	2,159
15-17	1,244	1,353	1,542
18-24	2,349	2,815	3,122
25-64	6,210	7,213	8,400
65 and over	582	677	778
Total	18,067	20,418	22,742
Dependency ratio	84%	79%	74%

Source: World Bank estimates

1.8 Increased primary completion is essential to meet social development objectives, but a significant increase in secondary school graduates is necessary to support an expanding formal economy. The average number of years a Malagasy adult has attended school is 4.4 while the Mauritian average is 9 years. Macroeconomic projections for 2004-2008 suggest that the labor demand will outstrip the labor supply by approximately 8 percent. Up to 80 percent of the labor shortfall will be in senior secondary school graduates. The Madagascar Development Policy Review concluded that "…In order to provide the skills needed in the sectors with the highest potential growth, (EPZs, tourism, mining, and the shrimp industry), the education sector will have to ensure access to education above the primary level."[6]

Table 1.4: Urban Labor Demand Simulations - Madagascar

Education level	Labor Demand (# workers)	Labor Supply (# workers)	Deficit in the supply of Labor (# workers)
No Education	20,300	51,900	-
Primary	49,300	66,800	-
Junior Secondary	111,600	107,300	4,300
Senior Secondary	118,600	61,100	57,500
University	18,200	6,400	11,800
Total	318,000	293,500	73,600

Source: Madagascar Development Policy Review: Sustaining Growth for Enhanced Poverty Reduction, The World Bank, May 16, 2005

1.9 The GOM's announcement in November 2005 that the primary cycle will be extended from five to seven years is expected to have a positive impact on the secondary cycle. Graduates of a seven-year primary cycle will be better prepared to meet the demands of secondary school, thereby reducing repetition and dropout rates and improving the internal efficiency of the system. Shifting students from the current JSE cycle to the primary cycle will also create room for more students in the secondary cycle where physical space and well-qualified teachers are extremely limited. As shown below in Table 1.5, the number of primary schools far exceeds the number of junior secondary schools, making it impossible for the secondary cycle to absorb all primary graduates as currently organized.

Table 1.5: Schools and Teachers by Cycle

	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
Number of public schools	15,324	15.546	16,346	16,879	18,027
Primary	14,436	14,637	15,420	15,890	16,917
Junior Secondary	780	801	817	875	992
Senior Secondary	108	108	112	114	118
Number of private schools	4,849	5,363	5,858	6,227	6,227
Primary	3,859	4,340	4,740	4,946	5,301
Junior Secondary	739	795	862	980	1,133
Senior Secondary	251	228	256	301	332
Number of public teachers	46,875	49,583	58,550	60,930	70,445
Primary	36,181	38,509	47,320	48,870	57,028
Junior Secondary	8,055	8,390	8,910	9,400	10,603
Senior Secondary	2,639	2,684	2,620	2,660	2,814
% Community teachers[7]					
Primary	n/a	18	28	33	50
Junior Secondary	n/a	n/a	11	12	20
Senior Secondary	n/a	3	5	7	n/a
Number of permanent	22,656	25,197	29,300	32,300	33,991
teachers in private schools	14,555	16,800	16,950	18,270	19,807
Primary	6,015	6,271	8,950	10,100	10,534
Junior Secondary	2,086	2,126	3,400	3,930	3,650
Senior Secondary					

Source: MENRS

[6] Madagascar Development Policy Review, The World Bank, 2005.

[7] Community teachers are hired by the parent associations of local schools, who pay their salaries. In general, they receive considerably less pre-service training.

Objective and Scope of Study

1.10 The GOM requested this report to support the development of a new secondary education and training strategy. The report is designed to contribute to ongoing education reform discussions by presenting: analysis of the secondary education and training system; policy options to expand and improve secondary education based on other country experiences; and possible next steps for identifying the most appropriate course of action. The report aims to encourage discussion among policy makers, stakeholders and donors, and does not promote one approach over another. It is part of the ongoing Secondary Education in Africa (SEIA) study being undertaken by the AFTHD and is funded by the GOM, the World Bank, the Norwegian Education Trust Fund (NETF) and the Irish Education Trust Fund (IETF).

1.11 The body of the report is divided into six chapters. This chapter provides an introduction as well as objectives and methodology. **Chapter 2** presents the structure and an overview of the SE and TVET systems, discusses the transition between cycles, internal efficiency, and the advantages and potential impacts of a seven-year primary education reform. **Chapter 3** analyses the enrollment, the constraints in terms of supply and demand, and disparities throughout the SE and TVET systems, with regard to gender, areas and social status. The role of the private sector is examined. **Chapter 4** discusses the quality and relevance of secondary education in Madagascar. It examines areas essential for good quality: students, teachers, curriculum, learning materials, learning time and leadership, with international comparisons. **Chapter 5** analyses the cost and financing of the SE and TVET systems, including contribution of the public sector. Calculations are done on student unit costs to analyze the cost effectiveness of the system and some analyses are provided on the cost of private education. **Chapter 6** concludes the report with a presentation of six main challenges and potential policies and actions to be implemented for the expansion of secondary education and training system.

Methodology

1.12 The report draws on a variety of studies on the education and training system conducted by Madagascar's Ministry of Education and Scientific Research (MENRS), the World Bank-supported education project CRESED II (1999-2005), and the World Bank, combined with the findings of household and demographic and health surveys conducted in Madagascar. Three of the studies conducted by MENRS and CRESED II are based on field surveys. Thematic studies produced under the SEIA[8] on sustainable financing, teacher recruitment, and developing science and math were particularly helpful, as was the recent World Bank report "*Expanding Opportunities and Building Competencies for Young People: A new agenda for secondary education"*. The 2005 *Madagascar Development Policy Review* conducted by the World Bank provided data on growing business sectors and their need for better-trained workers. The EFA Global Monitoring Report 2005, "*The Quality Imperative"*, was helpful in reviewing quality issues. The simulations are based on the financial model used in the EFA Plan.

[8] http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRREGTOPEDUCATION/EXTAFRREGTOPSEIA/ 0, ,contentMDK:21196704~pagePK:34004173~piPK:34003707~theSitePK:732077,00.html

2. SECONDARY EDUCATION IN MADAGASCAR – STRUCTURE AND OVERVIEW

Structure of SE in Madagascar

2.1 Figure 2.1 illustrates the current organization of the primary (five-year), secondary education (four-year junior secondary and three-year senior secondary), vocational training, and tertiary cycles in Madagascar. The possible effects on this structure after extending the primary cycle to seven years will be discussed at the end of the chapter. The following terms are used in the report:

- "Primary Education" refers to the five-year cycle that makes up the first part of nine years of basic education. Under the Malagasy system, this cycle is called *Education fondamentale 1 (EF1),* and public school students attend the *Ecole primaire publique (EPP).* Children are expected to start this cycle when they are six years old. The standardized certification exam is the *Certificat d'études primaires et élémentaires (CEPE).*

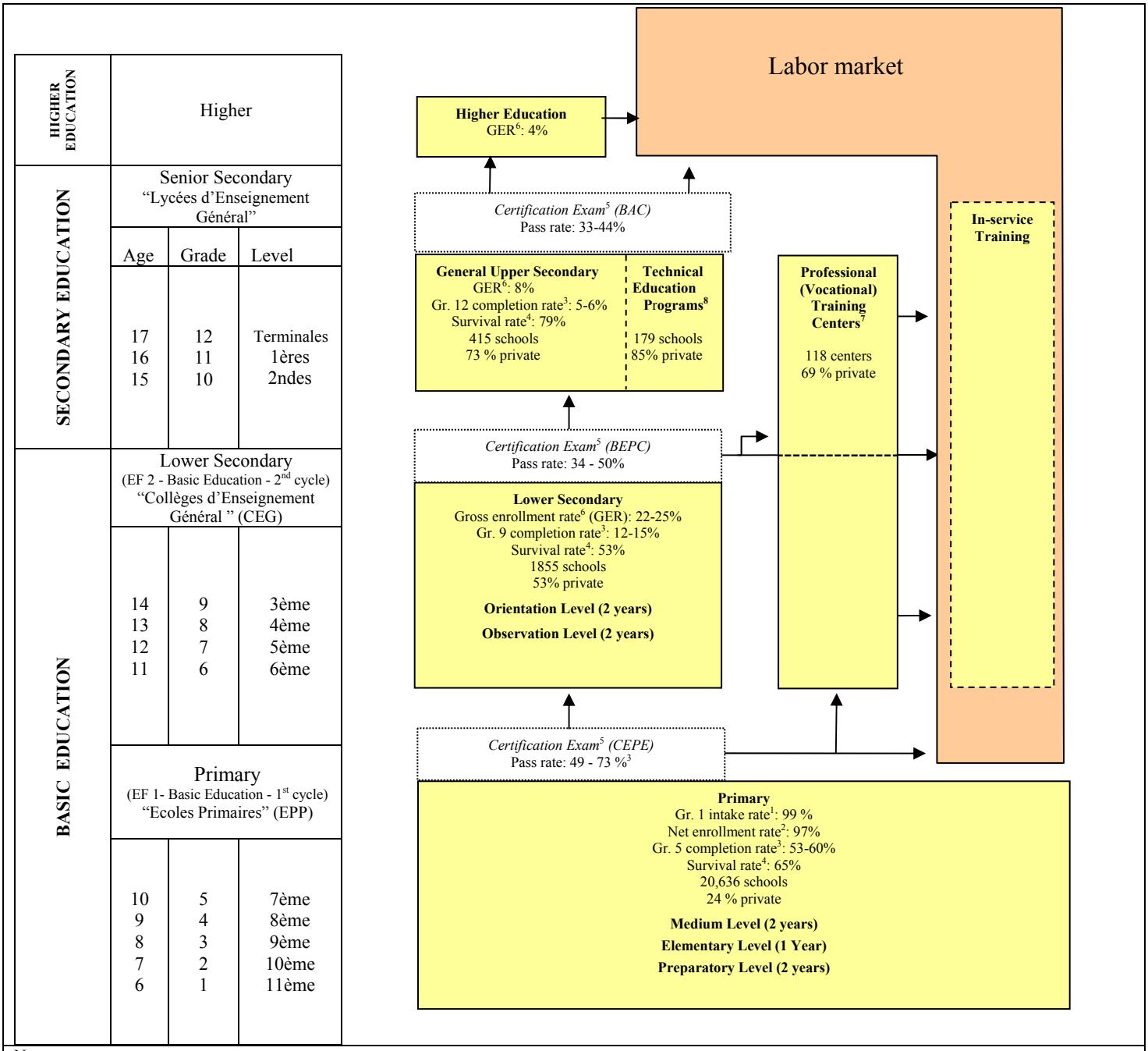
- "Junior Secondary Education" (JSE) refers to the current four-year cycle that makes up the second part of nine years of basic education. Under the Malagasy system, this cycle is called *Education fondamentale 2 (EF2),* and its students attend *Collèges d'enseignement général (CEG).* The standardized certification exam is the *Brevet d'études du premier cycle (BEPC).*

- "Senior Secondary Education" (SSE) refers to the last three years of the secondary education cycle. Under the Malagasy system, this cycle is called *Ecole secondaire,* and students attend the *Lycées d'enseignement général (Lycée).* The standardized certification exam is the *Baccalauréat (BAC).*

2.2 The structure of Madagascar SE is still somewhat elitist, only selected students continue on SE to the ultimate objective to get prepared for tertiary education. The Gross Enrollment Rate (GER) in JSE is about 27 percent and 9 percent in SSE. The selection process at the end of primary education, based on a traditional model of SE, is geared toward the preparation of students for higher education. After decades, this selection process remains topical despite a number of initiatives to foster massive access to JSE. Before 1975, JSE and SSE were provided in the same institutions (some with boarding facilities) and most of them where located in urban and suburban areas. In 1975, a new education law was adopted with the objective to create one JSE school per district; and from that time, JSE schools have been separated from SSE schools in Madagascar. The 2004 new education law establishes JSE as the second stage of basic education. This has two main implications; firstly, this suggests that all students should achieve at least the JSE level and secondly, JSE should also prepare students to the transition to the work, considering that some, if not the majority of the JSE graduates, will not continue to the SSE level.

2.3 Students are grouped into three streams for the two final grades of SSE. The three streams are: (i) the "Série A" for languages (54% of SSE students), (ii) the "Série C" for Mathematics, Physic and Chemistry (14% of SSE students), and (iii) the "Série D" for Biology (32% of SSE students). This grouping was established in the 1970s and has not been revised since then to meet changes in economic and social development. As an example, Economics is not considered in the SE curriculum while education policy-makers recognize that Economics should be one of the basic subjects in SE. Over the years, the percentage of students in "Série C" decreased gradually because students are showing less interest and performing worse in Sciences and Mathematics (see Chapter 4).

Figure 2.1: Madagascar – Organization of the Education System, 2006



Notes:
[1] Out of entire population of 6-year olds.
[2] Net enrollment rate (NER) is the overall average enrollment of the appropriate age group from the total population of that same age group.
[3] Completion rate is the percentage of the appropriate age group that completes the level.
[4] Survival rate is the percentage of initial intakes that completes the level
[5] Certification exams also serve as entrance exams for those students aspiring to continue their education. A child would need a certain minimum score to receive their certification, and another (higher) minimum score to gain admittance to the next level of public education. Children from wealthier families may also continue through the private system, which does not necessarily look at exam scores.
[6] Gross enrollment rate (GER) is the overall average enrollment (including all ages) from the total population of the appropriate age group.
[7] Vocational training exists outside of the official education system and is provided at both the lower and the upper secondary levels in "*Centres de Formation Professionnelle(CFP)*.
[8] Technical education is provided formally at the upper secondary level in "*Lycées Techniques Professionnels (LTP),*" which like the general secondary programs, are based on a traditional French model.

Sources: MENRS

2.4 Between each education levels, bottlenecks are observed because of unbalanced number of SE schools. On average, there is only one JSE for every eleven primary schools and one SSE for every 4.5 JSE schools (including both public and private schools). As for example in India, the ratio is about one to two for lower to upper primary[9]. This explains in part why in Madagascar the transition rate from primary education to JSE is low, at about 55 per cent, and from JSE to SSE, about 60 per cent. Actually, a nine-year basic education cycle is still challenging because of difficult access to JSE (mainly due to limited places in public JSE schools) and demand related issues.

2.5 The vocational training (VT) system is organized to give training opportunities for school leavers at all education levels. With the aim of ensuring that all general education completers acquire skills, the *"Centres de Formation Professionnelle" (CFP)* had been created to train primary, JSE and SSE leavers in line with a national qualifications structure (See Figure 2.2). The public vocational training system after primary education seems less cost effective, because the unit cost is high and training programs are relatively long (two years). Furthermore, the system increases inequity since there are limited numbers of public centers across the country, training programs are supply-driven and graduates might not meet the minimal age requirement to enter the work force. That poses the question of the relevance of long duration VT programs after primary education in parallel to general JSE.

2.6 The SSE system in Madagascar is organized in "dual system" (See Figure 2.2). In parallel to general lycées, the *Lycées Techniques Professionnels (LTPs)* are separate tracks which provide Technical Vocational Education (TVE) as well as Vocational Training (VT). The TVE track prepares students to take the technical baccalauréat after a three-year technical vocational education program. Graduates from the TVE track can continue on to tertiary education. In the 1990s, public LTP were allowed to provide profitable vocational training programs (pre- and in-service) to enable them to give incentives to teachers/trainers and invest in specialized facilities and equipments. Graduates from the three-year pre-service VT programs in LTPs, with one year of additional courses, are eligible to take the *Bacalauréat professionnel* to continue on to tertiary education.

2.7 Public LTPs in Madagascar were created during the global trend for TVE in the 1960s and were initially created to provide JSE school leavers (due to lack of places or low test scores) the opportunity to acquire skills as well as a chance for further higher education study. LTPs have been grouped in specific fields (Management, Industries, Civil works, Tourism and Agriculture). Over the years the quality of public LTP services declined and TVE graduates have been gradually facing difficulties finding employment; as a result, most of them continue onto higher education rather than going to work. In that regard, the high cost of public LTPs compared to general secondary is questioned if both tracks, the general lycées and LTPs, are preparing their graduates for the same thing. TVE programs have increasingly integrated general education subjects into their curriculum to better prepare graduates for higher education programs. The end result is a curriculum with 15 compulsory subjects and poor attainment in both vocational and academic subjects. The average pass rate on the technical baccalauréat is 30 percent.

Table 2.1: Student Enrollment in Secondary Education from 2001 – 2006

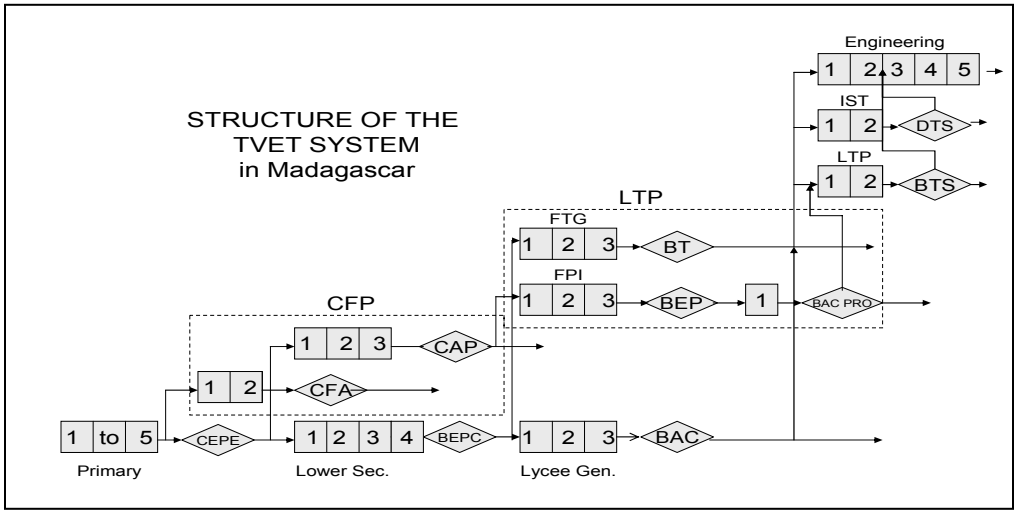
	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
JSE	316,390	343,937	356,973	420,700	486,300	581,620
SSE						
General	66,021	77,655	79,238	89,400	106,600	116,790
TVE(*)	11,683	12,326	12,619	12,210	12,625	15,852

(*) Private TVE is not included – Data are not available
Source: MENRS

[9] Lower primary includes grades 1 to 5 and upper primary, grades 5 to 8.

2.8 TVE contributes to about 10 percent of total SSE enrollment. Constraints on expansion of general SSE have led to a doubling of public enrollment in TVE from about 6,800 students in public LTP in 1998 to 12,600 in 2005. Three major factors underlie the increase in TVE enrollment: (i) TVE offers students unable to enter general JSE or SSE (because of lack of space or low test scores) an avenue to continue their education; (ii) students expect to gain needed skills for employment; and (iii) in some cases, TVE provides useful, marketable skills appreciated by parents.

Figure 2.2: Madagascar's TVET system



Source: Richard Johanson, Consultant – World Bank - January 2006

Key to Figure 2.2:

Institutions

CFP - Centre de Formation Professionnelle

LTP - Lycée Technique et Professionnel

IST - Institut Superior Technologique (Note: the Institute offers three qualifications – DTS (Bacc + 2 years), Diplôme de Technicien Supérieur Specialisé (DTSS) (Bacc + 3 years) and Diplôme d'Ingénieur de l'IST (DIIST) (Bacc + 4.)

Programs

FPI - Formation Professionnelle Initiale

FTG - Formation Professionnelle Générale

FPQ - Formation Professionnelle Qualifiante (Not shown in diagram-- short duration training without a formally recognized certificate, given in both CFPs and LTPs)

Qualifications

CFA - Certificat de Fin d'Apprentissage

CAP - Certificat d'Aptitude Professionnelle

Bac Pro - Baccalauréat Professionnel

Bac T - Baccalauréat Technologique

BEP - Brevet d'Etude Professionnelle

BEPC - Brevet Enseignement du Premier Cycle

BTS - Brevet de Technicien Supérieur

CEPE - Certificat de l'Enseignement Primaire Elémentaire

DTS - Diplôme de Technicien Supérieur (reportedly equivalent to DUT, France)

Note: vocational training centers (CFPs) provide initial training for the BEP qualification in places or fields where no lycée technique (LTP) provides it

2.9 Private training schools are increasing their share of enrollments in CFP. About 76 percent of CFP students attend private facilities. Because of their narrow focus on traditional training, public vocational training center students are turning towards private schools. Supply of VT programs is not diversified; in over 60 VT centers, only 2 CFPs and 12 LTPs provide four and more training programs (Blondeau, 2003). Private schools seem to have more flexibility and provide programs that respond better to the informal sector needs and thus are able to enroll more students.

2.10 Many measures have been taken by the GOM to promote private sector participation in VT. New financial arrangements were established in public LTPs to allow cost-sharing with students. The time it takes to establish a private LTP or TVET school was reduced. New short-term, customized programs (*"Formations Professionnelles Qualifiantes")* have been developed in public and private LTPs to meet the training needs of private companies. As a result of this, most of the public LTPs have managed to double, even triple, their budgets. Irrespective of this success, regulation should be developed, particularly for public LTPs, in the use of public resources and facilities for profitable VT programs.

2.11 The overall VT system includes other institutions which do not have links to the Ministry of Education (MOE). To that effect, for the VT centers under the MOE, some actions are underway: (i) creation of orientation committees that include private business associations and local and national public authorities; (ii) re-engineering of the State's role to make it a facilitator ensuring the quality and the promotion of training programs; (iii) financing training centers through contracts with the public and private production sectors; and (iv) introducing the new skill/competencies-based approach.

Transition between Education Levels

2.12 The most striking improvement in primary education is increased enrollment. As discussed earlier, the Primary Completion Rate (PCR) increased from about 30 percent in 2002 to about 60 percent in 2006, while the Net Enrollment Rate (NER) increased from 72 percent to 98 percent[10]. In absolute terms, primary education enrollments registered a spectacular increase from about 1.2 million in 2001/02 to 3.7 million primary school students in 2005/06.

2.13 This expansion has dramatically increased pressure on an inadequate secondary system to accept more new students every year. The number of available JSE slots is so low that many children who do well on the primary school examination are not able to continue to the next level. Each year, the "passing" grade for the primary exam is adjusted depending on the number of available slots; a grade that enabled a child to move from primary school to JSE one year may not guarantee the same the following year. This same method is applied to the transition between JSE and SSE. Hence pass rates do not reflect performance of the system.

2.14 Ad hoc measures to accommodate higher number of new intakes in public JSE schools have led to increased class size to about 60 students in most areas. To respond to the pressure from increasing enrollment in primary education and better CEPE passing rates, public JSE were requested to accommodate more new students in grade 6 without a large public investment program being implemented. In two years (from 2002/03 to 2004/05), new intakes in first grade of public JSE schools increased about 133 percent, and in private JSE schools, about 84 per cent, while the number of CEPE holders who cannot enter JSE tripled for the same period. There is a risk that this situation will worsen in the coming years (see Chapter 6), as combined effects of the continued increase of student enrollment in primary cycle and the forecasted improvement on the PCR.

[10] The 2004 Household surveys (EPMs) showed an increase of 14 points of the NER for the same period; from 72% in 2002/2003 to 86% in 2004/2005. Differences between both sources are noted because MENRS' calculations are based on projections from the 1993 population census, while EPMs figures are from direct calculation from household data. Nonetheless, the significant increase of the NER during the period is valid.

Table 2.2: New Intakes in First Grade of JSE from 2002 to 2005

	2002	2003	2004	2005
Candidates for the CEPE	201,535	243,475	271,029	314,021
Successful candidates	94,947	148,769	163,608	207,191
CEPE pass rate	47%	61%	60%	66%
New intakes in first grade of JSE	89,896	133,760	151,899	189,450
Public schools	49,185	76,691	89,895	114,701
Private schools	40,711	57,069	62,004	74,749
CEPE holders who cannot enter JSE	5,051	15,009	11,709	17,741
As per cent of successful candidates	5%	10%	7%	9%

Source: MENRS – Our calculations

2.15 Children who find themselves unable to continue to the next level are allowed to repeat the final year of primary school one time in an effort to improve their primary school exam scores. This repetition exacerbates existing classroom overcrowding and problems with lack of materials. Findings by the MENRS (2003) also suggest that students repeating the final year of primary school do not score better on the exam the second time. This system favors children from wealthier families, because they can afford to enroll in private secondary schools that do not need to put the same emphasis on exam scores.

2.16 For JSE achievers, access to SSE levels depends on the BEPC pass rate and on the ability of private SSE schools to accommodate more students. Table 2.3 shows that the increase in percentage of JSE achievers who cannot enter SSE (about 13 percent) is a result of an increase in the BEPC pass rate (48 percent). In SSE, it appears that increases of new intakes in private schools are far higher (about 75 percent vs. 32 percent in public SSE from 2002 to 2005). One main reason is that most of students who continue further SSE study are from a wealthy background and thus can afford the costs of private schools.

Table 2.3: New Intakes in First Grade of SSE from 2002 to 2005

	2002	2003	2004	2005
Candidatesfor the BEPC	74,996	87,260	97,524	107,306
Successful candidates	25,390	35,236	46,570	41,064
Pass rate	34%	40%	48%	38%
New intakes in first grade of SSE	25,315	31,845	40,410	38,669
Public schools	13,101	16,191	19,140	17,339
Private schools	12,214	15,654	21,270	21,330
JSE achievers who cannot enter SSE	75	3,391	6,160	2,395
As per cent of successful candidates	0.3%	9.6%	13.2%	5.8%

Source: MENRS – Our calculations

2.17 Transition to higher education is still lower than other SE cycles. Low Baccalaureate (end SSE examination) pass rates, entry selection due to lack of places in public tertiary education institutions as well as high costs of private tertiary education institutions have led to high dropout numbers after SSE. An important proportion of SSE achievers, about 30 to more than 45 percent of Baccalaureate holders, are entering directly the world of work after being only prepared for further higher education study.

2.18 In addition to limited supply, the secondary system faces many challenges that undermine quality and student achievement. Some of the biggest hurdles include: high student repetition and dropout rates; poorly trained, underutilized teachers; an outdated and irrelevant curriculum; teaching methods that focus on memorization and rote learning; too little teaching and learning time; inadequate facilities; textbook and teacher manual shortages; and inadequate supervision. The way these issues are addressed directly affects how equitable the system is toward the poor and underserved populations, such as girls and children with disabilities. These quality issues will be discussed at greater length in Chapter 3.

Table 2.4: Distribution of New Intakes among Higher Education Institutions (%)

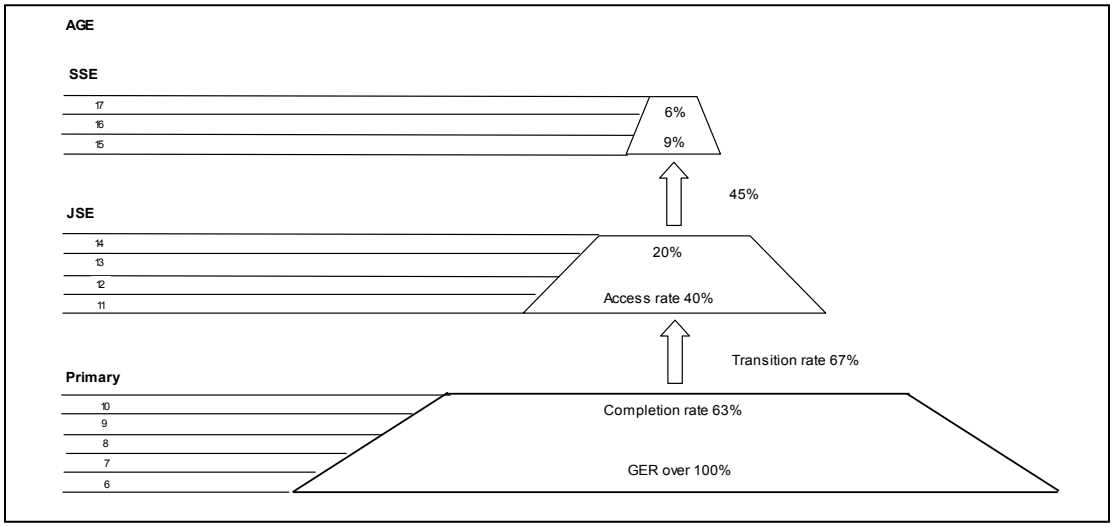
	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
Baccalaureate pass rate	31%	37%	41%	33%	44%	
SSE graduates who enter higher education schools (1)	***53%***	***59%***	***65%***	***61%***	***60%***	***69%***
Public Universities	39%	43%	49%	48%	47%	56%
Higher center of technology (IST) - two years vocational training	1%	2%	2%	1%	1%	2%
CNTEMAD - Higher distance learning institution	9%	8%	7%	7%	7%	6%
Agreed private higher education schools	4%	7%	7%	6%	5%	6%
Proportion of SSE graduates who do not enter higher education schools (2)	***47%***	***41%***	***35%***	***39%***	***40%***	***31%***
Total (1)+(2) in %	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
In absolute numbers	**12,587**	**12,587**	**16,878**	**19,087**	**16,977**	**25,049**

Source: MENRS report – Our calculations

Internal Efficiency

2.19 Educating a student in the Malagasy JSE system costs 3.2 times as much as it would in a system where no students repeat a grade or dropout (based on IMaTeP data, 2004). Repetition rates (15-18 percent) and dropout rates (10-13 percent) are high in JSE, which explains the low survival rate of about 19 percent in JSE. Students mostly dropout due to poverty reasons, low achievement scores and the lack of relevance of SE. Figure 2.3 shows a huge decline in the number of graduates across all cycles and particularly between grade 5 and grade 6.

Figure 2.3: Grade Attainment Profile of Cohort – Madagascar 2006



Source: MENRS

2.20 High repetition rates at the beginning of each cycle reflect poor preparation in the previous cycle. Transition to JSE and SSE are on a competitive basis, but high repetition rates are still observed in grade 6 (first grade of JSE) of about 17 percent, and in grade 12 (last grade of SSE) of about 11 percent. It could be concluded that the connection between cycles is weak and the MENRS survey in 2004 confirmed that teachers from different cycles have no opportunities to communicate or share experiences. JSE teachers suggested that this could be due to disconnects between the curriculum and teaching practices in each cycle.

Table 2.5: Repetition rates SE – 2004/05 to 2005/06

	JSE				SSE		
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Madagascar	10	9	8	27	9	3	25
SSA countries							
Average	12	13	13	16	12	12	27
Range	1-35	1-32	1-36	1-42	1-47	1-36	3-42
Standard deviation	9.0	7.9	9.9	10.3	10.1	9.4	11.5

Source: MENRS Statistical Yearbook – UIS 2006 – Our calculations

2.21 There are many reasons for the high repetition rates at the end of JSE and SSE. First, the current SE system is designed to prepare students for higher education, and thus, is very selective. Assessments are also designed accordingly, selecting better students rather than certifying students' achievements. A second reason is the lack of alternatives after completing each cycle. SE completers are not prepared to the transition to work and TVET schools are not accessible. The result is that some students who have passed the BEPC prefer repeating the last grade of JSE and hope for better scores to progress to SSE the following year.

Seven-year Primary Education System Reform

Table 2.6: Selected Countries with Seven-year Primary Education

		Primary		Secondary	
	Compulsory Education age range	Entrance age	Duration	Entrance age	Duration
Africa					
Botswana	6-15	6	7	13	5
Kenya	6-13	6	7	13	5
Lesotho	6-12	6	7	13	5
Liberia	6-15	6	7	12	6
Mozambique	6-12	6	7	13	5
Namibia	6-15	6	7	13	5
South Africa	7-15	7	7	14	5
Swaziland	6-15	6	7	13	5
Uganda	…	6	7	13	6
United Republic of Tanzania	6-12	7	7	14	6
Zimbabwe	6-12	6	7	13	6
Asia					
Buthan	6-16	6	7	13	4
Maldives	6-12	6	7	13	5
Europe					
Iceland	6-16	6	7	13	7
Norway	6-16	6	7	13	6

Sources: Global education digest - UNESCO Institute for statistics - "EFA paving the Way for action"(UNESCO BREDA 2005), and World Bank Development indicators

2.22 One option the Malagasy government announced in November 2005 to address the bottleneck between primary education and JSE is to lengthen the primary cycle from five years to seven years. The purpose of the government is not to move the two first grades of the current JSE to primary education but an in-depth change from a 5-4-3 system to a 7-3-2 system. Table 2.6 shows selected countries with a structure of a seven-year primary education. It appears that there is not a common trend in the length of secondary education; it varies from four to seven years, but on average is five years.

2.23 Extending the primary cycle by two years would allow TVET to focus on technical and jobs skills. The goals of primary education and the curriculum need to be revised in order to take into account that if the current situation does not change, half of the primary graduates will pursue secondary education while the rest will enter the workforce or vocational and technical courses. Moreover, under a seven-year primary education system, primary graduates will be close to the legal working age and since students entering the vocational track will have completed two additional years of primary school, the need to focus on basic numeracy and literacy skills in vocational training should diminish. The vocational system needs to review how it can take advantage of the new student profile and how it could make it possible to strengthen VT programs. This poses the question of balancing the content of the curriculum in terms of basic subjects and practical/pre-vocational subjects in the two additional primary grades, including life- and job-skills.

2.24 There are a number of advantages benefiting individual systems as well as the entire education system that may arise from the adoption of a seven-year primary education system. Table 2.7 summarizes the main expected advantages of the reform.

Table 2.7: Main Advantages of Seven-Year Primary Education System

Aspects	Advantages	Comments
Socio-economic	Young people, including girls, entering the labor market and adult life after primary school will be better prepared and qualified	Parents will be supportive if lengthening primary education meets social and economic needs The PCR might be lower than the 100 percent target since the opportunity costs increase as students get older
	Most primary school graduates will be closer to the legal working age (15 years)	
	Lower education costs for poor families, since primary school is free and the cost of secondary education will be reduced	
	More community support when schools are close by	
	Keeping girls at school will protect them from early marriage in some areas	
Access and equity	A greater number of poor children and girls who cannot get more than five years education with the present system will attain higher level of qualification	Demand for secondary education will increase since a large number of primary graduates will be old enough to live away from home
	Access to JSE schools will increase significantly	
System effectiveness	Primary education graduates will be better prepared for the transition to secondary education	The curriculum and examination system needs to ensure coherence, integration and continuity at all education levels
	Reduction of the length of JSE will contribute to a better student retention rate school and therefore a better completion rate	The need to appoint more specialized teachers (for grades 6 and 7) will increase the costs for small primary schools with multi-grade classes
	Primary education graduates will be better prepared for the transition to work life	For many graduates, primary education will be a terminal cycle. Two additional grades should better prepare them for the transition to work
	Long VT courses after primary education would be shortened and more accessible	VT courses will be focused on practical knowledge since primary education graduates will be better prepared

Conclusion

2.25 Although JSE is officially the second phase of a nine years of basic education, SE in Madagascar, as it is currently structured, still follows the traditional concept of SE being a step of the selection process for higher education. The objectives of the SE and TVET systems have not changed from their initial ones at the time of Independence, which was to provide a small number of high qualified employees, and develop a massive number of workers with basic and middle qualifications for traditional employment. That explains the unbalanced numbers of JSE and SE compared to primary education and the creation of VT system network through the CFPS to accommodate trainees after primary education, JSE and SSE. This situation has a prejudicial impact in the development of Madagascar human capital, since on average a Malagasy has 4.3 years of education and most of the JSE and SSE achievers are entering directly the work force without being fully prepared for that purpose.

2.26 There is still a long way for Madagascar to go in achieving a massive JSE enrollment as second phase of basic education, as evidenced by only 27 percent of JSE GER. Actions contributing to this goal are being implemented, notably the improvement of the Primary Completion Rate (to about 60 per cent in 2006) in order to ensure that all kids complete the primary cycle. However, constraining issues at JSE level still need to be addressed. In addition to dropouts within each cycle, an increasing number of dropouts are also observed between each education levels, and especially between primary education and JSE, because students who drop at this stage have not completed full basic education and are neither prepared nor old enough for the world of work.

2.27 The current education structure is selective with few alternatives for students, and as a result, generates additional costs for the education system and for families. In addition to insufficient number of JSE and SSE schools, despite the increased participation of the private sector, the network of VT centers (CFPs) was not able to expand sufficiently to meet the growing potential demand. A certain number of students passed the end cycle examination and decided to repeat the last grade not because of lack of skills but because of the few places in the next cycle, despite the fact that repeating a grade does not necessarily result in higher student scores. These repetitions have an effect on the internal efficiency as well as on the cost of education for families.

2.28 The TVET system needs to make more efficient and demand driven. The VT track after primary education is not appropriate because (i) children should not be allowed to leave the education system until they complete the basic education of 9 or 10 years and (ii) developing long VT programs after primary education might be more expensive than developing JSE facilities. In Madagascar like in most Sub Saharan Countries, the public and private VT systems have been designed according to the traditional supply driven system and it has resulted to low quality and irrelevant VT programs with regards to the needs for economic growth[11]. To cope with these weaknesses almost all the main companies have developed their own in training programs.

2.29 For public LTPs, the use of public resources needs regulation in order to protect their main mission which is the TVE. For TVE, the existing options need to be reviewed in order to give students distinct opportunities than those who are enrolled in general SSE. Lastly, the overall TVET system needs to be reorganized in order to avoid duplication across several institutions namely the LTPs and the CFPs.

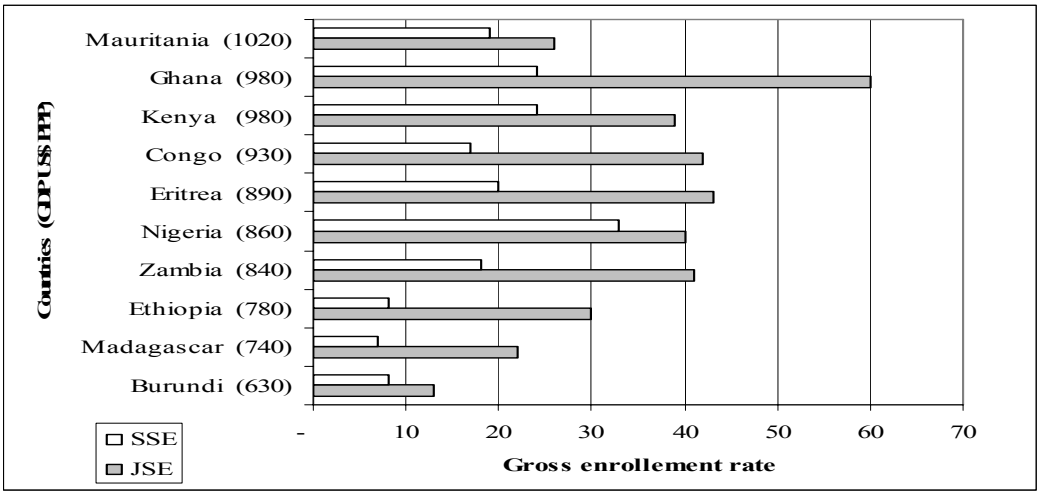
2.30 The reform introducing a seven-year primary education system is promising in terms of improving JSE education. Regarding internal efficiency, repetition rates are expected to decrease since students will be better prepared for JSE and student dropout might be reduced if JSE duration is shortened. JSE enrollment is expected to increase because shifting some JSE grades to primary education will free up some places in existing JSE schools and shortening JSE duration makes it more accessible because of lower opportunity costs. Primary education graduates will be older and better prepared for longer journeys to school. With respect to TVET, student will acquire the necessary skills and therefore the length of VT programs could be reduced, making them more accessible.

[11] The World Bank - Skills Development in Sub-Saharan Africa, Richard K. Johanson and Arvil V. Adams 2004

3. ENROLMENT: DISPARITIES AND CONSTRAINTS

3.1 The issues raised in the Madagascar Country Status Report (CSR) completed in 2002 by the World Bank and the GOM are still relevant today. In 2002, the CSR concluded that new enrollees in Madagascar are comparatively high (about 80 percent in 1999) as a percentage of the eligible age group, but internal efficiency is very low. This results in a low primary survival rate, and low completion rates in secondary education. This is still the case today. Despite the increase in the NER, the PCR is still low, due in part to high repetition rates. Completion rates are improving slightly in secondary education.

Figure 3.1: Secondary Gross Enrollment Rates for Selected Sub-Saharan Africa countries, through 2002



Sources: UNESCO Institute of Statistics - UNDP – Human Development Report 2004 for the GDP per capita

3.2 Madagascar secondary school students increased by 30 percent (public and private school average) over the last five years, but the increase remains low at 27 percent for JSE and 9 percent for SSE compared to other SSA countries. Although GERs vary widely across countries in Sub-Saharan Africa, Madagascar's secondary GERs are lower than those of countries with a similar GDP per capita. Madagascar and Eritrea offer a five-year primary cycle compared to six or seven years in all other Sub-Saharan African countries.

3.3 A combination of low primary completion rates and low transition rates from primary to JSE result in a low secondary GER. The primary education enrollment rate in 2005-2006 of 98 percent is one of the highest rates in the region. Its PCR, however, is only 60 percent. Madagascar's transition rate from primary to JSE is 67 percent[12] (2005-2006). This low transition rate could explain why its GER lags behind GERs in countries with lower PCRs.

3.4 Low completion rates do not always mean low transition rates. Data in demonstrate that countries with low completion rates can still have high transition rates from primary to secondary school. Eritrea, Sudan and Ethiopia had lower primary school completion rates than Madagascar in 2003, but managed to have significantly higher JSE GERs. One reason may be the level of public resources allocated to education, and specifically to secondary education. Eritrea increased spending on secondary education from 2.2 percent of GDP in 1993 to about 5 percent of GDP in 2000.

[12] The apparent transition rate from primary to secondary is defined as the ratio between (i) the number of new students in the first grade of secondary in year y, and (ii) the number of students in the last grade of primary during year y-1.

Table 3.1: Primary Completion, Transition to Secondary, and Secondary Gross Enrollment Rates for Selected Sub-Saharan Countries thru 2003

			Gross secondary enrollment (GER) (%)	
Countries	**Completion rates in primary (PCR) (%)**	**Transition rates to JSE (%)**	**JSE**	**SSE**
Madagascar*	60	67	27	9
Countries with lower PCR but similar or higher secondary GER than Madagascar				
Eritrea	36	83	41	20
Sudan	35	83	35	23
Ethiopía	32	81	26	11
Mali	31	56	23	9
Guinea	28	53	24	9

*Data for Madagascar is for school year 2005-2006.
Source: Table A10 in Annex 1

Gender Disparities

3.5 The gender parity index is significantly below one, in favor of boys, in JSE schools. By contrast, the gender parity index is very close to one in SSE, because although many girls do not continue their schooling beyond the primary level, those who do, have lower dropout rates than boys in both JSE and SSE. One reason could be the wealth effect, regarding girls only those from richest households continue after primary, while after JSE only richest students (girls and boys) continue studying (boys from poorest households drop out after JSE). Improving gender parity in SSE is crucial to ensuring that Malagasy girls have the opportunity to develop to their full potential and contribute fully to the country's economic growth. Ensuring that more girls stay in school beyond the primary level also promises dramatic gains in terms of improved child health and nutrition status, reduced family size, and HIV/AIDS prevention.

Table 3.2: Gross Enrollment Ratios by Gender in Secondary Education in Madagascar, 2003

	GERs		
Cycle	Boys	Girls	**Parity Index (G/B)**
JSE	25%	16%	0,66
SSE	7%	7%	0,99

Source: MENRS Statistical yearbooks – INSTAT Population projection

3.6 Only 6 percent of girls pursuing a secondary education at the senior level are enrolled in technical schools versus 13 percent of boys. Disparities vary across courses: 59.9 percent of girls are enrolled in services and management courses and only 15 percent of boys. The percentage of boys is higher in industrial and civil engineering courses (83.5 percent of boys in technical SSE courses are enrolled in these courses compared to 39.5 percent of girls). Gender disparity also varies according to the type of school (vocational training center or technical SSE) and to location (urban vs. rural)[13].

Enrollment Disparities

3.7 According to household surveys, people with some secondary schooling are more likely to escape poverty than those with only a primary education. In addition, there is a great disparity in secondary enrollment rates between the poorest of the poor and the wealthiest families in Madagascar. For example, during 2004-2005, only 7-9 percent of children from the poorest families enrolled in JSE, while 38-41 percent of children from the wealthiest families enrolled in JSE. This inequity is socially and economically damaging for Madagascar's development and does not allow poor households to escape the vicious cycle of poverty.

3.8 Madagascar Household Surveys data from 2001, 2004 and 2005 (see Table 3.3) demonstrates that children from poorer households started to attend JSE in greater numbers in 2005/2004 than in 2001. Across all quintiles, primary school enrollment has increased, but most dramatically among poorer households. Children from the lowest three quintiles will create the largest demand for new secondary education slots in the coming years.

Table 3.3: Madagascar – Net Enrollment Rates per Income Level in 2001 and 2004 (%)

		Quintile					Madagascar
Level	Year	I	II	III	IV	V	Total
Primary	2001	45	56	62	76	85	62
	2004	81	84	84	90	91	86
	2005	71	79	84	92	99	83
JSE	2001	1	3	8	15	44	12
	2004	7	9	11	19	41	17
	2005	9	11	18	22	38	19
SSE	2001	1	0	2	3	14	4
	2004	1	1	2	5	16	5
	2005	1	1	2	6	14	4

Source: Household Surveys, 2001, 2004 and 2005

3.9 Disparities between urban and rural areas are also critical. Despite the fact that the gap in primary NER between rural and urban areas tends to close, significant disparities are still observed in SE; in JSE the NER is twice higher in urban areas than rural areas and in SSE it is more critical (six times higher). Regardless of the cause of disparities, if SE education has higher rate of return, low SE enrolment perpetuates poverty for poor families, particularly in rural areas.

Table 3.4: Madagascar - Net Enrollment Rates per Education Level in 2005 (%)

	Primary	**JSE**	**SSE**
Urban	90	33	12
Rural	81	15	2
Total	83	19	4

Source: Household Survey, 2005

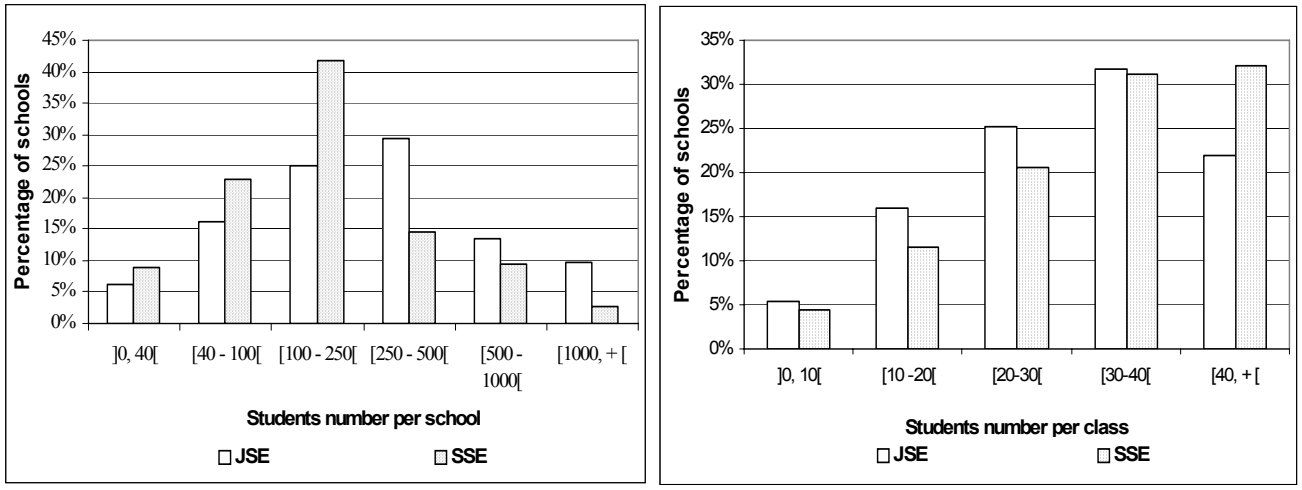
[13] S. Blondeau, 2003.

Supply Side Constraints

3.10 Most JSE and SSE schools are in medium- to large-sized metropolitan areas. A JSE school's catchment area depends on population density. On average, students live within a 18 km radius of a JSE school. The radius may vary from 10 kms in Antananarivo province to 37 kms in Toliara province[14]. In areas where transportation infrastructure is virtually non-existent, students may have to walk for several days to reach the school. Furthermore, only two-thirds of JSE schools and 93 percent of SSE schools can be accessed year-round. The others are accessible only during the dry season. The result is that JSE enrollment rates in rural areas are much lower than in urban areas. A 2003 CRESED II study on student achievement found that in small rural communities, only 15 percent of children who passed the primary school exit exam made the transition to JSE schools.

3.11 Due to the low population density, the expansion of SE has been possible through an important proportion of small size schools. A third of JSE schools have fewer than 100 students, and only half of those offer all four JSE grades. The other half offer only one or two years of JSE, yet every JSE needs a minimum of five teachers to operate. About half of JSE schools (46 percent) have small classes (fewer than 30 students).

Figure 3.2: Distribution of JSE and SSE Schools by Size of Student Body and Number of Students per Class in 2004



Source: World Bank estimates based on MENRS data

3.12 On average, public VT programs take about two to three years to complete at all levels. That is mainly because (i) curricula are designed to help students gain the knowledge needed to obtain a diploma but not to help them develop the skills expected from new labor force entrants; and (ii) TVET programs still include general subjects that should have been mastered in general education. The long duration of TVET programs make TVET less accessible for poorer JSE graduates. In addition, TVET centers are mostly located in urban and sub-urban areas. TVET centers have little coverage, the majority of CFPs and LTPs are located in two provinces (over 6 provinces), Antananarivo and Toamasina[15].

[14] Secondary School Survey – CRESED II.
[15] Blondeau – 2003.

Demand Side Constraints

3.13 The costs associated with school attendance and the need to perform household chores remains key obstacles to continued schooling. Findings from the 2003 study done under CRESED II with the MENRS demonstrate that the inability to meet direct and indirect educational costs is a key reason children dropout of the secondary education system (see Table 3.5). An inability to pay for school prevented 47.4 percent of boys and 23.1 percent of girls in the study who has passed their primary school exit exam from continuing to JSE. It seems that for girls, in addition to inability to pay, pregnancy, marriage and to a lesser extent, sexual harassment and poor academic performance are among factors that influence failure to progress to JSE schools. In areas where secondary schools are scarce, most students are forced to live far from their families in order to attend school. The lack of housing and the cost of boarding prevent many students from continuing their education. For instance in 2005, the total annual education expenditures (Ar19,600-26,800)[16] of households in the three poorest quintiles only cover registration fees for two or three students in public JSE.

3.14 Lack of relevance of general SE and high opportunity costs are also influencing factors for failure for CEPE holders to progress to further JSE and BEPC holders to SSE. Obviously in rural areas where most of employments relate to traditional mode of agriculture and fishing, high qualifications are not always required, rather basic education and manual skills are critical. In that regard, parents might doubt the usefulness of sending their children to general secondary programs, and TVET centers do not exist. Actually in rural areas, students who continue in general JSE may lose the opportunity to acquire skills for local jobs, and thus those who dropout can often benefit from close mentoring in an informal apprenticeship way.

Table 3.5: Factors influencing Failure for Girls and Boys

Reason	Did not pass primary school exam		Passed primary school exam	
	Girls	Boys	Girls	Boys
Illness/accident	2.2	2.6	7.7	0
Pregnancy/marriage	5.6	0	15.4	0
Cannot pay for school	16.7	10.4	23.1	47.4
Death/illness/unemployment of parent	1.1	3.9	0	5.3
Assist parents	15.6	23.4	23.1	31.6
Sexual harassment	0	0	7.7	0
Poor academic performance	32.2	23.4	7.7	0
Family moved	3.3	0	0	1
Failed lower secondary entrance exam	8.9	19.5	0	5.3
Had enough education	0	0	0	0
Other	14.5	16.9	15.4	9.5

Notes : sample of children who have completed the last primary grade

Source : Survey on school and academic progression – CRESED II – MENRS – 2004

Student Features

3.15 Although the official entry age for primary school is six years old in Madagascar, a significant number of children enter school at an older age. In 2004-005, the average student age in the first grade was 7.2 years old. Yet, over 10 percent of first graders were 10 years old or older. This pattern starts in primary school, but continues well into JSE. In school year 2004-05, twenty-five percent of sixth graders were 19 years old and older and 36 percent of ninth graders were over 18 years old. This broad range of ages in the same class means that although teachers might not be teaching official "multi-grade" classes, they are teaching "multi-age" classes as

[16] Source: 2005 Household Survey

standard practice, which requires working simultaneously with children of vastly different developmental capabilities. It is expected that this will be less of a problem as time goes on, since more children have been entering primary school at age six after the elimination of school fees.

Table 3.6: Share of Student per Age at Entry and Exit Grades per Cycle

Primary education			Junior secondary education			Senior secondary education		
Age	**Grade 1**	**Grade 5**	**Age**	**Grade 6**	**Grade 9**	**Age**	**Grade 10**	**Grade 12**
Less or equal to 6 years	**45.0%**	0.0%	Less or equal to 11 years	**8.9%**	0.1%	Less or equal to 15years	**20.5%**	1.1%
[7-9]	44.7%	4.1%	[12-13]	25.1%	6.1%	16	18.2%	5.1%
10 years	5.0%	**10.4%**	14years	16.1%	**12.2%**	17	17.7%	**11.8%**
[11-12]	4.0%	34.6%	[15-17]	24.1%	50.2%	[18-20]	31.2%	48.2%
[13-14]	1.1%	37.8%	[18-19]	13.4%	26.4%	[21-22]	3.2%	16.8%
15 years and more	0.2%	13.1%	20years and more	12.4%	5.0%	23years and more	9.1%	17.0%
Total	100.0%	100.0%	Total	100.0%	100.0%	Total	100.0%	100.0%
Average (years)	**7.2**	**12.4**	**Average (years)**	**15.1**	**16.3**	**Average (years)**	**17.8**	**19.9**

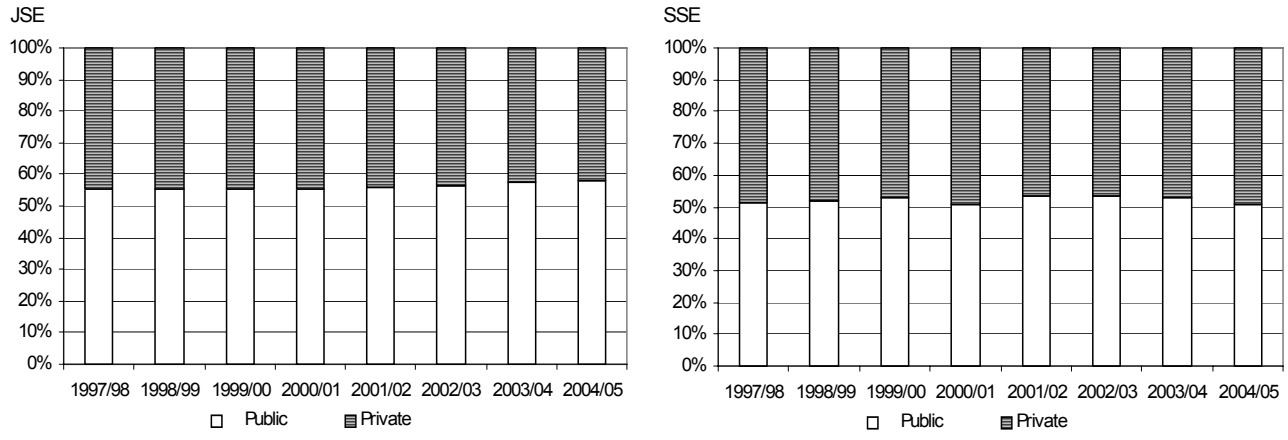
Source: MENRS – Our calculations

Private Schools

3.16 In Madagascar, SE private schools can be grouped into three categories. The first category relates to private schools, traditionally recognized as of better quality, located in urban areas and with rigorous selection at the entry, the second category refers to private schools that enroll students who failed the national entry examination to public SE schools, and the last category comprises private schools that are located in areas where SE public schools are missing.

3.17 About 45 percent of JSE students and 50 percent of SSE students are enrolled in unsubsidized private schools. During the last five years, enrollment in private secondary schools increased by 27 percent, while the public secondary school enrollment increased by 33 percent. New private schools must be authorized by the MENRS, which reviews each application against established standards regarding facility size and teacher and school head qualifications. Private JSE schools help address supply problems by locating in rural areas but the tuition is still out of reach for most rural families.

Figure 3.3: Distribution of JSE and SSE Schools by Type



Source: MENRS data – Our calculations

3.18 Private schools are performing better in JSE, while in SSE the results are mitigated. Private schools tend to have a higher proportion of better end examination pass rates (in both BEPC and Baccalauréat); however in SSE, a higher proportion of private schools have lower Baccalauréat pass rates compared to public schools. One explanation is that a certain number of JSE private schools are traditionally of high repute and select good students while for private SSE schools (most of them are in urban and suburban areas), a significant proportion of their students did not pass the entry examination to public SSE.

Table 3.7: SE schools distribution by examination pass rates - 2005

	BEPC pass rates				
	[0%,25%[	**[25%,39%[**	**[39%,50%[**	**[50%,75%[**	**[75%,100%]**
Public	35%	23%	17%	21%	5%
Private	22%	22%	11%	25%	19%
Total JSE	28%	23%	14%	23%	12%
	Baccalauréat pass rates				
	[0%,25%[	**[25%,44%[**	**[44%,50%[**	**[50%,75%[**	**[75%,100%]**
Public	14%	25%	18%	41%	2%
Private	17%	34%	7%	28%	14%
Total SSE	16%	32%	10%	32%	11%

Source: MENRS database – Our calculations

Conclusion

3.19 The selection process for SE is harsher in Madagascar than in SSA countries. In comparison to other SSA countries, Madagascar has higher primary enrollment and completion rates while enrollment rates are comparatively low in JSE and SSE. This situation is due to the fact that the transition rate from primary education to JSE is lower in Madagascar; the low enrollment in JSE is a result of low enrollment in SSE. The different situation in SSA countries shows that there is no common strategy to develop SE education; it varies according to the national context.

3.20 Student enrollment is low but strong disparities are also observed. Increasing JSE demand from poor families and in rural areas is expected in the coming years. From a gender viewpoint, girls have lower enrollment rates than boys in JSE while in SSE, enrolments are almost equal. Disparities are more critical in terms of location and quintiles. In urban areas, net enrollments rates are two times higher in JSE and six times higher in SSE than in rural areas. From a social viewpoint, enrollment for the richest quintile is four times higher in JSE and fourteen times higher in SSE than for the poorest quintile. In JSE, regarding girls only those from wealthiest family continue while in SSE only girls and boys from wealthiest family are enrolled (boys from poorest households drop out after JSE). The enrollment increase in primary education has led to an increased enrollment in JSE during for poor families during the last three years.

3.21 Low enrollments rates in Madagascar have many reasons, on both demand and supply sides. Constraints on supply side relate to limited SE services in rural and remote areas. Although the GOM has developed a network with a high proportion of small SE schools with small student per class ratio, the large sizes of JSE/SE catchments areas make SE school inaccessible for most of the primary education completers. Two main supply constraints to TVET need to be addressed; the duration of the VT programs are too long and CFPs/LTPs have little coverage. On the supply side, it appears that the main constraint is parents' capacity to afford school costs (which in many cases include transportation and lodging). Another constraint on demand side is the high opportunity cost, which is even more flagrant when relevance of SE education is low. Particularly for girls, marriage and pregnancy are factors for lack of progression to JSE. Lastly, a high proportion of students are far older than the official age as result of late entries in primary education.

3.22 The private sector plays an important role in Madagascar with more than fifty per cent of SE students are enrolled in private schools. However, they are also limited in terms of coverage but some of JSE schools are established in remote areas where public services are missing. Private schools do not always mean better performance or conditions. While some private schools are traditionally well reputed, some of them just aim at providing alternatives for students who fail in the entry examination to public SE.

4. QUALITY COMPONENTS

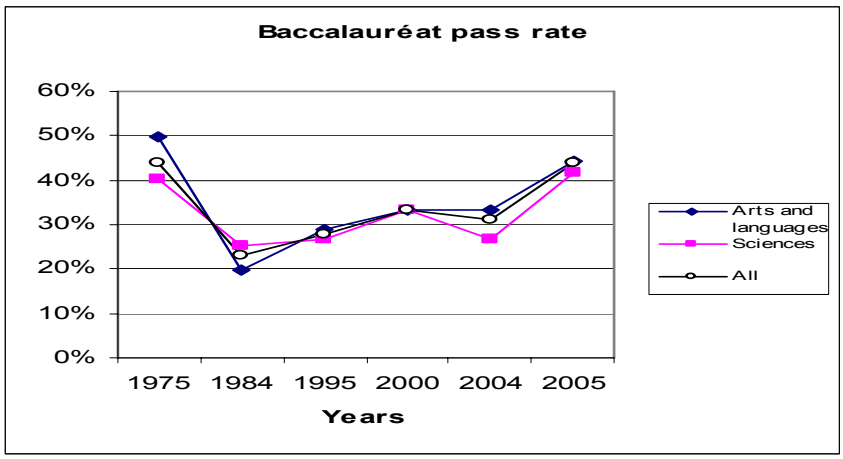
4.1 Expanding access to secondary education is a pressing need; however, it also requires effort to improve the quality and relevance of the education provided. The GOM recognized this regarding primary education and acted swiftly to develop the Education For All (EFA) Plan. It is now in the process of examining quality at the secondary level. This chapter will not attempt to review the findings of the ever-growing body of knowledge on secondary education quality improvement, but rather, attempts to identify several key areas in the Malagasy secondary education and training system that will need further examination and re-thinking to improve quality.

4.2 Attempts to define education quality generally focus on two principles: 1) the system's success in achieving learners' cognitive development (most commonly measured by test scores); and 2) its ability to promote values and attitudes of responsible citizenship, and encourage creative and emotional development[17]. Extensive research on school effectiveness focuses on the dynamics of the teaching and learning process: the interaction of teachers and learners in the classroom and how well they use instructional materials.

4.3 A National test undertaken in grade 8 by MENRS as part of the UNESCO Monitoring Learning Achievement (MLA) concluded that in Sciences, half of the students who took the test did not get the minimum required score. Madagascar's average score (49.6) is lower than for the other three SSA countries which implement the same test (Cameroun, Tunisia, Mauritania with respectively 50.8, 52.9 et 56.9). Scores in Mathematics are even lower; only about 3 percent have acquired the basic skills.

4.4 Between 1975 and 2005, the average baccalauréat pass rate fluctuated, but has never risen above 45 percent. The lowest rate was about 23 percent in 1984. Students finishing junior secondary school have had similar problems making the transition to senior secondary lower. In the last five years, the pass rate for the JSE exit exam has never been above 50 percent. In 2004-2005, it was 39 percent.

Figure 4.1: Evolution of the Baccalaureate Pass Rate, 1975 –2005



Source: MENRS Database

4.5 Low secondary student achievement cannot be attributed to any one factor. As stated earlier, student achievement is the result of the teaching and learning process. This process, in turn, is supported (or undermined) by the interaction between teachers, curriculum, learning time, materials and leadership. Overall quality can only be as good as the sum of its parts. This chapter discusses each of these areas in the Malagasy context.

[17] Education for All: The Quality Imperative, EFA Global Monitoring Report 2005, Christopher Colclough, Director

Teachers

4.6 Teachers are arguably the strongest influence on learning. It is no surprise that in any national education system, teachers are considered the most important element where educational quality is concerned. Reform efforts in both developed and developing countries assume that the most direct and effective way of raising instructional quality is to introduce changes in teacher education and recruitment, improve the knowledge and pedagogical skills of in-services teachers, and ensure that the organizational conditions under which teachers work promote effective instruction and focus on student learning outcomes.[18]

Table 4.1: Qualifications of Public Secondary School Teachers - 2004

Percentage of teachers with professional certificate (lower secondary)	
Mathematics	62%
Physics and chemistry	67%
Life sciences	52%
Percentage of teachers with professional certificate (upper secondary)	
All subjects	33%
Percentage of secondary teachers who attended in-service training during the last 3 years	
Mathematics	40%
Physics and chemistry	21%
Life sciences	34%

Source : MENRS/CRESED – MENRS/DES

4.7 Twenty percent of teachers in the JSE and 33 percent in SSE have a teaching certificate from a pre-service training center. Poor preparation of JSE teachers is due, in part, to reduced capacity in teacher training institutions. New arrangements for teacher training for JSE are being analyzed by MENRS. In SSE, teachers are either trained at a teacher-training center, or at a university. Overall, there appears to be a need for enhancing pre- and in-service teacher training, in particular, in mathematics, where student achievement is particularly low.

Table 4.2: Secondary education teacher training system in Madagascar

Teacher training centers/schools	Required diploma at entry	Mode of recruitment	Training duration	Certificate/Diploma	Comments
Junior secondary education					
Ecoles Normales des Instituteurs et des Institutrices	BEPC (JSE level)	Competitive examination	4 yrs w/ teaching practice	Baccalauréat + Certificat de Fin d'Etudes Normales et Certificat d'Aptitude Pédagogique/Ecoles Primaires	Closed
Ecoles Normales du Niveau II	BEPC (JSE level)	Competitive examination	3 yrs w/ teaching practice	Baccalauréat en Education	Closed
Institut National de Recherches et de Formation Pédagogiques (INFP)	Baccalauréat (SSE level)	Competitive examination	2 yrs w/ teaching practice (to teach 2 subjects)	Certificat d'Aptitude Pédagogique / Collège d'Enseignement Général	
University	Baccalauréat (SSE level)	Selection	2-3-4 yrs	Diplôme de 1er cycle (2 yrs) – Licence (3 yrs) – Maîtrise (4 yrs)	
Senior secondary education					
University	Baccalauréat (SSE level)	Selection	2-3-4 yrs	Diplôme de 1er cycle (2 yrs) – Licence (3 yrs) – Maîtrise (4 yrs)	
Ecoles normales Supérieures (ENS)	Baccalauréat (SSE level)	Competitive examination	5 yrs w/ teaching practice	Certificat d'Aptitude Pédagogique de l'Ecole Normale	

Source: Madagascar presentation – First SEIA Conference – Uganda - 2003

[18] Expanding Opportunities and Building Competencies for Young People: A new agenda for secondary education, The World Bank, 2005, p. 103

4.8 Considering options for improving teacher preparedness requires a review of the current paths by which a teacher can become qualified to teach at each level. Table 4.2 illustrates the current system. For JSE, the first two training options for JSE teachers have been closed since the early 90s. For the time being, two options are still functioning, a teacher can attend a minimum of two years of University with no specific teacher training or two years of teacher training center (*Institut National de Recherche et de Formation Pédagogiques* - INFP) with teaching practices. It appears that access to teacher training centers has became difficult since the *Ecoles Normales du Niveau II* had sites throughout the country making it more accessible to rural students while the INFP graduates only 100 new JSE teachers a year and is located in the capital. For SSE, teachers graduate from the tertiary level either through the general university program, or the *Ecoles normales supérieures*. Both paths have their weaknesses. A teacher graduating from the general university program receives no teacher training, only instruction in their specialty. The *Ecoles normales supérieures*, on the other hand, is a five-year degree program that offers no intermediate certifications and little flexibility. Harmonizing these two systems needs to be considered.

Table 4.3: Distribution of SE Teachers by Years of Teaching - 2004

Years of teaching	CEG	Lycées
Less than 10 years	25%	29%
11 to 15 years	28%	28%
15 to 20 years	26%	21%
20 to 25 years	13%	14%
More than 25 years	8%	8%
Total	100%	100%

Source : MENRS/CRESED – MENRS/DES

4.9 Teacher turnover is relatively stable, and surveys show that most teachers prefer teaching to other professions at the same salary. In terms of salary, teaching is comparatively better paid than other jobs with the same qualifications; that may explain why a majority of teachers at secondary education has been teaching for more than 15 to 20 years. Moreover, in addition to the regular salary as civil servant, most of teachers are getting extra earnings through private tutoring or teaching in private school; being a secondary education teacher ensures job stability in a context where 70-80 percent of jobs belong to informal economy. Moreover, teachers earn higher salaries by simply staying in the profession longer, because increases in teacher salary are linked to years of service and not to any measure of performance. About 70 to 75 percent of teachers have more than ten years experience. Several studies show that most teachers switch to administrative jobs as they grow older. As a result, the administrative staff is growing.

Table 4.4: Recurrent Public Expenditure on Education by Level and Type of Schooling, 2004

	Madagascar				SSA
	Salaries		Non-salary recurrent expenditures	Total	Teachers' Salaries
	Teachers	Admin Staff			
Primary	58%	12%	30%	100%	73%
JSE	51%	27%	22%	100%	63%
SSE	59%	26%	15%	100%	61%
TVET	34%	14%	52%	100%	n/a

Sources: Data on Madagascar Education budget are from the MENRS – Data on SSA countries are from UNESCO

4.10 The share of salaries for administrative staff is high in secondary education, and reflects the high administrator: teacher ratio about 0.5 in JSE and 0.4 in SSE. Madagascar spends more comparatively on JSE teacher and administrator salaries (78 percent of public JSE budget) than the average among SSA countries (63 percent). The gap is even greater at the SSE level (85 percent of public SSE budget in Madagascar and 61 percent in other SSA countries). This leaves little for non-salary recurrent expenditures such as materials. More importantly, the excessive number of administrative staff does not translate into better supervision and monitoring of schools.

4.11 Most teachers in the JSE and SSE levels are underutilized. Nearly 95 percent of them teach less than the required 20 hours per week (CRESED II, 2004), although they are paid full-time salaries. Part of this is due to teachers being too narrowly specialized to meet the demands of a curriculum that has ten required courses in both JSE and SSE. Generally, the number of teachers at the JSE level is sufficient, although many of them are poorly qualified, but they need to be better utilized[19]. Seventy percent of secondary mathematics and science teachers find time to supplement their salaries by providing private tutoring[20].

Table 4.5: Distribution of Teachers by Teaching Hours per Week, JSE and SSE, 2004

	% teachers	
Hours of teaching	**CEG**	**LYCEE**
Less than 10 hours	32%	33%
11 to 20 hours	64%	64%
More than 20 hours	4%	3%

Source: MENRS/CRESED – SE schools survey 2005

4.12 As a share of the GDP per capita, the average teacher salary in Madagascar and in other SSA countries far exceeds teacher salaries in industrialized countries. In Sub-Saharan Africa, senior secondary school teacher salaries amount to 7 times GDP per capita, which is much higher than the 1.2 to 1.5 times the GDP per capita in industrialized countries[21]. This is because in SSA countries, SE teachers belong to the little proportion of high qualified workers, while in industrialized countries SE teachers have the average population qualification. However, primary school teacher salaries for both industrialized countries and Sub-Saharan Africa are similar, around 4.6 times the per capita GDP, for Madagascar it is slightly lower 4.1 times the per capita GDP. In Madagascar, the difference in salary for primary school teachers and JSE school teachers is insignificant because most primary teachers receive hardship pay for working in rural areas. Secondary teachers hired by the community (FRAM teachers) earn US$0.50 per hour and teach 6 to 18 hours a week. Secondary teachers hired by the State earn about US$80-90 a month in JSE (about US$1 per hour) and US$130-140 a month in SSE (about US$1.6 per hour).

Table 4.6: Madagascar Education Spending, 2004

	Madagascar	Average in SSA
Teacher salaries (times per capita GDP)		
Primary	4.1	4.6 (3.6 FTI)
Junior secondary	4.8	6.6
Senior secondary	7.0	9.3

Sources: Data on Madagascar Education budget are from the MENRS – Data on SSA countries is from UNESCO

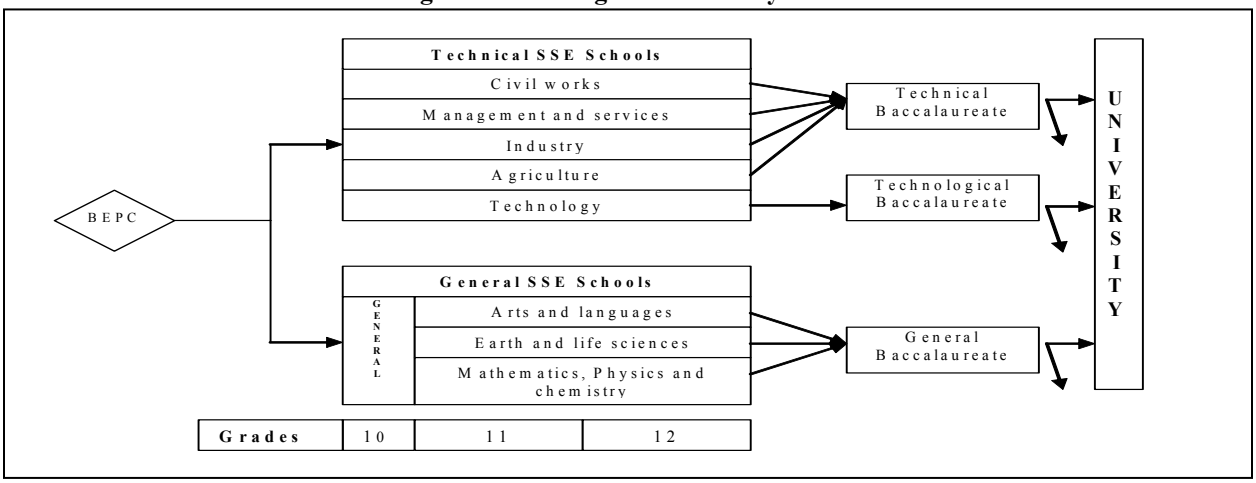
[19] IMaTeP, 2004.
[20] MENRS 2005.
[21] "Trends in Secondary education in industrializing countries" – IIEP/SEIA -2003

Curriculum

4.13 There are numerous definitions of the term 'curriculum', but in essence it refers to a 'plan for learning.' Curricular activities include a variety of processes such as policy-making, design and development, assessment, and implementation. These activities occur at different levels of the education system, including the national, school level, and classroom level.[22] There is no curriculum for secondary education in Madagascar in this comprehensive sense of the word, but in 1996, the phasing in of a new secondary syllabus began. Unfortunately, most teachers never received training on the new syllabus and are still unaware of its existence.

4.14 Madagascar's secondary curriculum is similar to that of many countries, and has followed the same pattern for approximately 20 years. In every year of JSE, students must take Malagasy, French, English, History/Geography, Mathematics, Physics/Chemistry, and Biology/Geology. SSE requires one more subject, Philosophy, and provides the option to take an additional foreign language. Depending on students' preferences, they can enter the Technical SSE school or the general SSE school. Within each school, additional choices are given to students regarding the stream they will follow (see Figure 4.2)

Figure 4.2: Madagascar's SSE Cycle



Source: MENRS

4.15 The current "curriculum" dates from 1996 and attempts to define learning objectives on specific skills. The SE curriculum objectives includes personal development goals (communication, autonomy, creativity, problem solving, reasoning), academic aims, particularly with respect to mathematics and sciences (human, social and integrated), promotion of social values (leaving together, civism, democracy) and preparation for the transition to work (SME management)[23]. Distinction between JSE and SSE is based on the fact that JSE is building the foundation for SSE study. The Madagascar's curriculum intended objectives are almost similar to those of other countries, however the links with the learning programs (syllabi) -- which are mostly subject knowledge-based -- and application at schools level are not evident.

[22] *Developing Science, Mathematics and ICT Education in Sub-Saharan Africa: Patterns and Promising Practices,* World Bank, SEIA Thematic Study
[23] see Annex II

4.16 Low pass rates at the end of all education cycles are to some extent the result of inconsistencies between the current curriculum, its application in the classroom and the content of exit examinations. At the end of each education level (primary, JSE and SSE), national certification examinations are given to assess how well programs have been implemented and how much students have learned. On both counts, the results are weak. Due to their lack of training, most teachers do not follow the curricula. Furthermore, the curricula have been reformed in piece-meal fashion. The curriculum of one school cycle has been adjusted in isolation from the other cycles, which leads to a drastic difference between the teaching approaches in the primary and secondary levels.

Box 4-1: Features of Secondary Education Curriculum in Industrialized Countries

Lower secondary education

The subjects that practically all countries would make compulsory in their lower secondary curricula include: the national language, mathematics, natural sciences (either segregated into physics, chemistry and biology or integrated into one or two subjects), social sciences (either segregated into history, geography, civics etc. or dealt with as one integrated subject), physical education and creative/aesthetic subject areas. Most countries offer some optional subjects in lower secondary. This may range from a few very restricted and, in one sense, 'obligatory' options, like choosing a foreign language (as, for example, in France), to a fairly long list of electives ranging from the traditional academic subjects to practical, aesthetic or sports-related offerings (as in several states in the USA, Canada, England and Ireland).

Upper secondary education

The compulsory elements at upper secondary level are often determined by the requirements of the qualification to be obtained. Students in countries with multiple upper secondary tracks (for example, Germany, the Netherlands, Switzerland) are subject to different regulations depending on the targeted final qualification. However, virtually all countries identify subject, content and/or skill areas that are deemed essential preparation for adult and working life. In most cases, these are a combination of the following elements: (i) areas of general study, including non-examination subjects, which are compulsory for all students, (ii) compulsory elements within a chosen specialization or track (iii) elective subjects (general or specialist), (iv)cross-curricular or key skills, (v) information and communication technologies (vi) independent study, (vii) guidance and personal planning, (ix) work or community experience, (x)religious and moral education.

Sources: SEIA Literature study, IIEP:" Trends in secondary education in industrialized countries: Are they relevant for African countries"; World Bank, Africa Region, June 2004. NFER International Developments in Upper Secondary Education: Context, provision and issues, INCA Thematic Study No8; Joanna Le Métais, May 2002

4.17 School curricula are designed and decided at the national level, although local schools or district officials have the authority to adjust national programs to the local context. However, in practice, such local adjustments are very limited because (i) they require a certain level of curriculum expertise that does not exist at district and particularly at school level, and (ii) teachers focus primarily on improving success rates in national examinations by limiting their teaching to examination knowledge, or 'teaching to the test.' In addition, there is no real organization for the curriculum management, and so far there is not any school assessment to provide data on the use of the curriculum.

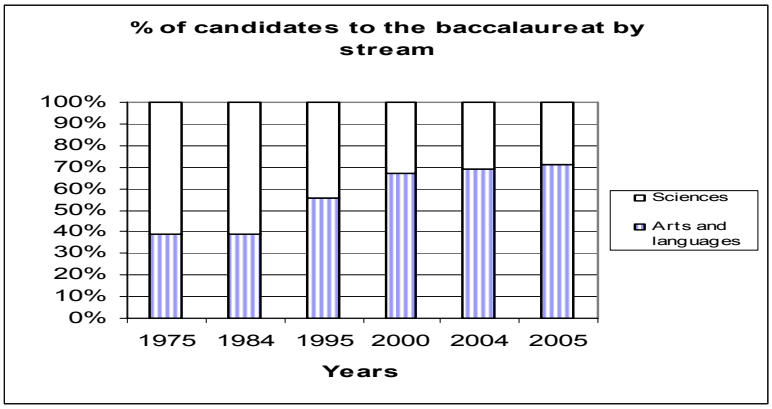
4.18 District-level school administration offices (CISCOs) are provided funding for specific staff positions, including an *"Inspecteur"* responsible for making supervision visits and providing pedagogical assistance to primary schools. There is no equivalent position to monitor the secondary schools. According to a 2004 CRESED II school survey, there is virtually no inspection of the secondary school level. As a result, secondary school directors receive little assistance in applying new innovations, improving teacher quality and performance, and improving student achievement.

Science and Math

4.19 Between 1975 and 2004, the percentage of students enrolled in scientific subjects in SSE decreased from 61 percent to 30 percent. Those who did follow the science track, performed poorly on the science baccalauréat (41 percent passed in 2005). A recent Monitoring of Learning Achievement survey[24] of eighth graders in Madagascar showed weak performance mathematics, physics, chemistry and natural sciences. More than half of the students scored less than 38 percent in mathematics, 54 percent in life sciences and 46 percent in physics and chemistry.

4.20 In the context of gradual and large use of ICT, the decline of student interest and performance in mathematics and science needs special attention, as does the need to ensure teachers of adequate quality. The MENRS is in the process of installing computers in every SSE, but they will only be used well if teachers know how to use computers and incorporate their use into lessons.

Figure 4.3: Baccalaureate candidates by stream



Source: MENRS

Learning Time

4.21 Instructional time is an aspect of the curriculum that deserves special attention. The length of time required to achieve educational goals is a matter of considerable significance and a strong indicator of students' access to learning opportunities.[25] An important aspect of this issue is that intended instructional time – the maximum amount set out in national curriculum statements – is not the same as actual learning time. It is also important for statements regarding learning time to be realistic. As Table A. 7 in Annex1 illustrates, JSE and SSE students in Madagascar are expected to spend considerably more time in the classroom (1080-1400 hours a year) than students in many industrialized countries (600-1060 hours a year). Anecdotal data suggests that learning time is considerably less in reality, but this needs to be studied more closely. In contrast, secondary teachers are expected to spend considerably less time in the classroom than teachers in many other countries (see Table A. 8 in Annex 1). OECD/UNESCO World Education Indicators indicate that (on paper) JSE and SSE teachers in Madagascar are expected to teach 720 hours a year. The mean teaching time per year in the 24 countries reviewed was about 920 hours in JSE and 910 hours in SSE.

[24] UNESCO - MENRS, 2005.
[25] Education for All: The Quality Imperative, EFA Global Monitoring Report 2005, Christopher Colclough, Director, p. 150

Learning Materials

4.22 To a large extent poor SE education quality is also due to lack of teaching and learning materials as well as of practical courses. In Madagascar, insignificant investment has been made in SE under the World Bank-funded CRESED II project, in particular provision of mathematics textbooks in the last grade of JSE and few equipments/materials for teaching sciences in JSE. Each public JSE and SSE has been provided with a minimal library composed of reference textbooks. For the remaining subjects, neither textbooks nor teacher guides are available. Lack of teaching and learning materials has led to undesirable teaching practices in the majority of SE classrooms such as rigid chalk-and-talk, teacher centered/dominated, lecture-driven pedagogy or rote learning etc.

4.23 Effective teaching and learning requires wide and equitable access to learning materials. Ensuring this requires a review of policies governing textbook production and distribution, and the training of teachers in how to use textbooks and other learning materials more effectively. Decisions must be made regarding how textbooks will be obtained (written locally/purchased on international market), whether a national textbook will be required or whether there will be local flexibility, and whether or not students will be expected to purchase or 'rent' their textbooks. Table 4.7 reviews some of the advantages and disadvantages of the various options.

4.24 Materials other than textbooks are also important. While computers are becoming the norm in classrooms in industrialized countries, most classrooms in developing countries may barely have a blackboard and few textbooks. Within the CRESED II project, each public SSE has been provided with a set of computer and solar energy source. Lack of public investment and low school non-salary budgets imply that in Madagascar teaching effectiveness depends on teachers' ability and willingness to create basic materials, even in private schools. Regarding new materials/equipments, a major constraint is teachers' ability to use them since they have not been trained for that purpose.

Table 4.7: Comparing Options for Textbooks and Teaching Guides

Options	Advantages	Disadvantages
Purchase of textbooks and teaching guides on the international market	Variety of choice – International standard – Sufficient quantities Availability in schools in a relatively short time	Non-conformity with content of national curriculum – Copyright to be paid for each acquisition
Purchase of textbooks and guides on the national market	On the basis of a State-approved list, the choices can be left to teachers and schools and will facilitate acquisition and distribution Availability in schools can be guaranteed rapidly.	Limited choice – Lack of textbooks for certain subjects Quantity in insufficient numbers and low national commercial production. Copyright to be paid for each acquisition
Production of textbooks by the Ministry	Textbooks and teaching aids adapted to the national context. Copyright is State property	Low national expertise in production of textbooks. Inadequate commercial capacity of production Availability in schools delayed until review of curriculum and preparation of textbooks and aids
Cost sharing for the use and/or purchase	Parents and students take care of textbooks. Parents' involvement in school management.	Parents' capacity to bear rental costs

Training Centers

4.25 Vocational training centers have not been able to meet evolving technological, social and economic needs of the country. For several decades, the vocational training center system was supply-based. Budget difficulties have led to the deterioration of services in training centers, and to the obsolescence of programs and equipment. In addition to financial difficulties, the training lacks flexibility, focusing on meeting the requirements of traditional employment with little diversification, as teachers are usually highly specialized, elderly, and resistant to change. Vocational training is essentially classroom-based. As a result, graduates of technical schools make up only one percent of new labor force entrants. A 1997 study shows that only 45 percent of vocational training center graduates in Madagascar were able to find a job after one year[26]. The teacher to student ratio in vocational training centers is about 1:8 and the teacher to administrative staff ratio is about 1.2 teachers to one administrative and technical staff.

Governance and Leadership

4.26 SE schools are allowed to adapt teaching and learning processes to their specific context. Each secondary school has a School Council, a consultative body, established by decree comprised of the head of school and representatives from the school community (parents, teachers, etc…) and local authorities. Students are assessed on a basis of continuous assessment and final school year scores are decided by the Class Council which includes teachers and the director. Although regular teachers are hired centrally, districts and local authorities have been involved in the recruitment process since 2005. Parents' associations finance the salaries of community teachers hired at the local level. SE schools can adjust school fees to cover the costs of community teachers with the approval of the School Council. Supervision by the CISCOs is not applied, yet it is required and thus regular inspection or support to improve school management or teaching practices are not undertaken.

Box 4-2: Leadership Contributes Significantly to SE School Development - Key Outcomes of Headship

Effective headship results in:
a) schools where: there is a positive ethos, which reflects the school's commitment to high achievement, effective teaching and learning and good relationships; staff, governors and parents have confidence in the leadership and management of the school; staff and governors recognize their accountability for their tasks and the school's success and contribute fully to the development and successful implementation of school policies and practices; the life of the school and the curriculum effectively promote pupils' spiritual, moral, social and cultural development and prepare them for adult life; effectiveness is kept under rigorous review, and links with the wider community contribute to pupils' attainment and personal development; efficient and effective use is made of staff, accommodation and resources; financial control and administration are effective and the carefully costed development plan is focused on improving educational outcomes; good value for money is provided;
b) pupils who: make progress in relation to their prior attainment to expected or better than expected levels; show improvement in their literacy, numeracy, and information technology skills; know the purpose and sequence of activities; are well prepared for tests and examinations; are enthusiastic about the subjects they are studying and are highly motivated to learn more; through their attitudes and behavior, contribute to the maintenance of a purposeful working environment;
c) teachers who: have a secure knowledge and understanding of the subject(s) they teach; set high expectations for pupils; plan lessons which address the needs of all pupils within the class; employ the most effective approach(es) for any given content and group of pupils; pace lessons appropriately, using time and resources effectively; regularly mark and assess pupils' work and reinforce and extend pupils' learning and achievement through setting consistent and challenging homework; understand the importance of a regime of rules and discipline; are systematically monitored, evaluated and supported in their work;
d) parents who: enjoy an effective partnership with the school, which contributes to their child's learning; understand and support the work of the school; are kept fully informed about their child's achievements and progress; know how they can support and assist their child's progress.

Source: The National Standards for Head Teachers in Wales – National Assembly for Wales

[26] Richard K. Johanson – Arvil V. Adams, 2004.

4.27 Several studies have showed the determining role of school heads for school development, and it is more relevant in the case of Madagascar, where resources are dramatically lacking, since school performance relies mostly on the quality of the school leadership. However, SE school heads are appointed without being previously trained for that purpose and in-service trainings are not provided. The School Council may influence the school management system but they cannot play a significant role in improving school leadership for many reasons and particularly the complexity of the process to assess it. External assessment is thus necessary and could be organized on the basis of clear assessment criterion. International experiences show that some countries have managed to take into account the key role of the school head by creating a set of outcomes to assess the quality of school leadership (see Box 4-2).

4.28 For JSE schools, the public recurrent budget is managed by the CISCOs (district level) while most of the SSE schools manage directly the public recurrent budget. SE public recurrent budget allocation is insignificant and is calculated on a basis of a capitation grant of US$2.2 per student in JSE and US$2.7 in SSE[27]. Public investment budgets are centrally managed and SE schools have little control over investment programs. SE investment budgets have been insignificant for a long period while investments have focused on primary education. In such a context, quality of leadership is essential for better results. SE schools depend heavily on the capacity of the school head to mobilize local community members and teachers to improve education quality. Some schools are doing better where there is strong interaction between parents, teachers and school heads, and communities are mobilized to support school activities.

4.29 Within the Bank-funded education project, pilot activities on SE school management were launched. The objective was to mobilize community support for SE schools by providing incentive grants on the basis of school performance. Another pilot project in primary education examines the connection between results-based management, competitive grants, and student achievement. The research is testing school-based management and the results will be useful to refine SE school management. The rationale is to introduce school report cards that allow schools to compare themselves to others and then take action to improve performance. So far in Madagascar, for parents, the only criteria to assess SE school performance is what the BEPC or the Baccalauréat pass rates are. As discussed earlier, this situation can lead to teaching to the test without considering any quality aspect and stakeholders have distinct and somehow confused concept of education quality. Notwithstanding this, incentives should be attractive and performance measures reliable. Box 4-3 illustrates some standard indicators that are used in the European Union to assess quality of school education.

Box 4-3: Sixteen Indicators on Quality of School Education

Indicators on attainment
1. Mathematics
2. Reading
3. Science
4. Information and communication technologies (ICT)
5. Foreign languages
6. Learning to learn
7. Civics

Indicators on success and transition
8. Drop-out rates
9. Completion of upper secondary education
10. Participation in tertiary education

Indicators on monitoring of education
11. Evaluation and steering of school education
12. Parent participation

Indicators on resources and structures
13. Education and training of teachers
14. Participation in pre-primary education
15. Number of students per computer
16. Educational expenditure per student

Source: Directorate-General for Education and Culture – European Commission

[27] MENRS, 2006.

Conclusion

4.30 A major constraint for improving quality in SE is the high proportion of under-qualified secondary teachers coupled with an outdated curriculum and teaching/learning methods. This is exacerbated by the lack of teaching and learning materials. The SE teacher training system comprises different tracks that could lead to tension within the teacher population. In addition to the necessary harmonization of the current system, there is a need to develop a network of teacher training centers, it will take time to recruit and train new teachers, especially given that the centralized JSE teacher training system only graduates 100 teachers a year.

4.31 The organization of secondary education needs to be thoroughly reviewed, including the secondary curriculum and assessment system. Curriculum content was developed to focus on the mastery of material by students without considering the necessity to acquire useful competencies for life and work. For the most part, assessment in secondary education is used to select the best students, or those going onto higher education, rather than measure student achievement as means of promoting the development of all students to their fullest potential.

4.32 Another concern is the weak interest and achievement in SMICT and foreign languages, which explains, in part, the high secondary repetition rates (14 percent in JSE and 15 percent in SSE). Improving achievement in these areas is essential in a global, knowledge-based economy.

4.33 These principal weaknesses are caused, in part, by poor quality management. There is no special unit in charge of curriculum development, implementation, assessment and revision. A new curriculum was developed in 1996, but very few teachers ever received training in it. Teachers' strict specialization results in 95 percent of secondary teachers teaching less than 20 hours per week and redeployment is difficult since most teachers are only trained in one subject. The current curriculum stipulates a longer leaning time than other countries while the regular teaching time for SE teacher is lesser than international practices.

4.34 Governance and leadership need improvements. There are no incentives for teachers and school heads to focus on results because the promotion system relies more on years of experience rather than performance. Teacher turnover is relatively stable and the environment allows teachers to get additional resources from private tutoring and teaching in private school. Defining and implementing a quality assessment system at school level will contribute to (i) compensating the weaknesses of the end examination system, which is more to control the entry to next cycle and does not provide any quality evaluation; and (ii) promoting leadership at school level.

5. COST AND FINANCING

5.1 This chapter presents key aspects of the cost and financing of the SE in Madagascar. First, an analysis of the SE public expenditures will be presented in order to appreciate public efforts in financing the development of this education level. Secondly student unit costs per education level will be calculated with an analysis of the major components of the student unit costs. Thirdly, analyses on some costs parameters/factors are presented for a better understanding of SE costs in Madagascar. Lastly, some aspects about costs of private sector are provided according to available data. Additional analytical works on private sector are still needed to assess private schools affordability for students from poorest quintiles/families. Indicators from Sub Saharan Africa (SSA) countries are used for international comparison in this chapter.

Table 5.1: Basic Indicators on Education Resources

	2002	**2003**	**2004**	**2005**	**2006**
GDP in millions US$	4,557	6,574	5,415	5,880	
Tax revenue as % of GDP	8.8	10.0	10.9	10.1	
Total Government revenue as % of GDP (excl. grants)	8.8	10.3	12.0	10.9	
Education domestic resources as % of GDP	2.2	1.87	2.36	2.67	
Education domestic resources as % of total government domestic resources	25	18	20	25	

Sources: IMF Reports – MENRS Reports – Our calculations

5.2 In Madagascar, domestic resources allocated to education are comparatively low at around 1.9 to 2.7 percent of GDP. Despite Government's effort to allocate a significant share of the total domestic resources to education (18 to 25 percent), in terms of percentage of GDP, domestic resources allocated to education are comparatively low as a result of a low level of total Government revenue (8.8 to 12.0 per cent of GDP); on average in Sub Saharan Africa, Government revenue is about 24 percent of GDP[28]. Low levels of education domestic resources is constraining for the development of SE when priority is given to primary education and if tertiary education is expensive.

SE Public Expenditures

Table 5.2: Distribution of Public Expenditures (Recurrent and Capital Expenditures)

	2002		2003		2004		2005	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Primary education	41%	47%	41%	49%	50%	49%	57%	49%
Secondary education	22%	25%	20%	25%	17%	19%	17%	20%
JSE	12%	14%	11%	15%	10%	11%	10%	11%
SSE	7%	7%	6%	7%	4%	5%	5%	5%
TVET	3%	4%	3%	3%	3%	4%	3%	3%
Tertiary education and Research	18%	16%	17%	13%	13%	13%	12%	14%
Administration	19%	13%	22%	13%	18%	15%	12%	15%
NTIC	0%	0%	0%	0%	3%	3%	2%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%

(1) With external resources – (2) Without external resources (including budget support)
Source: MENRS Reports – Our calculations

[28] Africa Development Indicators – World Bank 2006.

5.3 External resources are determinant in the distribution of public expenditures by education sub sectors. Table 5.2 shows that the share of SE in public expenditures varies significantly, depending on whether external resources are considered or not. If external resources are considered, SE only receives 17 to 22 per cent of the total education budget, while without external resources the share for SE is higher about 19 to 25 per cent. This also reflects that SE receives insignificant amount of external resources.

5.4 The share of recurrent education budget for SE in Madagascar is in line with international practices. Bruns et al suggest, as indicative benchmarks for 2015, a share about 25-30 per cent of the recurrent education budget for SE. For Madagascar, during 2002-2003 periods this share was about 25 percent. However, in 2004-2005 this share decreased to 22 per cent, Madagascar started receiving donor direct budget supports, mainly for primary education and public administration. In 2004, due to budget adjustment, the total education recurrent budget (US$110) was reduced to about 10 per cent of that of 2003 (US$123).

Table 5.3: Distribution of Recurrent Education Budget

	2002		2003		2004		2005	
	10^6 US$	%	10^6 US$	%	10^6 US$	%	10^6 US$	%
Primary education	45.971	47%	60.463	49%	47.417	43%	59.535	45%
Secondary education	24.533	25%	31.336	25%	24.015	22%	29.755	22%
JSE	13.584	14%	17.960	15%	13.214	12%	17.145	13%
SSE	7.317	7%	9.201	7%	6.117	6%	7.573	6%
TVET	3.632	4%	4.175	3%	4.685	4%	5.038	4%
Tertiary education and research	15.404	16%	15.779	13%	15.616	14%	16.214	12%
NICT	-	0%	-	0%	4.424	4%	4.112	3%
Administration	12.370	13%	15.451	13%	19.029	17%	23.066	17%
Total Education	98.278	100%	123.029	100%	110.502	100%	132.682	100%

Source: MENRS reports – Our calculations

SE Student Unit Costs

5.5 Student unit costs in SE depend more on budget ceilings rather than real school needs. As the budget for SE stagnated, after some macroeconomic troubles like budget cuts and deterioration of the local currency from 2003 to 2005, student unit costs for both JSE and SSE were reduced by half. From Table 5.4, it can be observed that the secondary student unit cost as multiple of primary student unit cost is comparatively higher in Madagascar (4 to 5 times vs 2.0 times in SSA), while in terms of percentage of per capita GDP, the SE student unit cost in Madagascar (24 percent) is slightly lower than the average in SSA (28 percent). In conclusion, for Madagascar SE is comparatively more expensive while public effort to finance SE is important.

5.6 The per student cost of a public LTP is about 1.3 times higher than in a general SSE or 10 times that of primary education. The high cost of public technical education is mainly due to higher teacher specialization; teacher: student ratios remain very low, from 1:13 to 1:15 for public technical SSE programs. Furthermore, the ratio of administrative and technical staff to teachers is high; there is approximately one administrative staff for every 1.7 teachers in public technical SSE programs.

Table 5.4: Student Unit Recurrent Cost by Level (*)

	2003	2004	2005	Average in SSA
Primary education in US$(**)	27	17	20	
				6.7-28.7
As % of GDP per capita	8	5	Nd	Average 14 (for 18 countries)
SE (JSE+SSE+TVET) in US$	Nd	82	80	
				0.9-3.7
As multiple of primary student unit cost	Nd	5	4	Average 2.0 (for 18 countries)
				8.6-73.4
As % of GDP per capita	Nd	24	Nd	Average 28 (for 18 countries)
JSE	111	67	61	
As multiple of primary student unit cost	4.2	3.8	3.0	
As % of GDP per capita	32.7	19.8	Nd	
SSE (General lycees) in US$	217	131	140	
As multiple of primary student unit cost	8.2	7.5	6.9	
As multiple of JSE student unit cost	2.0	2.0	2.3	
As % of GDP per capita	64.0	38.6	Nd	
TVE (LTPs) in US$	nd	170	158	
As multiple of primary student unit cost	nd	9.7	7.7	
As multiple of SSE student unit cost	nd	1.3	1.1	
As % of GDP per capita	nd	50.0	Nd	
GDP per capita in US$	339	339	Nd	

(*) Investments expenditures are not included. (**) The primary unit cost decreases in 2004 -2005 because the overall education budget decreased for the same period (see Table 5.3)

Source: MENRS Report – INSTAT (for GDP per capita) – UNESCO Institute for Statistics for Africa data - Our calculations

5.7 Teacher salaries are a major component of student unit costs for all education levels, and particularly in SE general programs. For TVE, the share of non-salary recurrent expenditures is higher than for other SE levels because TVE implies financing specific workshops and facilities. During recent years, the Government made a remarkable effort by doubling in JSE and quadrupling in SSE the public budget allocated to non-salary recurrent expenditures, which explains why in 2005 the share of non-salary recurrent expenditures increased to 11 and 16 per cent respectively for SSE and JSE.

Table 5.5: Structure of Student Unit Recurrent Costs

	2003	2004	2005
Primary education	*100%*	*100%*	*100%*
Salary expenditures	77%	71%	68%
Non-salary recurrent expenditures	23%	29%	32%
JSE	*100%*	*100%*	*100%*
Salary expenditures	97%	93%	84%
Non-salary recurrent expenditures	3%	7%	16%
SSE (General lycees)	*100%*	*100%*	*100%*
Salary expenditures	97%	97%	89%
Non-salary recurrent expenditures	3%	3%	11%
TVE (LTPs)	*nd*	*100%*	*100%*
Salary expenditures	nd	86%	87%
Non-salary recurrent expenditures	nd	14%	13%

Source: MENRS Reports –Our calculations

5.8 SE is comparatively more expensive for Madagascar than for SSA countries because of a lower student to teacher ratio. Twenty percent of JSE classes and 15 percent of SSE schools have fewer than 20 students per class, while 50 percent of JSE schools and 70 percent of SSE schools have fewer than 20 students per teacher. Tables 5.6 shows that secondary to primary student unit costs ratio is higher in Madagascar in comparison to the average in SSA; and conversely secondary to primary teacher salary ratio is higher in SSA countries than in Madagascar. In that regard, it can be deduced that higher secondary to primary education student unit costs ratio in Madagascar is due to a lower student to teacher ratio.

Table 5.6: Teacher Salaries and Student to Teacher Ratio, 2004

	Madagascar	Average in SSA
Teacher salaries (times per capita GDP)		
Primary	4.1	4.6 (3.6 FTI*)
Junior secondary	4.8	6.6
Senior secondary	7.0	9.3
Ratio student: teacher		
Junior secondary	27	14-57 (Average 32)
Senior secondary	18	9-51 (Average 24)

*Primary teacher salary should be close to 3.6 times of the per capita GDP
Sources: Data on Madagascar Education budget are from the MENRS – Data on SSA countries are from UIS

5.9 In addition to low student to teacher ratio, public SE is less cost-effective in Madagascar because of a numerous administrative staff population at school level. The number of teachers and administrative staff are almost equal at many secondary schools, leading to very high unit costs (almost triple the primary school unit cost in JSE and six times in SSE). International benchmarks are not available; in comparison to private schools current teacher to administrative staff ratios for public schools in Madagascar are higher than the average in Africa. However, the ratio appears to be improving and the MENRS is implementing some rationalization measures.

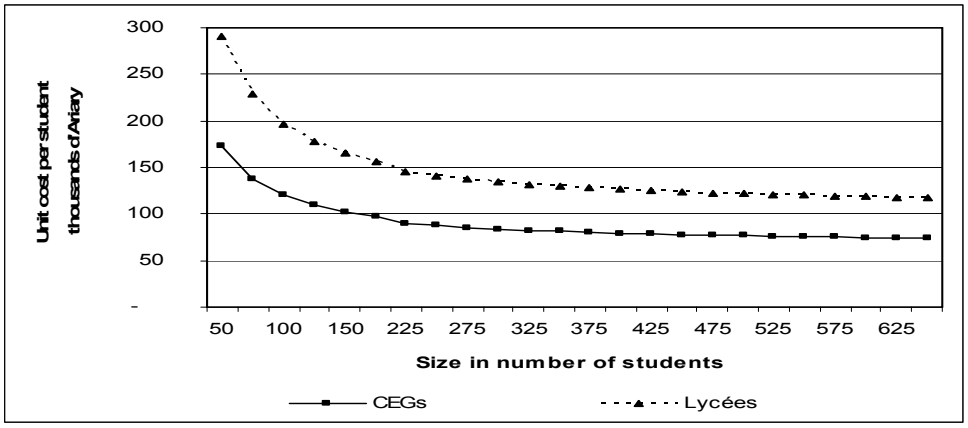
Table 5.7: Madagascar Teacher to Administrative Staff Ratios

	2001	2002	2003	2004	2005
JSE					
Public schools	2.5	2.6	2.7	3.2	3.4
Private schools	6.3	8.8	7.0	7.6	7.8
SSE					
Public schools	2.0	2.0	2.1	2.3	2.3
Private schools	5.2	4.7	5.4	7.4	5.6

Source: MENRS Statistical Yearbook – Our calculations

5.10 Overloaded curriculum may also lead to high student unit costs. In Table A. 7 and Table A. 8 in the Annex, it appears that SE students in Madagascar are expected to spend more time in classroom than in industrialized country while the opposite is observed for teachers' regular teaching time. In TVE, the core curriculum includes about 15 subjects. In that regards, more teachers are needed to teach in SE education in Madagascar and as a result the teacher: student ratio is higher.

Figure 5.8: Madagascar – Unit Costs per Student According to Size of JSE and SSE in 2003



Source: World Bank calculations based on MENRS data

5.11 SE student unit costs are also high because in certain localities, small schools are necessary to ensure better access. This means that larger schools need to be very cost efficient. The analysis[29] shows that the critical size of JSE and SSE schools is around 275 students. Below this number, the unit cost per student grows at a geometric rate. The situation is critical in Madagascar where 65% of JSE and 60 % of SSE schools have enrollments fewer than 200 students.

School Fees

5.12 For SE there is no official regulation of school fees. Fees are decided by each individual school, whether it is public or private SE school. For public SE schools, registration fees are requested at the beginning of the school year and deposited in commercial banks. Data on public schools fees are not available but a quick survey showed that public registration fees can range from 3,000 to 10,000 Ariary (about US$1.50 to US$4.50) per year according to each school council's decision. In addition on average about 20,000 Ariary (about US$9) per student is needed every year for public school supplies. Private schools fees vary widely and it emerges that (i) for JSE in urban areas, school fees are almost twice higher than in rural areas; and (ii) for a few schools (in particular schools which officially meet french standards), fees are ten times higher than the cheapest private school in urban area.

Table 5.8: SE Private School Fees per Year - in US$ - 2005

Level	Program/Location	Type of fees	Category 1	Category 2	Category 3	Category 4
JSE	Rural	Registration fees	1.8	3.2		
		Enrollment fees	17	29		
		Total	18	32		
	Urban	Registration fees	3.8	6.8	21.8	45.0
		Enrollment fees	34	61	196	405
		Total	38	68	218	450
SSE	General	Registration fees	4.6	11.5	19.0	45.9
		Enrollment fees	41	103	171	413
		Total	46	115	190	459
	TVE	Registration fees	7.3	13.8		
		Enrollment fees	66	124		
		Total	73	138		

Source: Direction Nationale de l'Enseignement Privé de Madagascar

[29] The calculations include only recurrent costs, the investment costs are not included.

5.13 To some extent private schools are subsidized with public resources. Officially SE private schools do not receive any financial subsidy from the Government. However, most of the private schools employ part-time public teachers, on a time-based salary system. This is possible because a certain number of public teachers do not comply with the regular teaching times (See Chapter 4). The use of public teachers has a positive impact in that it allows some private SE schools in rural areas to lower the school fees. However this has also perverse effects because it has been observed that public teachers are more committed while teaching in private schools to the detriment of public schools.

Conclusion

5.14 Low government domestic revenue is a major constraint for the expansion of the education system. In that regard, SE is particularly affected since primary education benefits from various donors' programs/projects and tertiary education places considerable pressure on public expenditures. However, the Government's allocation to SE in Madagascar is similar to other countries around 25 percent of the total domestic education resources and in terms of recurrent budget.

5.15 Quality of SE is suffering because of lack of resources. While in primary education, non-salary recurrent expenditures amount to about 30 percent of total recurrent budget, they represent only 10 percent of the total SE recurrent budget. Moreover public investment budget is almost inexistent for SE.

5.16 In comparison to other SSA countries, SE is expensive for Madagascar while public contribution to education is lower. SE is expensive for many reasons: (i) low student to teacher ratio; (ii) low internal efficiency; (iii) a high number of administrative staff; (iv) an overloaded curriculum; and (v) a high number of small-size schools. Addressing those issues will enable the Government to allocate more resources to ensure quality of SE.

5.17 Parents contribute largely to the functioning of public SE schools through student registration fees. However, even public schools may not be affordable for poor students, public fees and school supplies for one student can represent about 10 to 15 percent of the GDP per capita or total education expenditures for a single family from the poorest quintiles.

5.18 Private schools are managing to lower school fees in rural areas, in many cases through the use of public teachers. Nonetheless, costs of private schools are still prohibitive for poorest quintiles.

6. CHALLENGES AND OPTIONS FOR SECONDARY EDUCATION IN MADAGASCAR

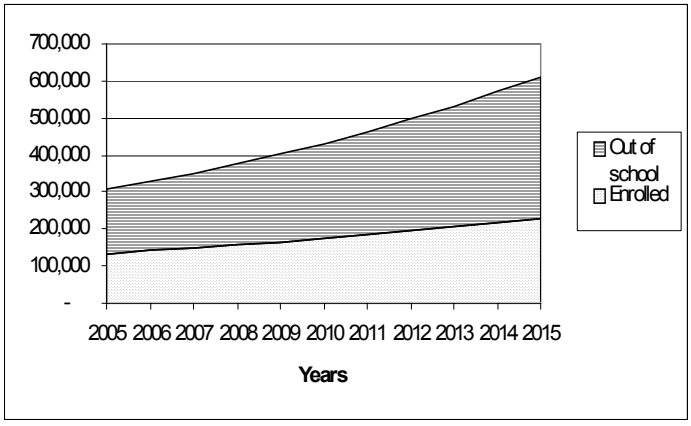
6.1 Expanding the quality of SE education in Madagascar involves several challenges and consequently several strategies and options can be envisaged. In this chapter, key challenges will be presented and specific strategies and options are outlined to support the GOM in developing a national strategy for SE education. To illustrate some options and proposals, international experiences and best practices are also highlighted in the chapter.

6.2 Before discussing on the challenges for secondary education, some contextual aspects which will drive the expansion of the secondary education need to be raised. First, the huge social demand for education, as a result of the high population growth rate in Madagascar (2.5%), is not sustainable with regards to the modest economic growth rate (around 6%). Secondly, Madagascar has recently joined the SADEC and that has put the Malagasy economy in a close competition with other more developed membership countries. Lastly, given the small taxes collection rates in Madagascar and the inexistence of external resources, the SE has relied only on insufficient domestic resources for its expansion.

6.3 For the coming five years the GOM has developed a strategic development plan called *"Madagascar Action Plan (MAP)"* which also provides responses to the points raised in the preceding paragraph. Regarding the population growth rate, the GOM expects to reduce it by strengthening family planning activities. The expansion of SE is also expected to contribute largely to the reduction of the population growth rate, particularly with larger girls' enrollment in JSE. For the aim to increase the country competitiveness, the strategy of the GOM in the MAP is to proceed to a drastic transformation of the education sector. This transformation encompasses structural changes as well as redefinition of learning and training objectives for each sub levels of education; massive enrollment in JSE and alignment of SSE and tertiary education to international standards are planned. Regarding the resources allocation to the education sector, the objective of the GOM in the MAP is to allocate about 6% of the GDP to the education sector which is almost doubling the current rate (about 3 to 3.5%).

6.4 A 2.5 percent annual population growth rate translates into a high demand for basic, primary and secondary education. In 2005, 66 percent of Madagascar's population was under 15 years of age. The Government of Madagascar's Education for All (EFA) Plan predicts that the demand for JSE will increase annually by 8.0 percent, but due to funding constraints, the Plan only provides for a 5.5 percent growth in JSE. In absolute terms, new enrollments in JSE will double but the transition rate between primary and JSE will decrease by about one percentage point per annum, or 10 percent over 10 years. Figure 6.1 shows that the number of children eligible for secondary education will double by 2015 (600,000), but if the current trend does not change there will only be enough space for one-third of those (200,000) to enroll in junior secondary school.

Figure 6.1: Madagascar: JSE new enrollment projections



Source: MENRS EFA Plan - 2005

6.5 As a response to the need for better country competitiveness, the GOM envisages in the MAP a significant increase of JSE and SSE enrollment rates as well as to set up international standards for SE and tertiary education Madagascar joined the Southern African Development Community (SADC) in 2005 and will be allowed in the near future to trade with other SADEC memberships tax-free. To benefit fully from this arrangement, Madagascar needs quality products to trade, which requires greater productivity and better trained workers. As the Table 6.1 shows, only one SADC country (Angola) has a lower JSE GER than Madagascar. Madagascar shares the lowest SSE GER among SADC countries with its neighbor Mozambique.

Table 6.1: Student Secondary School Enrollment Ratios for SADC Countries

Countries	JSE GER	SSE GER
Madagascar	27	7
Angola	24	11
Botswana	86	52
DRC	N/A	N/A
Lesotho	43	22
Malawi	48	17
Mauritius	92	54
Mozambique	35	7
Namibia	80	33
South Africa	102	78
Swaziland	55	31
Tanzania	N/A	N/A
Zambia	41	18
Zimbabwe	55	27

Sources: MENRS for data on Madagascar (2004.05), UNESCO Institute for Statistics 2005 for other country data (2002/03

6.6 Simulations (see Table A. 11 in Annex 4) show that for Madagascar to double the 2005 SE GER by 2015 (i.e. about 50 percent for JSE and 20 percent for SSE, which is closer to the current status of Malawi with is 48 percent in JSE and 17 in SSE), public domestic resources for education should increase from 2.4 percent of GDP in 2004 to about 3.8 percent of GDP for sustainable financing of the SE recurrent costs[30]. In addition to this increase of public domestic resources for education, the most challenging actions are to increase public domestic resources from 10 percent of GDP in 2005 to 14 percent in 2015, and allocate about 27 percent of the total public domestic resources to education. Those assumptions seem unlikely, as fiscal trends during the latest years show little progress and difficulties of the GOM in increasing domestic resources. Furthermore, there is still a need for an additional investment budget of about US$11 million for SE every year.

6.7 Other strategies to respond to the increasing demand for JSE as part of the Basic Education, may include expanding the private sector through public partnership mechanisms, and extending the length of primary education in order to allow primary graduates to continue schooling. Actually both strategies are being considered by the Malagasy Government, but both are challenging in terms of implementation.

[30] Projections are based on zero administrative staff recruitment. Redeploying existing staff is recommended rather than recruiting to fill positions when administrative personnel retire. Financial simulations include a slight increase in the unit costs per student to cover some quality improvement costs (from 0.02 to 0.06 percent of GDP in junior secondary, and from 0.06 to 0.09 percent of GDP in senior secondary).

Challenge 1: A smooth implementation of the reform to introduce seven-year primary education means addressing a series of important aspects. It is the first time that Madagascar is experiencing such in depth reform and therefore appropriate capacity has to be to be built along the reform process. A part from the need for capacity, the existence of several kinds of primary schools (multigrade schools, small size schools, schools with incomplete cycle, etc,) makes the conception and implementation of the reform more complex. . On the another hand, lengthening the primary cycle does not mean a higher student retention unless the efficiency and relevance of the primary education system is increased, full students retention with the current 5 year primary education is already difficult to achieve. In terms of logistics, the reform will require a certain capacity of classrooms construction and teachers training which has to be created so far.

6.8 *The reform to introduce a seven-year primary education will certainly lead to an increase in enrollment in JSE and the overall population education expectancy life (which is now about 4 years)*. At first glance, the increase in primary enrollment under a seven-year primary cycle appears as an effort to increase primary access alone. But by shifting the two JSE grades to some 20,850 public and private primary schools, more space will be freed up at the junior secondary level the first years of implementing the reform. In the seven-year primary education cycle, almost all 12-15 year olds are expected to have seven years of schooling, while in the current education system, only around 25-30 percent of the relevant age group would achieve this same level.

6.9 *Reforming the primary cycle to introduce a seven-year primary cycle requires an implementation plan that takes into account the preparedness and the different contexts of the primary schools.* Phasing in the reform would be required in order to balance required public resources with expected public resources. In that regard, the seven-year primary cycle reform may not be undertaken at the same time for all primary schools, but should be phased in according to their readiness in terms of school places, teachers and financial means. Priority may be given to primary schools located in areas or districts where JSE schools are not accessible and where students have to live outside of their home village in order to attend JSE schools, or in areas or district where the shortage of places in JSE schools is the greatest. Therefore, the existing JSE schools will gradually switch from four to three years according to the GOM's plan to set up a 7-3-2 system.

6.10 *Better quality and relevance of primary education needs are key conditions to being able to retain students in the seven-year primary cycle* as opportunity costs increase with student age. If parents are not convinced that it is in everyone's best interest for their children to stay in school for an additional two years, a decline in the primary school completion rate could result under the new system. Students may continue to leave after five years or less and would be even further away from completing primary school, pulling down the current primary completion rate from its current 60 percent. Messages on the benefits of the reform in terms of student achievement and economic prospects will have to be conveyed to parents and communities to encourage them to keep their children in primary school for two more years. To that end, curriculum relevance and flexibility to meet local needs is essential. Another option for encouraging primary completion is to make it compulsory, which is currently not.

6.11 *Better qualified primary teachers are needed for the two additional years.* During the years needed to introduce the reform, the number of required primary teachers will increase while the required number of JSE teachers will decrease significantly. As discussed in Chapter 4, most of the JSE teachers have not been trained as teachers. Only 20 percent of current lower secondary teachers and 33 percent of upper secondary teachers have completed pre-service teacher trainings. For the two additional years, subjects and teaching and learning methods would differ completely from those of the existing primary school. That would require a higher number of better qualified and more specialized teachers. One solution to respond to that need is to redeploy the existing JSE teachers who do not have teacher certification but with the required academic level to teach at JSE level (which is the Baccalauréat in the current system). The latter can be trained to be able to teach two or three subjects. The best approach is to have two teachers for two additional classes, one teacher to teach art, languages and social subjects, and one teacher to teach mathematics and sciences. In parallel, the curriculum could be reviewed as part of the revision of the JSE curriculum to integrate some related subjects in order to increase teaching time, since ninety-five percent of secondary teachers currently teach fewer than the required 20 hours.

6.12 *A school construction strategy is needed to ensure that local capacity exists to implement a large investment program at the primary level.* So far Madagascar has shown low capacity in school construction as well as high construction unit costs (on average, classroom unit cost is about US$10,000-13,000 compared to about US$7,000 in the region). Promising actions for increasing capacity are already underway, in particular, decentralizing school construction management to regional levels, and production of technical standards and planning norms to reduce the construction unit cost. In the medium-term, an option to increase the pace of school construction is to devolve school construction management responsibilities to local communities/administration. Nowadays, central ministries in developed countries are no longer involved in daily school construction management.

6.13 *Capacity building is needed.* Primary education reform will be a long process because it will have an impact on other education levels. Thus the reform encompasses several levels as well as complicated tasks and studies. To that end, a comprehensive capacity building and technical assistance program will be needed to support the Government and to ensure that the reform is implemented with due diligence.

Challenge 2: Given public resources scarcity, expanding the Secondary Education in Madagascar implies higher internal efficiency, better use of existing resources as well as structural measures. Addressing the low internal efficiency requires a sound strategy since high repetition rates have lasted several decades with the traditional concept that repetition could improve quality. Resolving the issue on overstaffed administrative units and low compliance with teachers' teaching regular time can lead to critical actions such as firing/retiring an important number of administrative staff, redeploying teachers and redefining SE teachers' profile. A better use of public resources also raises the question on equitable financing of the overall education sector, where school fees should be increased and what is the reasonable balance between levels of education in terms of students' enrolment and public resources allocation.

6.14 Domestic resources are clearly not enough to cover the investment costs of expanding SE education, so the extension of secondary education will require external resources. In that respect, the most important question is the capacity of the country to ensure a sustainable financing of the recurrent costs. Some actions that may help to address the financial gap on recurrent costs are presented below, including (i) reduction of student unit costs; (ii) sharing SE costs with other stakeholders; and (iii) balancing public resources allocation among education levels.

Reduction of student unit costs

6.15 For the reduction of student unit costs, the following actions could be envisaged: (i) improvement of the system's internal efficiency; (ii) better use of human resources; (iii) introduction of new teaching/learning practices; (iv) reorganization of schools; and (v) simplification and relevance of the curriculum.

6.16 *Improving internal efficiency*: As presented earlier, high repetition and drop out rates in Madagascar SE education result in a waste of resources. The congestion in the last grade of each SE cycle due to high repetition rates cannot be solved unless access to further study or alternatives for training or work are created. However, for the remaining grades, measures could include (i) improvement of the pedagogic transition between primary and JSE in order to avoid high repetition rates in first grade of JSE schools; and (ii) establishment of a regular assessment system which could lead to corrective measures/actions at the classroom level. Box 6-1 shows experiences in OECD countries on reducing repetition rates.

6.17 *Better use of teacher and staff*: The high student to teacher ratio and the elevated number of administrative staff have been repeatedly raised as a cause of the lack of cost effectiveness of the SE system. A better use of teachers implies that most of teachers comply with the regular teaching time. This requires reviewing teacher deployment, and training teachers to enable them to teach more subjects. Another option is to use community teachers with local contracts on a time-based salary system provided that they meet minimum qualification standards. Most of the administrative staff are former teachers who have been appointed to administrative positions for health disability reasons, and over the years, this has resulted in an elevated number of administrative staff. Like in primary education, an early retirement plan can be introduced for administrative staff to release places for new teachers' posts. In that regard, human resources management, including the assessment and awards system, needs to be strengthened in order to ensure close monitoring. All those options are cited but further studies would be needed for their implementation.

Box 6-1: Experiences of industrialized countries in reducing repetition rates

Repetition is a serious problem in many African countries, whether French or Portuguese-speaking. The large number of repeaters unduly increases the number of pupils enrolled without necessarily increasing the learning achievements of those who repeat. It also increases the age span within schools and classes, which can cause problems. In many English-speaking countries, automatic promotion is the rule; this introduces heterogeneity in schools and classes among pupils as regards their educational knowledge. Sustaining quality is a pedagogical challenge.

The experience of several OECD countries is interesting in this respect:

- First, there is a trend away from repetition, which is considered a waste of time and money for the individual as well as for society. It is even considered counter-productive to further learning if students are discouraged.
- Yet automatic promotion is not applied bluntly: remedial courses are being organized to support the weaker students by teachers, peers or members of the community; summer courses are proposed etc.

Such measures would probably be cheaper to introduce than having 20 to 40 percent of pupils repeating and many dropping out without having acquired the minimum knowledge and skills.

This would not reduce repetition of pupils who failed selective examinations: only opening up access would do so. Yet placing education within a lifelong perspective and offering alternative education or training could contribute to lessening the demand for higher levels of education. Introducing fees beyond certain levels and introducing scholarships for brilliant disadvantaged adolescents would have the same effect.

Source: SEIA Literature study, IIEP:" Trends in secondary education in industrialized countries: Are they relevant for African countries"; World Bank, Africa Region, June 2004.

6.18 *Introducing new practices*: Recent experiences in primary education in Madagascar show comparatively low costs of distance learning and training versus traditional teaching. Using distance learning in a low population density and a large number of small size schools across the country could be an option to respond to the issue on economy of scale. However, this needs additional study to assess how cost-effective it would be and what are the requirements for introducing distance learning and training in SE.

6.19 *Reorganizing SE schools*: In theory, all individual JSE and SSE schools in Madagascar are supposed to provide special facilities for sciences and practical courses. Due to lack of public resources, such facilities are not yet functional in most of SE schools. In the future, practical courses and labs will be needed, which will impact student unit costs. However, given resource scarcity, not all SE schools could benefit from such facilities. One option stated in the MAP is to create special SE schools of excellence at the district or regional levels, which would provide the necessary modern equipment and facilities with better trained teachers and new teaching and learning practices. These schools of excellence will also provide assistance to help a group of lagging schools to improve their performance. In India, some of such schools are run by private entities with boarding facilities and scholarship mechanisms to accommodate poor and good students from distant places. With respect to SSE, in urban areas public "lycées" could be grouped into specific streams to optimize the use of expensive facilities and equipment in urban areas, while for rural areas where school size is critical, special schools of excellence as proposed for JSE could be envisaged. However, these options need to be assessed in order to ensure that other SE students would have a minimum access to those facilities.

6.20 *Simplification and relevance of the curriculum:* The internal efficiency is also low because of high dropout rates. Dropout rates are to a certain degree due to overloaded curriculum (10 to 15 subjects) which is too difficult for students. Moreover, SE students do not persevere because the link between curriculum subjects and needs within the local labor market is not obvious. So far the SE curriculum is designed to prepare student for higher education although most of them will drop out before completing the SE. One option is to move from a rigid centralized curriculum to a more flexible decentralized curriculum. This option requires appropriate capacity at decentralized levels, since they have to be able to design a proportion of the curriculum content to reflect the local or regional context.

Sharing SE costs with other stakeholders

6.21 In addition to GOM, SE stakeholders also include individual families, private schools, local communities and local/regional public administrations. SE public school resources are made up primarily of central government contributions and student registration fees. Good practices are already being implemented to raise other local resources through school councils and the capitation budget system. To respond to accelerating SE enrollments: (i) public resources should benefit predominantly poor students, with wealthier students contributing more, this is more appropriate for JSE if this level is considered as part of basic education; (ii) local/regional administrations should be involved in funding SE; and (iii) public-private partnerships should be promoted.

6.22 *Public/private partnership (PPP):* PPPs may help address access issues. There are many schemes for public/private partnership. Private SE schools in many areas in Madagascar have lowered their enrollment fees as a result of hiring part-time public teachers. Where education costs are funded by public resources, enrollment fees can be lowered. A rapid survey shows that renting accommodation is a major part of private school expenditures. In that regard, in some areas, contract with private schools for the use of public investments/facilities provided that they enroll a certain proportion of poor students with modest fees. Another option is to provide a direct subsidy to private schools serving disadvantaged children and this will encourage the establishment of more private schools to help address JSE access needs. South Africa provides subsidies of about 500,000 rand a year to schools serving disadvantaged students. The schools charge modest fees and often receive additional private funding. Mixed funding of this sort is increasingly the model for the independent sector in South Africa.[31]

[31] *Ladders out of Poverty,* The Economist, April 8th to 14th, 2006, p. 9

Box 6-2: Public/private partnership can be one of the solutions for improving access to good quality secondary education

The coincidence of shared interests and demographic pressure has led to increased interest in public-private partnerships (PPPs) in secondary education. Public-private partnerships are tripartite arrangements involving a private sector firm, a public entity ranging from local government to the national level, and civil society, the non-profit private sector. Civil society is represented in the partnership through NGOs or other community-based groups. There are several models of public-private collaborations, but three, adapted from World Bank studies, are particularly relevant.

- In the first model, a private sector firm adopts a school or schools. Often firms will adopt a school or schools in the area in which the company is operating. Supported activities range from providing textbooks to refurbishing buildings. Government involvement may vary from simply identifying a school to active collaboration with the private sector firm on a host of issues. Local civil society may be involved through PTAs or other community-based groups.
- In another model, the private sector firm provides a specific product to a school or the entire system. A firm may identify a specific educational aid or need and supply a product, often with the hope that the product will prove useful and generate later sales to the national government. If information technology is involved, often international NGOs work with local NGOs to build local capacity.
- In some instances, the partnership takes the form of the private sector firm actually operating public schools. In areas where government resources are particularly meager or public schools have failed, private companies may assume operation and management of selected public schools or systems. This model may prove particularly useful to companies operating in post conflict situations. NGOs may or may not be involved.

Source: SEIA First Regional Conference: "Public-Private Partnerships: A New Paradigm for Sustainable Development in Education"; World Bank, Africa Region, Uganda, June 2003.

Balancing the distribution of public resources across education levels

6.23 As JSE is part of basic education, public resources should benefit that level more and private contribution should be more requested for higher levels. For instance, SE does not benefit from public investment because pressure for financing of tertiary education is stronger; student scholarship programs are limited in SE while almost all tertiary education students who are from the wealthiest quintiles receive a scholarship. In a context of very limited domestic resources for SE, the GOM may reconsider the public resources allocation between SE and tertiary education since a huge bulk of the tertiary education expenses relate to social programs. An option to balance public/private resources in SE is to lower enrollment fees in public JSE while increasing them in SSE and tertiary education.

6.24 The need for balancing the share of public resources across education levels raises the question of students' selection between cycles. To certain extend, the objective to educate/train all children until they reach the regular working age is one of the strong reasons for increasing JSE enrollment in Madagascar. Whereas setting quantitative targets for SSE enrolment rate is more complicated because information on labor market needs as well as the number of SSE graduates needed for tertiary education are lacking. Nonetheless, a massive enrollment in JSE suggests to maintain an entry selection for SSE because (i) the objective to meet international standards for SSE will only be sustainable with a low SSE enrollment; and (ii) to avoid a severe selection process at the end of the SSE cycle.

Challenge 3: In the context of Madagascar, increasing access and equity to SE schools implies expanding places in existing JSE and SSE schools as well as making JSE and SSE schools accessible for remote areas and poor students. Some traditional solutions may be expensive because of low population density in most regions of Madagascar and the way the JSE schools are currently organized. Therefore alternative and innovative ways to deliver SE for remote areas and poor students are imperative. Optimizing the use of existing facilities to accommodate more JSE students is a watchword, double shifting, open schools, multigrade schools are among other innovative solutions.

6.25 Improving access to SE has implications for both the supply and demand sides. With respect to the supply side, in addition to the need for more public and private funding, the expansion of SE enrollment requires in the short-run introducing a double shift system whenever possible, and in the medium-term, a small size school-based strategy if a massive and equitable JSE system is expected. Expanding access also means developing a sound strategy for school construction. On the demand side, in addition to the relevance of the SE curriculum, the main policy is to implement a student scholarship strategy to help students in need to continue SE education.

Implementing a double shift and open schools in some JSE schools rather than overcrowding classrooms

6.26 School response to rapid demand increase for JSE has been to increase class size resulting in the risk of overcrowding classrooms. Another option is to set up a double shift system in schools where large class size is hampering education quality. A double shift system is possible when enough teachers are available to avoid a risk of overloading the teaching staff. At first glance, this option might be possible since few JSE teachers meet the regular teaching time. The GOM may also consider the use of existing JSE and SSE facilities for open school system to increase access but also provide a second chance to continue on to further SE to students who dropped out because of shortage of places.

Developing a small size JSE schools network

6.27 A strategy on small-size JSE schools should be addressed because of the low population density and the scattering of small villages across the country. For the time being, 50 per cent of JSE public schools have four classrooms because they are located in urban and suburban areas, but in the future JSE public services will be requested in remote and difficult access zones. For instance, since the EFA plan is implemented in primary education, two thirds of rural primary schools are located in difficult access zones and 50 percent of public schools have only one or two classrooms. In order to assess the usefulness of small JSE schools in remote areas, a comparative study of costs of creating a CEG/secondary school in the area versus implementing student scholarship programs to assist students to attend school in other localities should be carried out on a case-by-case basis. Moreover, teacher mobility should be assessed to ensure that one teacher could cover few JSE schools, as already stipulated in official regulations.

Making better use of existing classrooms in JSE during the transition for a 7year primary education

6.28 The implementation of the reform requires comprehensive construction plans at district and school levels. Situations across districts and regions vary and each case should be treated individually to take into account (i) small primary and JSE schools; and (ii) the surplus of classrooms in JSE schools for a period of time. Some international practices might be useful. For small schools in the United States, SE multi-grade classrooms are used in rural areas, while in other countries, primary and JSE schools are located on the same premises to provide a unified and compulsory cycle. In some areas of Madagascar, parents built classrooms and recruited community teachers for their children to pursue the JSE level. Some CISCOs have also worked with communities to establish partial JSE programs locally. For a short period of time (3-4 years) the vacant classrooms in JSE schools could be used by the closest primary schools to extend their primary cycle.

Developing student scholarship programs

6.29 Following the success of implementation of the EFA national plan, the bulk of SE demand will come from the poorest students and in remote areas for the coming years. Enrolling these students in JSE will require financial support as economic constraints are the main factor preventing them from continuing on to further secondary education. Creating a scholarship program for needy secondary students (girls and boys) could help address the issue of affordability, which would require reviewing scholarship assistances policy in all cycles, including tertiary education.

Box 6-3: Scholarship programs in Madagascar – Previous experiences

During the First Republic (1960-1972), the GOM had a scholarship program that also gave cash to deserving families in order to help them send their children to school. More recently, Madagascar has had experience with the Ambassadors' Girls' Scholarship Program, sponsored by the US government and implemented by PACT in Madagascar. The program has existed for six years and operated in all six Regions. There are roughly 1,000 girls benefiting from this program that get a bursary of 100 dollars per year (10 dollars each month during the school year). The money is only meant to support the school expenses for the girl concerned and up to 30 percent of the money can be used on food. This rigidity of the program and close supervision are quite time-consuming and the strong focus on an individual poses problems in a society that thinks in terms of households and not individuals. Moreover, it becomes difficult to only have one child in a family benefit and to restrict the use of the funds for food, since access to food is critical to school attendance.

Source: Feasibility Study on Conditional Cash Transfers in Madagascar – World Bank Consultant report – November 2005

Challenge 4: Improving quality of SE education remains a challenge and particularly when there is not any definition and instrument to measure it, teachers' commitment to education quality is constrained by lack of incentives, high proportions of teachers and students have insufficient mastery of the language of instruction, capacity of the national teacher training system is weak in both qualitative and quantitative terms, and there is not any accountability mechanism for SE quality. Despite the fact that JSE teachers are relatively better paid they are facing economical difficulties in their daily life; the average population income in Madagascar is still low. Most of SE teachers are providing private tutoring and high stake examinations encourage them to "teach for the test".

6.30 Improving quality suggest combining actions on several aspects. In the context of Madagascar, strategies to improve quality should emphasize (i) provision of textbooks and teaching/learning materials; (ii) developing a teacher training and management system; (iii) developing a quality control system and; (iv) developing a policy on language of instruction..

Provision of textbooks and learning materials

6.31 Provision of textbooks and learning materials is an urgent action for JSE and SSE in Madagascar. However, options for acquiring textbooks need to be well coordinated with decisions on the curriculum review. The main issues relates to the appropriateness of purchasing existing textbooks in the national/international markets, or printing new textbooks according to existing or to a new curriculum. Those questions need to be addressed because SE students continue learning in very poor conditions.

Developing a teacher training and management system

6.32 *Teacher training* options need to be reviewed. Teacher training centers tend to copy the practices found in secondary schools, and often suffers from many of the same problems such as isolation, neglect, lack of resources and poor quality control.[32] South Africa recently dismantled teacher colleges due to lack of quality and now all its teacher education programs are organized and supervised by universities. On the other hand, graduates of teacher training centers may be more likely to stay in rural or remote provinces than graduates of universities. In Madagascar, JSE regional teacher training centers need to be reopened while the two tracks for SSE teacher training need to be streamlined.

Box 6-4: Some Features of Improved Teacher Education Curriculum

Findings from the five-country MUSTER project(1) suggest that an improved teacher education curriculum should have the following aspects:

- It should equip trainees with the necessary language fluency and capability to serve the needs of the school to which they will be posted.
- Training materials should be locally written and produced if externally produced materials are scarce or insufficiently relevant.
- The curriculum should challenge the trainee to reflect on his or her own practice. Learning to teach means acquiring not only knowledge and skills but also an understanding of learners and how they learn, along with repertoires of strategies for dealing with unique and ever-changing circumstances.
- The curriculum must have the flexibility to take the trainee's prior experiences into account.

(1) Lewin, K.M; Stuart, J.S. 2003. *Researching Teacher Education: New Perspectives on Practice, Performance and Policy*. Multi-Site Teacher Education Research Project (MUSTER) Synthesis Report. London, Department of International Development. (DFID Educational Paper 49a.)
Education for All: The Quality Imperative, EFA Global Monitoring Report 2005, Christopher Colclough, Director, p. 162

-

6.33 *Creating incentives for good teachers* can contribute to better student achievement. Currently there are no rewards for good teaching and no ramifications for poor teaching. A teacher incentive program could be created to make teachers more invested in their students' learning progress, and less focused on the private tutoring most of them provide to wealthier students. Non-material incentives (recognition and prestige, professional growth, job stability, adequate teaching conditions, etc…) should be capitalized on possibly combined with monetary incentives. Various options could be used: (i) direct awards to individual teachers tied to student performance; or (ii) global awards to whole schools. Such a program requires a reliable assessment system as well as an equitable system that gives all schools, teachers and students an equal chance to achieve. A study on teaching conditions in Madagascar, teachers' attitudes and concerns, and how other countries reward teaching excellence could inform the design of such a system. Adequate consideration is important since studies have concluded that poorly designed teacher-incentive systems have little effect.

6.34 *In-service teacher training* for secondary teachers is almost non-existent and strongly needed given the inadequate preparation of most secondary teachers. Distance learning programs for primary teachers are being developed under the EFA Plan. Expanding those efforts to include the needs of secondary teachers should be considered. Secondary schools, in general, are better equipped to participate in distance learning programs since they have electricity and some JSE schools have ICT equipment.

[32] *Developing Science, Mathematics and ICT Education in Sub-Saharan Africa: Patterns and Promising Practices,* World Bank, SEIA Thematic Study

6.35 *Teacher recruitment* is currently handled by central offices, and individual schools have little control over hiring and firing. It is difficult for SE school directors and councils to request better student learning outcomes of teachers since they have no control over their contracts. Teacher evaluations are a simple administrative process and teachers are promoted according to their years of service. Increasing responsibility at the school-level will allow the council or directors to reward teacher performance directly. Alternative approaches to teacher recruitment should also be considered. One approach is to develop a technically sound aptitude and motivation test.[33] Trinidad and Tobago gives people who are considering a career in teaching a chance to practice as teaching assistants before making the commitment. In 2000, South Africa put a system in place that gives adult educators credit for relevant learning experiences and qualifications as they work toward a teaching accreditation.

Developing quality assessment system

6.36 *A student assessment* system which leads to corrective actions at classroom level is an option. So far parents refer to the BEPC and the Baccalauréat pass rates to determine school quality. These examinations have a strong influence on the teaching and learning process and can often result in 'teaching to the test.' Findings in others SE examinations are also topical in Madagascar; examinations tend to focus on knowledge and understanding, while practical skills, reflective skills, local application, and attitudes are often hardly assessed.[34] Criterion-referenced and outcomes-based assessment that is being considered by a number of countries could offer alternatives to traditional assessment. Namibia, Botswana, and South Africa have made criterion-referenced testing a policy priority.

6.37 *Continuous school-based assessment* could be introduced as part of the final examination. The greatest value of continuous school-based assessment lies in its potential to monitor student learning with the goal of improving the teaching and learning process. In practice, however, testing at the school-level is rarely used for instructional purposes or to provide feedback to learners. More attention should be paid to the formative nature of assessment, and more weight should be given to assessment methods that "*keep students in the system rather than selecting them out.*"[35] In Botswana, South Africa, and Ghana, school-based assessment results amount to, respectively, 20 percent, 25 percent, and 30 percent of the examination marks. In contrast, the only score of importance at the end of SSE in Madagascar is the baccalauréat exam. Admission into university is based solely on the results of the baccalauréat performance in SSE.

6.38 *School management quality* is a new concept to be promoted at all education levels in Madagascar. Some actions are already underway for primary education and they consist on setting up some key management tools at different levels of the education management chain and on increasing participation of the main stakeholders. The objectives are also to make better use of resources and to make school directors and teachers more accountable for better student learning outcomes. Such a system can be expanded to JSE and SSE schools, but prior to any action, SE schools could be allowed to manage their own budget and a sound and equitable SE school financing system needs to be put in place in order to link resources allocation to activities and expected results.

[33] EFA Global Monitoring Report
[34] Ottevanger, W., Akker, J., Feiter, L. Developing Science, Mathematics and ICT Education in Sub-Saharan Africa: Patterns and Promising Practices
[35] Ibid, p. 20

Language of instruction

So far there has not been any system to measure SE teachers' skills in French as language of instruction, but it can be thought that most of them may not have sufficient foundations to teach in French because (i) they had been trained in Malagasy for their formal education; and (ii) only few of them had received pre service training. The situation is worsened by the fact that most primary graduates are not able to learn in French. In response to that issue, the GOM has reviewed its languages policy and Malagasy will be from now on the means of instruction for primary education while French as a second language will be reinforced. The impact of this new policy language will take a certain time and meanwhile increasing SE teachers' skills in foreign languages become an urgent need.

Challenge 5: Increasing the relevance of SE means that SE should also prepare students for the transition to work. This is a new concept which breaks with the traditional concept of SE to prepare and select students for tertiary education. As a new concept its application may face some opposition amongst parents because so far most children enrolled in SE schools are from the wealthiest quintiles and therefore they only expect to get prepared for tertiary education. The relevance of the SE education is a key concern in the reform of the current curriculum which will cover primary and secondary education. With the introduction of the 7year primary education, the whole education curriculum will be reviewed.

6.39 *The ongoing curriculum review is an opportunity to address keys issues in JSE and SSE curriculum.* The JSE and SSE curricula need to be updated to focus on the competencies and skills required in the modern workplace and to introduce new subjects like ICT and economy. In OECD countries, generic skills for employment (resource utilization, information management, technology application, system comprehension and team work) are introduced in junior secondary, while industry-specific skills are introduced in senior secondary school. Technical SSE streams do need particular attention since they meet neither labor market needs, nor do they prepare graduates to perform in the university setting. Attempts to focus more on general subjects in the Technical SSE resulted in about 15 compulsory subjects, reduced learning time for all subjects and a 10-day national exam (the General Baccalauréat is 3 days).

6.40 *Adding vocational subjects to general SE curriculum could be an option for a higher relevance of SE.* As JSE and SSE will be the final education cycle for many of SE students, including vocational subjects will prepare them for a smooth transition to work. In Africa, some countries (Botswana, Kenya, Ghana etc…) implemented such a practice and different modalities have been applied. In order not to overload the curriculum, vocational subjects are elective in some cases and are not considered for student assessments. Both JSE and SSE schools can decide on the subjects to be included according to local context. A main constraint is the capacity to provide relevant capacities and equipments for effective practical courses. For instance in Kenya, vocational subjects are accounting, agriculture, building and construction, commerce, computer studies, drawing and design, economics, electricity, home sciences, metalwork, power mechanics, typewriting with office practice, woodwork[36].

[36] Vocationalisation of Secondary Education Revisited, Jon Lauglo and Rupert Maclean, UNESCO, 2005

Box 6-5: Developing Core Competencies

In a world where knowledge is created, distributed and accessed ever more rapidly, peoples' need to memorize such knowledge is declining. Instead, they need the appropriate tools for selecting, processing and applying the knowledge required to cope with changing employment, leisure and family patterns. This accounts for the growing tendency in education to develop competencies rather than teach factual knowledge.

There has long been a consensus in Europe that mastery of the three 'Rs' – **reading, writing and arithmetic** – is necessary but insufficient for a successful adult life. The Report on the Concrete Future Objectives of Education and Training systems (European Commission, 2001b) states: 'Ensuring that all citizens achieve an operational level of literacy and numeracy is an essential precondition to quality learning. These are the key to all subsequent learning capabilities, as well as to employability."

A group of competencies that have attracted a great deal of attention in recent years are **generic skills,** also known as subject-independent or transversal competencies. The transferability and flexibility of generic skills makes them invaluable tools for successful action in highly volatile environments where purely subject-related competencies are very short-lived. Some prominent generic skills are: **communication, problem-solving, reasoning, leadership, creativity, motivation, team-work and the ability to learn .**

Alongside skills and knowledge, attitudes are the third defining characteristic of competence. In the educational context, attitudes are most closely associated with **personal competencies** such as **curiosity, motivation, creativity, skepticism, honesty, enthusiasm, self-esteem, reliability, responsibility, initiative and perseverance**.

Source: Key competencies –Directorate –General for Education and Culture – Eurydice, 2002

6.41 *Reviewing the curriculum and teaching/learning methods on Mathematics, Sciences and Foreign languages is an urgent need.* There is a huge gap between the intended curriculum and the implemented curriculum. As a result, the desired student exit profile is not met. For example evidence shows that JSE graduates are not able to communicate in English while they spend more time in other activities.

6.42 *Developing decentralized curriculum system to meet local working conditions is an option.* A quality secondary system has a great deal to offer Madagascar. As stated in a recent report on SE schools survey[37], parents expressed concerns about the irrelevance of some subjects that are taught in secondary education[38] and do not prepare their children for local working conditions, which are very diverse in Madagascar. The business community is not consulted on curriculum content and a national qualification framework does not exist. Also underscoring the need for further reform, the consensus among teachers is that the curriculum is "overloaded" with too many subjects, some of which may be of little use to students in the real world[39].

6.43 *Clear assignment of curriculum management* is required for the implementation of the complex and long process of curriculum review. The aim of curriculum management is to ensure that: (i) the intended curriculum is of quality and relevant to the students' lives; (ii) it is effectively implemented at the school level; and (iii) curriculum standards are applied nationwide. To address the weaknesses in curriculum development capacity, a specific unit has been created within the MOE for the reform of the SE curriculum. This curriculum reform will be initiated in the near future along with the introduction of the 7 year primary. The process will be completely different of that of previous reforms which had been confined to a technical process with limited participation of other stakeholders and several subjects have been added without subtracting others. Figure A. 1 in Annex 3 shows an example of the cycle of curriculum management (Design – Implementation – Assessment).

[37] MENRS/CRESED 2005
[38] MENRS – SE schools survey 2005
[39] Opinions among teachers and administrative staff, CRESED, 2004

Box 6-6: The reform of secondary Education in Indonesia during the 1990s: Improving Relevance and quality through Curriculum Decentralization

The main goal of the **Local Content Curriculum** (LCC) is to give students the opportunity to develop their abilities, to some extent, to suit the needs of their respective regions. The objectives of the LCC are for students to: 1) gain a better knowledge of their immediate natural and social environment, and 2) acquire basic skills, life skills, and income producing skills to become useful members of their communities. The LCC, therefore, in each province might vary in the following areas:

Local Culture: local language, local arts, manners/morals, traditional dances, local wedding customs, folk games, local history, local music, and local singing;

Basic and Life Skills: painting/drawing, typing, administration, commerce, trade, computer skills, electronics;

Income Producing Skills: home industries, agro-industries, janur (coconut leaves) making, farming, fishery, cane work, wool craft, cooking, batik making, dress making, sewing, handicrafts, ceramic making;

Environmental Education: marine education, planting, tourism, life in a metropolitan city; and

Second Language: English in primary school, Arabic reading/writing, Al-qur'an reading/writing.

In grades 1 through 9, the nation provides guidelines for courses such as Basic Courses Outlines (BCO) and Implementation Guidebooks. According to these guidelines, there are requirements for what students in grades 1 to 9 must study. Both national and local curriculums have guidelines, such as BCOs and Implementation Guidebooks. These guidelines provide information of what teachers should teach. Teachers, however, have some autonomy to make adjustments according to the students' immediate environment as well as their interests and needs.

Source: Website - Global Information Network on Education (GINIE) – Country studies - Indonesia

Challenge 6: Reforming the TVET system to set up a demand driven system is necessary. That is easy to say but difficult to implement in a context where the informal economy is strongly predominant and private companies are more interested to train themselves their workers and technical staff. Therefore, two strategies are to be considered, a VT led by the private sector which can have several mechanisms and the expansion of apprenticeship to meet the needs for the informal economy.

6.44 As presented in previous chapter, the TVET system in Madagascar has been patterned after the old traditional French system, and is mainly supply-driven. Due to economic constraints, TVET centers have not been able to invest in new technologies and train trainers. As a result the TVET system is not able to meet the needs for either the formal economy or the informal economy, which embraces about 80 percent of workers in Madagascar. These issues should be considered in the reform of the TVET system.

Empowering the private sector for a demand-driven VT system for the formal economy

6.45 The current system with traditional public VT centers and VT programs in the LTPs has little capacity to provide large pre-service training for workers. Moreover preliminary studies show evidence of lack of linkages with the private sector. In that regard, the current institutional organization for VT needs to be reviewed in order to promote private participation. Creating a national structure for managing the TVET system may not be appropriate because of the limited coverage of formal economy in Madagascar. In such a context, the private sector has an important role in leading the process and the GOM could facilitate the process. Some initiatives are being launched in some clusters (textile, tourism, etc...) and may provide examples for other clusters. Public/private partnership is a key word in this sector and existing VT public facilities may be marketed for joint exploitation with the private sector. Several options exist for VT funding but their implementation in Madagascar still needs further study. The most known mechanisms are (1) payroll levies on employers; (2) tuition and other fees paid by enterprises or trainees and their families; (3) production and sale of goods and services by training

institutions; (4) community support and donations; and (5) indirectly, the expansion of non-government provision.[40]

Developing traditional apprenticeship for informal economy

6.46 Formal VT programs cannot provide all skills required for the informal economy in Madagascar. Since the informal economy dominates the labor market, a high proportion of SE leavers will work in this sector. Traditional apprenticeships already exist in Madagascar in many fields (car repairing, tailoring etc…) and there is no one single approach. Further study is needed to develop a network of masters, improve existing approaches and assess the funding feasibility mechanisms.

Reviewing the role and curriculum of public LTPs

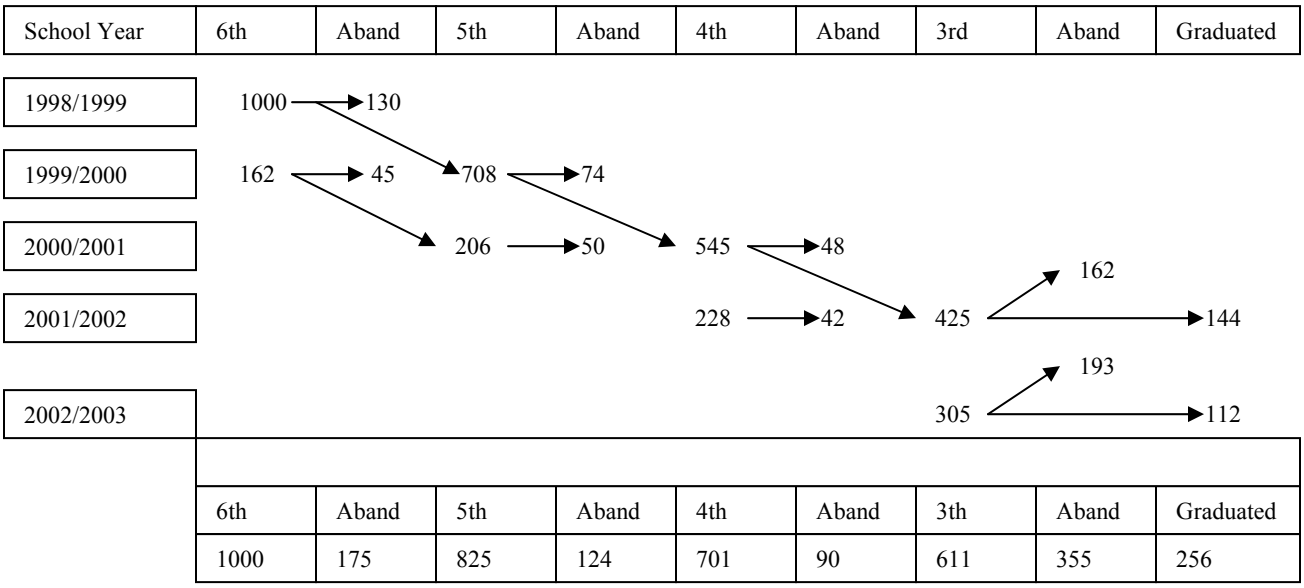
6.47 In order to provide a wide range of knowledge and skills for LTP graduates, the curriculums include over 15 subjects (technical and practical). It appears that LTPs should only focus on TVE programs and not also on VT. Review of the curriculum and existing streams in the LTPs is needed to respond to changes in technology. One option is to focus their programs on the use of new technology in different fields linked to the future economy. That also requires reviewing the required teaching staff which will provide the opportunity to rationalize the high number of administrative and teaching staff.

[40] Skills Development in Sub-Saharan Africa – Richard k. Johanson, Arvil V. Adams- World Bank, 2004

ANNEXES

ANNEX 1– Statistic Tables

Table A. 1: Madagascar - Hypothetical flow of a cohort of 1000 pupils at public level CEG



6th	Aband	5th	Aband	4th	Aband	3th	Aband	Graduated
1000	175	825	124	701	90	611	355	256

Source : CRESED-MENRS - Rapport Final Enseignement Secondaire – IMaTeP, Septembre 2004

Table A. 2: Madagascar - Repetition and dropout rate in JSE (%)

	Grade 6		Grade 7		Grade 8		Grade 9
School Year	Repetition	Drop out	Repetition	Drop out	Repetition	Drop out	Repetition
1998/1999	16	13	12	12	13	6	34
1999/2000	16	12	13	10	14	7	27
2000/2001	16	13	12	13	13	9	22
2001/2002	18	12	12	13	13	6	28

Source : MENRS, Annuaires Statistiques, 1998/1999-2002/2003

Table A. 3: Madagascar - Passing rates to the BEPC and transition rates from JSE to SSE

	BEPC Exam			Transition to the SSE		
Session	Registered	Admitted	Passing Rate (%)	Students number in grade 9	New Registered in grade 10	Transition Rate (%)
1999	71 925	28 377	39.5	62 651	18 047	29.6
2000	71 049	16 519	23.3	63 361	23 574	37.2
2001	79 107	39 621	50.1	68 821	18 753	29.6
2002	74 996	25 390	33.9	64 062	29 067	42.2

Source: MENRS, Annuaires Statistiques, 1998/1999-2002/2003

Table A. 4: Madagascar - Proportion of repeaters and completion rate in SSE from 1998/1999 to 2002/2003

Headings	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Proportion of Repeaters					
Grade 10	12.5	8.1	14.1	6.7	11.0
Grade 11	8.9	11.0	8.1	10.2	8.3
Grade 12	36.4	30.6	33.4	32.6	27.9
Completion Rate	4.8	5.4	5.2	5.7	6.1

Source: MENRS, Annuaires Statistiques, 1998/1999-2002/2003

Table A. 5: Madagascar - Baccalauréat pass rates per track/stream

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
General secondary											
Série A- Arts	29%	26%	38%	32%	34%	33%	31%	37%	45%	33%	44%
Série C- Sciences Major Maths and Physics	28%	22%	25%	29%	41%	27%	31%	30%	37%	38%	45%
Série D- Sciences Major Natural sciences	26%	15%	20%	25%	24%	36%	25%	39%	32%	33%	40%
Total General Secondary	***28%***	***22%***	***31%***	***30%***	***32%***	***33%***	***29%***	***37%***	***41%***	***34%***	***43%***
Technical secondary											
Construction	16%	28%	24%	20%	31%	31%	29%	31%	35%	23%	40%
Industries	20%	30%	36%	25%	28%	28%	34%	27%	39%	24%	41%
Services/Management	38%	57%	46%	40%	56%	29%	49%	46%	35%	36%	55%
Agriculture	38%	13%	24%	17%	20%	11%	21%	50%	57%	47%	64%
Technology							37%	56%	47%	41%	46%
Total Technical Secondary	***27%***	***41%***	***37%***	***31%***	***42%***	***29%***	***40%***	***38%***	***37%***	***32%***	***47%***
General & Technical Secondary	**28%**	**25%**	**32%**	**30%**	**34%**	**32%**	**31%**	**37%**	**41%**	**33%**	**44%**

Source: MENRS

Table A. 6: Madagascar - Staff number by function and level - 2003-2004

Level	Administrative	Teachers	Total
1- Central Ministry	1,033		
2- VTET Central	244		
3- 6 DIRESEB and 111 CISCO	2,646		
4- 6 DFTP	179		
5-Schools	7,303		
a/ General Education	6,667	49,583	
Lycées	1,303	2,684	
Collèges	3,084	8,390	
Public Primary Schools	2,280	38,509	
b/Technical Education	636	1,000	
LTP	442	756	
CFP	194	244	
TOTAL	**11,405**	**50,583**	**61,988**

Source : MENRS

Table A. 7: Required class time in JSE and SSE, Madagascar and Europe

Country	JSE	SSE	Country	JSE	SSE	Country	JSE	SSE
Madagascar	**1080-1152**	**1116-1404**	Italy	933	767	Latvia	723	788
Spain	849	849	Luxembourg	900	900	Lithuania	878	936
Denmark	780	900	Netherlands	1067	1000	Hungary	694	833
Germany	790	846	Austria	870	960	Poland	773	800
Greece	919	788	Portugal	875	613	Romania	878	850
Spain	866	930	Bulgaria	765	837	Slovenia	783	912
Finland	842	957	Czech Republic	782	869	Slovakia	725	837
Ireland	1002	1002	Estonia	788	919	Cyprus	872	845

Source: Eurydice, Key data on education in Europe 1999/2000.

Table A. 8: Required teaching time, Madagascar and selected countries

		Teaching hours per week			Teaching week per year			Teaching hours per year		
	Year	Primary	JSE	SSE	Primary	JSE	SSE	Primary	JSE	SSE
Madagascar	**2005**	**27.0**	**20.0**	**20.0**	**36**	**36**	**36**	**972**	**720**	**720**
Indonesia	2002/03	28.6	16.8	16.8	44	44	44	1,260	738	738
Malaysia	2002	19.1	19.5	19.5	41	41	41	782	798	798
Germany	2003	19.8	18.6	17.3	40	40	40	782	735	684
Brazil	2002	20.0	20.0	20.0	40	40	40	800	800	800
Netherlands	2003	23.3	20.3	20.3	40	37	37	930	750	750
Australia	2003	22.1	20.6	20.3	40	40	40	885	825	813
Egypt	2002/03	20.8	20.8	20.8	36	36	36	748	748	748
Paraguay	2002	19.3	21.4	24.1	38	38	38	732	814	915
Chile	2003	21.6	21.6	21.6	40	40	40	864	864	864
India	2002/03	19.5	21.6	21.6	52	52	52	1,013	1,125	1,125
Ireland	2003	25.0	22.0	22.0	37	33	33	915	735	735
Jordan	2002/03	22.5	22.5	22.5	36	36	36	810	810	810
Scotland	2003	25.0	23.5	23.5	38	38	38	950	893	893
Argentina	2002	21.3	23.7	23.7	38	38	38	810	900	900
Jamaica	2002/03	25.0	25.0	25.0	38	38	38	950	950	950
New Zealand	2003	25.0	25.0	25.0	39	39	38	985	968	950
Mexico	2003	19.2	25.2	23.5	42	42	36	800	1,047	848
Zimbabwe	2003	25.8	25.8	25.8	37	37	37	954	954	954
Russian Federation	2002/03	19.3	27.0	27.0	34	35	35	656	946	946
Philippines	2002/03	29.4	29.4	29.4	40	40	40	1,176	1,176	1,176
Sri Lanka	2002	23.5	30.0	30.0	42	42	42	987	1,260	1,260
United States	2003	31.7	31.3	31.2	36	36	36	1,139	1,127	1,121
Peru	2002	27.8	32.5	32.5	36	36	36	1,000	1,169	1,169
Mean		23.2	23.7	23.6	39.3	39.0	38.7	909.9	918.8	910.8
Relationship between Madagascar and the means in the eleven countries		1.16	0.85	0.85	0.92	0.92	0.93	1.07	0.78	0.79

Source: OECD/UNESCO WEI.

Table A. 9: Structure of the education system in Sub-Saharan Africa countries

Years of study	1	2	3	4	5	6	7	8	9	10	11	12	13
Angola	P	P	P	P	S1	S1	S1	S1	S2	S2	S2		
Guinea Bissau	P1	P1	P1	P1	P2	P2	S1	S1	S1	S2	S2		
Eritrea	P	P	P	P	P	S1	S1	S2	S2	S2	S2		
Madagascar	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2	
Mozambique	P1	P1	P1	P1	P1	P2	P2	S1	S1	S2	S2	S2	
Democratic Republic of the Congo	P	P	P	P	P	P	S1	S1	S2	S2	S2	S2	
Ethiopia	P	P	P	P	P	P	S1	S1	S2	S2	S2	S2	
Gambia	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2	
Mauritania	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2	
Nigeria	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2	
Rwanda	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2	
Sierra Leone	P	P	P	P	P	P	S1	S1	S1	S1	S1	S2	S2
Benin	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Burkina Faso	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Burundi	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Cameroon	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Central African Republic	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Chad	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Congo	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Côte-d'Ivoire	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Gabon	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Guinea	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Ghana	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Mali	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Mauritius	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Niger	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Senegal	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
Togo	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2
South Africa	P	P	P	P	P	P	P	S1	S1	S1	S2	S2	
Lesotho	P	P	P	P	P	P	P	S1	S1	S1	S2	S2	
Botswana	P	P	P	P	P	P	P	S1	S1	S2	S2	S2	
Zambia	P	P	P	P	P	P	P	S1	S1	S2	S2	S2	
Uganda	P	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2
Tanzania	P	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2
Namibia	P	P	P	P	P	P	P	S	S	S	S	S	
Zimbabwe	P	P	P	P	P	P	P	S	S	S	S	S	S
Sudan	P	P	P	P	P	P	P	P	S	S	S		
Kenya	P	P	P	P	P	P	P	P	S	S	S	S	
Malawi	P	P	P	P	P	P	P	P	S1	S1	S2	S2	

Source: SEIA- Donors meeting Amsterdam – A. Mingat, 2004

Table A. 10: Organization of the functions of the Ministry of Education according to levels' of decentralization

Level	Function
Central MENRS	• Sets national policy and does country-wide planning for the sector. • Prepares annual investment and operating budgets. • Allocates resources to the provinces and school districts. • Carries out financial and technical oversight, and quality control of public education institutions, and monitors private institutions. • Manages personnel, including hiring, promotions, and firing. • Manages the insurance fund for school-related accidents (PASCOMA, Protection Accidents Scolaires de Madagascar). • Sets curriculum content and pedagogical standards. • Assures teacher training and skills upgrading. • Collects, analyzes, and reports on education data and statistics.
Region DREN	• Conducts region-level planning, and preparation of the annual plan. • Tracks and reports on regional education indicators. • Does financial and technical oversight of districts and their schools. • Re-allocates staff within the province. • Provides training and technical support for districts and schools. • Serves as intermediary for CISCO reporting to MENRS.
District CISCO	• Supervises pedagogical activities, administration, and expenditures of the primary and secondary schools in the district (EPPs, CEGs, and Lycées). • Maintains student records and manages the annual examination for promotions and award of diplomas. • Re-allocates civil service staff within the district after central approval. • Manages teachers hired on a contract basis by communes and FRAMs. • Prepares an annual district work plan. • Manages the non-salary portion of the recurrent expenditure budget. • Manages the collection and accounting procedures for school fees, PASCOMA premiums, and other Caisse école activities. • Handles distribution of supplies and equipment to schools through FAFs. • Compiles and reports on educational statistics for the district.
Commune Pedagogical and Administrative Zone (ZAP)	• Coordinates between districts and facilities • Supervises teachers and facilities • Distributes parts of equipment, salaries, and cash transfers
Commune / community • Parents-school partnership association (FAF) • Association of parents of students (FRAM)	• Manages school funds (caisse école) • Purchases equipment and pays teachers • Collects student fees and employs and pays teachers (FRAM)
• Public primary school (EPP) • Lower secondary school-(CEG)[41] • Higher secondary school (Lycée)	• Provide education services • Report monthly, quarterly and annually on school outputs and administration

Source : PER 2005

[41] Collège d'Enseignement Général

ANNEX 2: Abstract of Secondary Education Programs in Madagascar

General purposes of Education

The education exempted in the Malagasy Colleges and Lycées must, above all, aim at the training of a type of autonomous and responsible person imbued with the cultural and spiritual values of his country, in particular the "Fihavanana guaranteeing the national unit" (Preamble to the Constitution), as much as democratic values. The identification of oneself, another axis of the education, must lead to physical blooming, intellectual and moral. Trained with the freedom of choice, the future citizen will be brought to take part in the cultural life of the community, to the scientific progress and the benefits which result from it, to promote and protect the national inheritance cultura1, to reach the artistic and literary production and to be ready to contribute to the economic and social development of Madagascar.

General objectives of the education

- To develop the student to a spirit of rigor and objectivity so as to make him ready to open and act on the concrete, complex and diversified world.
- To ensure the acquisition of knowledge on which the progressive development of the aptitudes and the intellectual abilities will be based permanently.
- To allow the student to apprehend the universal character of scientific and literary knowledge on the basis of the Malagasy realities.
- To support the creativity and the spirit of initiative of the student in order to allow him to open out and take part in the development of the country.
- To develop the student to the analytical and critical spirit in order to make him ready to argue, refusing the systematic spirit and dogmatism, to have the concern of the nuance and the sense of the particular case.
- To develop the personality and the capacity of expression and communication.
- To give to the student the intellectual ways and moral to act on his environment in order to promote and to protect this one.

How to read these programs?

A good teacher should have read the Constitution and the Law n.094-033 of March 13, 1995 related to the General Orientation of the System of Education and Training in Madagascar. He must be informed on the general purposes of the education as they appear through these fundamental texts. Because it means, before any act of teaching, to know why and how the Malagasy intends to educate and train his children.

The teacher must then impregnate himself with:

- The general objectives of the education,
- The objectives of the subject which he teaches,
- The objectives of the subject for the grade which relates to him.

These objectives were formulated for the purpose of marking out his daily agenda. Because the preparation of one lesson resemble to the preparation of a trip: we cannot choose what we will put in the suitcase only if we know in advance the destination and its realities. These objectives will be useful thereafter during the monthly, quarterly and annual evaluations, the evaluation always being done according to the objectives.

With each objective corresponds the headings summarizing the sum of knowledge to be transmitted. The teacher must take care that the knowledge, savoir-être and ability that he teaches correspond to the aimed objectives. He must in all times to observe the coherence between Objectives, Process of Training and Evaluation. The

pedagogical indications, the notes of references or recommendations appear in the *Observations* column. These indications prove often useful to clear up certain points.

Thus, the teacher can consequently carry out the preparation of his lessons taking into account the realities of his class and the area where he teaches.

Exit profile for the College

At the exit of the College, the student must be able:

- to use various means or methods of observation and interpretation of the natural and physical phenomena;
- to carry out a logical reasoning;
- to understand the evolution of the social, political phenomena, and the fundamental wheels of the economy;
- to understand and to appreciate the malagasy culture and its values;
- to use correctly the malagasy in the different situations of the daily life;
- to communicate in French and to use correctly this language in the different situations of education/training;
- to communicate in English orally and written ;
- to behave as a responsible citizen knowing his duties and its basic rights;
- to show critical spirit and tolerance;
- to show the creativity and to use in an effective way the knowledge obtained according to the environment in which he evolves;
- to locate his area in the national context in terms of socio-economic and cultural realities, and to apprehend international realities;
- to create and to manage small companies.

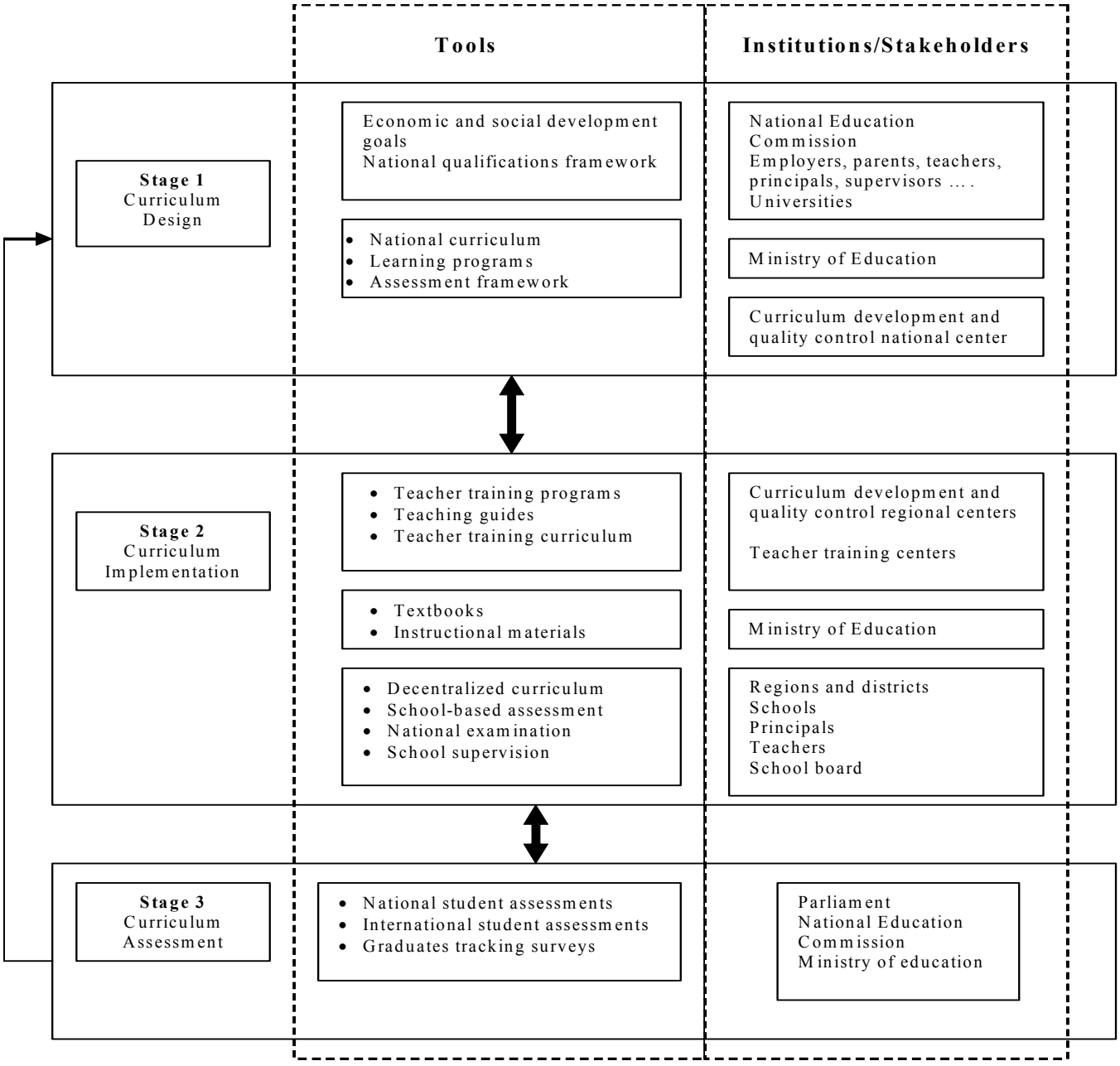
Exit profile for Lycée

At the exit of the Lycée, the student must be able:

- to explain and to interpret scientifically the natural and physicochemical phenomena;
- to carry out a thorough reflexion;
- to explain the mechanisms of the big social and political phenomena as well as the fundamental wheels of the economy;
- to understand and to appreciate the Malagasy and the other nations culture;
- to emit and to defend his opinions orally and written, in Malagasy, in French and in English;
- to respect the fundamental principles of the democracy and the universally recognized rights of the person;
- to affirm itself like person in charge within the community, having acquired a maturity in the field of the reasoning;
- to act with autonomy;
- to show the creativity and to use in a rational way the knowledge obtained according to the environment in which he evolves;
- to locate the place of Madagascar in the concert of the nations from the points of view economic, political, cultural...;
- to take part indeed and effectively in the resolution of the daily problems of the community and its environment for a durable development;
- to create and to manage modest manufacturing units;
- to lead local associations and social works.

ANNEX 3

Figure A. 1: Proposed curriculum management system



ANNEX 4

Table A. 11: Projected domestic resources and education costs of an rapid expansion of the SE by 2015

	2004	2010	2015
Policy parameters			
NER in primary in %	97	100	100
GER in JSE in %	25	38	50
GER in SSE in %	8	15	20
% of JSE students in private school	43	43	43
% of SSE students in private school	47	49	50
Projected resources			
Economic growth rate	6%	6%	6%
Domestic resources as % of GDP	10%	13%	14%
Education domestic budget (% of domestic resources)	23%	23%	27%
Primary education domestic budget (as % of education domestic budget)	54%	42%	42%
Education public expenditures as % of GDP	2.4%	3.1%	3.8%
Projected recurrent costs ($US millions)			
Primary education	54	118	166
Secondary education	24	67	108
JSE	17	40	65
SSE	7	26	43
Other education sub-sectors	22	48	72
Total	99	233	346
Financing GAP on recurrent costs			
For primary ($US millions)	**0**	**39**	**37**
For secondary ($US millions)	**0**	**3**	**1**
Total ($US millions)	**0**	**42**	**38**
Projected investment costs ($US millions)			
Primary education	24	35	35
JSE	1	8	8
SSE	-	3	3
Secondary		11	11
Total investment (primary and secondary)		57	57
Total investment (primary and secondary) as % of GDP		0.9%	0.7%

Sources: Our calculations - MENRS EFA-Plan, April 2005

Bibliography and References

De Walque, Damien. 2004. "How Does the Impact of an HIV/AIDS Information Campaign Vary with Educational Attainment? Evidence from Rural Uganda." Policy Research Working Paper 3289, Public Services, Development Research Group, World Bank, Washington, DC.

Department of Education – Republic of South Africa National Curriculum

Education Review Office, Te Tari Arotake Matauranga, "In Time for the Future", July 3, 2000

Emiliana Vegas, ILana Umansky, "Improving teaching and learning through effective incentives", The World Bank, 2005

Emma Greenaway, "Lower secondary education: an international comparison", September 1999

EURYDICE - The information network on education in Europe, "Key Competencies" - *A developing concept in general compulsory education*, Brussels, October 2002

Feasibility Study on Conditional Cash Transfers in Madagascar – World Bank Consultant report – November 2005

François Robert, Jean-Marc Bernard, "Nouveaux enjeux pour l'école moyenne en Afrique", 2005

Global Information Network on Education (GINIE) - Website - – Country studies – Indonesia

Institut National des Statistiques Madagascar - Households surveys - 2001 2003

Joanna Le Métais and David Sims with Iain Strath and Sarah Golden, "Strategic Market Research: a Study of Overseas Services", National Foundation for Education Research (NFER), 1998

Joanna Le Métais, "International Developments in Upper Secondary Education »Context, provision and issues", *INCA Thematic Study No. 8*, National Foundation for Educational Research (NFER), May 2002

Jon Lauglo, Rupert Maclean, "Vocationalisation of Secondary Education Revisited", The World Bank, UNESCO/UNEVOC, 2005

Lewin, K.M; Stuart, J.S. 2003. *Researching Teacher Education: New Perspectives on Practice, Performance and Policy*. Multi-Site Teacher Education Research Project (MUSTER) Synthesis Report. London, Department of International Development. (DFID Educational Paper 49a.)

MENRS - CRESED, "Etude relative au diagnostic des collèges et lycées publics", Antananarivo, 31 Mars 2005

MENRS-CRESED, "Etude complémentaire sur la demande d'accès aux Collèges et Lycées Publics", Antananarivo, Mars 2005

MENRS-CRESED, "The Progression through School and Academic Performance in Madagascar Study: Preliminary Descriptive Results", 2005

MENRS, "Programmes Scolaires Enseignement secondaire", Madagascar, Février 1996

National Assembly for Wales, "The National Standards for Headteachers in Wales"

Ole Briseid, Françoise Caillods, "Trends in secondary education in industrialized countries: Are they relevant for African countries?" International Institute for Education Planning (IIEP) for the World Bank, Paris, December 20, 2003

Richard K. Johanson, Arvil V. Adams, "Skills developemnt in Sub-saharan Africa", World Bank, 2004

SEIA - *Discussion paper for the 2nd Regional Secondary Education in Africa Conference* - Christian Cox, Ministry of Education of Chile, "Organizing Curriculum Reform in Secondary Education: Clues from Latin America", , Dakar, June 6-9, 2004

SEIA - Thematic study "Recruiting, retaining and Retraining Secondary School Teachers and Principals in Sub-Saharan Africa.". December 04

SEIA First Regional Conference: "Public-Private Partnerships: A New Paradigm for Sustainable Development in Education"; World Bank, Africa Region, Uganda, June 2003

SEIA Literature study, IIEP:" Trends in secondary education in industrialized countries: Are they relevant for African countries"; World Bank, Africa Region, June 2004.

SEIA - Thematic Study *"Developing Science, Mathematics and ICT Education in Sub-Saharan Africa: Patterns and Promising Practices",* World Bank, 2006

Sharon O'Donnell, "International Review of Curriculum and Assessment Frameworks" - *Comparative tables and factual summaries - 2004*, Qualifications and Curriculum Authority (QCA) and National Foundation for Educational Research (NFER), December 2004

The Basic Education Coalition*, Teach a child: Transform a nation*, , Washington, DC, 2004

The South African Institute of International Affairs, "Back to the Blackboard" - *Looking Beyond Universal Primary Education in Africa*, Pretoria, Nepad Policy Focus Report I 2004

The World Bank – Education and Training in Madagascar: Towards a policy agenda for economic and poverty reduction, 2002

The World Bank - Secondary Education in Africa: Strategies for Renewal, Human Development Sector, 2002

The World Bank - Madagascar Development Policy Review, 2005

The World Bank website, Why is Education Important to Development?, April 18, 2005

The World Bank - "Closing the Gap in Education and Technology", 2003

The World Bank, "Critical Issue: Implementing Curriculum, Instruction, and Assessment Standards for Science Education". [Online] at: http://www1.worldbank.org/education/secondary/topics.asp

The World Bank - "Expanding Opportunities and Building Competencies for Young People – A New Agenda for Secondary Education", 2005

The World Bank - Madagascar Development Policy Review: *"Sustaining Growth for Enhanced Poverty Reduction", May* 2005

The World Bank - Concept note - Improving Education Management in Madagascar (IEMAD) – AFTHD – 2005

The World Bank- *Education and HIV/AIDS: A Window of Hope*, 2002

UNESCO - *Education for All: The Quality Imperative,* EFA Global Monitoring Report 2005,

UNICEF - Madagascar Demographic and Health Survey, 2003-2004

USAID - Improving Educational Quality (IEQ), "Secondary Education Reform Case Studies Series", USA

World Bank Policy Research Report. *Engendering Development: Through Gender Equality in Rights, Resources, and Voice.* New York: Oxford University Press, 2001.